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Community-level Correlates of Intimate Partner Violence Against Women in Bangladesh

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Community-level Correlates of Intimate Partner Violence Against Women in Bangladesh

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Abstract

Community-level Correlates of Intimate Partner Violence Against Women in Bangladesh
By Kristin VanderEnde

The relationship between communities and the occurrence of intimate partner violence (IPV) against women is an expanding area of global research. In Bangladesh, however, few researchers have examined community-level correlates of IPV against women. We addressed this gap in the literature through a systematic review of the global evidence regarding the community-level correlates of IPV against women, highlighting significant findings. We built upon the findings from this systematic review in two quantitative analyses of data drawn from the Bangladesh subset of the World Health Organization's Multi-country Study of Women's Health and Domestic Violence Against Women. First, we employed a multi-level contextual effects analysis to disentangle the household and community-level associations between income and physical and sexual IPV against women. Second, we examined the relationship between community collective efficacy, patriarchal norms, gendered status inequalities, and community income in relation to physical IPV against women in a rural area of Bangladesh. Findings from the systematic review revealed an over-reliance on a primarily urban, U.S.-based perspective on communities and IPV against women. Results of the contextual effects analysis showed an association between income and physical and sexual IPV against women in Bangladesh operating at the household, but not community, level. Multi-level analysis of data from rural Bangladesh showed that women living in communities in which few women question traditional gender norms (those with higher patriarchal norm scores) reported lower log physical IPV rates then women living in communities in which a greater percentage of women question traditional gender norms (those with lower patriarchal norm scores). Additionally, the level of patriarchal norms in a community modified the relationship between collective efficacy and physical IPV. Specifically, collective efficacy had a negative association with log physical IPV rates, but this association was strongest in communities with lower levels of patriarchal norms. These findings suggest that future research should focus on the possible protective effect of collective efficacy, especially in communities in which traditional gender norms are in transition.

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Table of Contents

Chapter 1: Introduction

Intimate partner violence (IPV) against women is a violation of human rights and a health problem facing women around the world. The majority of research on IPV against women has focused on individual, relationship, and household level correlates, but more recently, researchers have begun to focus on the relationship between communities and IPV against women. The focus of the current research is on community-level correlates of IPV against women, specifically in the context of Bangladesh. In this introductory chapter, we provide background on the definition, burden, and scope of IPV against women, both globally and in Bangladesh. After reviewing the theoretical and empirical evidence regarding communities and IPV against women, we situate our research in the context of Bangladesh. Lastly, we discuss the aims of the overall study, describing the linkages between the three manuscripts included in this research.

Definition of IPV

The World Health Organization (WHO) defines *intimate partner violence* (IPV), as "behavior within an intimate relationship that causes physical, sexual, or psychological harm, including acts of physical aggression, sexual coercion, psychological abuse and controlling behaviors" (WHO, 2010, p. 11). Generally, IPV is described as a pattern of abusive behaviors and control rather than a single act of physical aggression (Heise, Ellsberg, & Gottemoeller, 1999). Although women may be violent against their male partners (Straus, 1999), and in same-sex relationships (Tjaden & Thoennes, 2000), the consequences of IPV are more severe for women then for men (Breiding, Black, & Ryan, 2008; Swan, Gambone, Caldwell, Sullivan, & Snow, 2008; WHO, 2010). A recent review of the research on women's violence against male intimate partners in the U.S.,

for instance, found that women's violence against men usually occurs in the context of violence against them by their male partners, and while women and men in the United States show similar levels of physical and psychological aggression, men more often perpetrate stalking, sexual abuse, and coercive control. Women in the U.S. are also much more likely than men to be injured during IPV incidents (Swan et al., 2008).

Many different terms in the literature have been used to refer to violence women experience from intimate partners including "wife-beating," "domestic violence," "battering," and "spouse abuse." Often these terms are used interchangeably. Each term, however, may lead to a slightly different interpretation. "Wife-beating" and "spouse abuse" for instance, may be interpreted to exclude sexual or emotional violence, or violence from common-law unions and dating violence. "Domestic violence," on the other hand, refers to abuse of women by current or former male partners in many parts of the world, but in other places, such as Latin America, it may also refer to any violence that takes place in the home (Ellsberg & Heise, 2005). Behaviors included in definitions of IPV include physical abuse (hitting, slapping, kicking, and beating), psychological or emotional abuse (intimidation, belittling, humiliation), sexual abuse (forced sex), and coercive control or controlling behaviors (isolation from family, restricting access to information or assistance) (Heise et al., 1999; Johnson, 2010; Tjaden & Thoennes, 2000; WHO, 2002, 2010). The focus of this research is on IPV in Bangladesh. In the context of Bangladesh, the definition of IPV will apply to men's violence against their wives, because the vast majority of Bangladeshi women and men marry (National Institute of Population Research and Training [NIPORT], Mitra and Associates, and Macro

International 2009), and people in Bangladesh rarely admit to having sexual relationships outside of marriage (Schuler & Islam, 2008).

Burden of IPV

IPV occurs in all countries and across all cultural, social, economic and religious groups (WHO, 2010). In a multi-country study of women from countries in Africa, Asia, Europe, and South America women reported lifetime rates of IPV ranging from 15% to 71% (Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2005, 2006). Another population-based, multi-country study reported lifetime rates of IPV against ever-married women ranging from 18% – 48% (Kishor & Johnson, 2004). In the U.S., one in four women, compared to one in seven men, interviewed in a multi-state survey reported experiencing some form of IPV in their lifetime (Breiding et al., 2008).

When women experience violence it has consequences for their physical, emotional, sexual, and reproductive health. Women experiencing IPV are at increased risk for multiple mental and physical health problems including bodily injury (Grisso et al., 1999), depression (Campbell, 1997, 2002), emotional distress (Campbell, 2002; Ellsberg, Jansen, Heise, Watts, & Garcia-Moreno, 2008), and suicidal thoughts (Campbell, 2002; Ellsberg et al., 2008). Pregnant women experiencing IPV may be at increased risk for experiencing miscarriage, preterm birth, very preterm birth, fetal distress, and low birth weight (Boy & Salihu, 2004; Campbell, 2002; Yount, DiGirolamo, & Ramakrishnan, 2011)

Theoretical Perspectives

Many different theories have been proposed to explain the causes of IPV. Feminist perspectives have influenced many of these theories, while others have drawn

from the disciplines of psychology and sociology (Heise, 1998; Loseke, Gelles, & Cavanaugh, 2005). There are a range of sociological and social-psychological perspectives on IPV that emphasize the importance of social learning in childhood, patriarchy, and other social structures and social processes. Social learning theories posit that individuals learn through exposure to violence and there is intergenerational transmission of violence through families, cultures, and subcultures (Bandura, 1977). Exchange theory (Gelles, 1983) explains IPV in terms of cost-benefit analyses. When the rewards or benefits of violence are greater than the costs, violence is used. Reluctance of social institutions to intervene may lower the cost of violence. In resource theory (Goode, 1971) use of violence depends on the resources an individual has available. The more access to resources an individual has, the more force can be used, but less is actually employed. Feminist theory emphasizes the role of patriarchy, male dominance and female subordination in the perpetration of IPV. Violent acts against women are seen as a part of male control (Dobash & Dobash, 1998; Yllo, 2005). While each of these perspectives enhances our understanding of the precipitating factors for IPV, none of them alone can provide a completely adequate explanation of the causes of violence against women in intimate relationships.

Recent research has begun to characterize IPV as an outcome of factors operating on multiple levels. Heise (1998) proposed the adoption of an ecological framework to explain gender-based violence and IPV. This ecological framework characterizes IPV as a result of direct and interacting influences of personal, situational, and socio-cultural factors. The ecological framework proposed by Heise (1998) builds upon ecological frameworks used to examine other phenomenon, and was not the first to propose an

ecological framework for IPV (Carlson, 1984). Heise's work, however, marks the

beginning of a wider acceptance of the ecological framework as a means to accommodate

different perspectives on the etiology of IPV. Strengths of the ecological framework

include its allowance for a multifactor/multilevel explanation for IPV. The framework

also permits interplay among factors at various levels and contexts, and is a useful tool

for incorporating existing research into the large body of knowledge related to possible

causes of IPV. The framework, which integrates findings from both international research

and North American social science, also includes both male and female factors related to

IPV. Finally, the ecological framework has been widely adapted and used in research on

IPV internationally (Garcia-Moreno et al., 2005; Naved & Persson, 2005).

Communities and IPV

In the past, much of the theory and empirical research on IPV has focused on

individual, relationship, and family factors. More recently, researchers have been

focusing on the relationship between communities and IPV. In the U.S., much of this

research has drawn from social disorganization and collective efficacy theories, used to

explain community-level variation in crime and delinquency. First posited by Shaw and

McKay (1942, 1969) social disorganization theory contends that communities

characterized by economic depravation, ethnic heterogeneity, and residential mobility are

unable to organize to realize the common goals of their residents. The inability to

organize for the common good, termed social disorganization, has been positively related

to increased rates of crime and delinquency in the community (Bursik, 1988; Bursik &

Grasmick, 1993; Sampson & Groves, 1989; Shaw & McKay, 1942, 1969). The empirical

basis for Shaw and McKay's theory of social disorganization was data drawn from

official records of crime and delinquency in areas of urban neighborhoods of Chicago over time. Noting the geographic distribution of crime rates by area, Shaw and McKay (1942, 1969) concluded, "there is a direct relationship between conditions existing in local communities . . . and differential rates of delinquents and criminals. Communities with high rates have social and economic characteristics which differentiate them from communities with low rates" (Shaw & McKay, 1942, 1969, p. 315). Although the structural antecedents leading to social disorganization, including poverty, ethnic heterogeneity, and high residential mobility were operationalized and measured by Shaw and McKay, the concept of social disorganization was not. Until recently, social disorganization, understood to mediate this relationship, was assumed, but not directly measured (Bursik, 1988; Sampson & Groves, 1989; Sampson, Morenoff, & Gannon-Rowley, 2002; Shaw & McKay, 1942, 1969).

Sampson and Groves (1989) built upon the work of Shaw and McKay by operationalizing the concept of social organization. Viewing social organization and social disorganization on a continuum, they constructed three empirical measures of community social organization, specifically presence of local informal friendship networks, organizational participation, and social control and supervision of youth peer groups. A model proposing these measures as mediators between community structural characteristics (low socioeconomic status, residential mobility, ethnic heterogeneity, family disruption, and urbanization) and rates of crime and delinquency was constructed and tested. Variations in these dimensions of social organization mediated a large portion of the effects of structural characteristics on crime in communities (Sampson & Groves, 1989).

Later work by Sampson and colleagues (1997) further characterized the factor that intervenes between community structural characteristics and community-level crime as *collective efficacy*, defined as "social cohesion among neighbors combined with their willingness to intervene on behalf of the common good"(Sampson, Raudenbush, & Earls, 1997, p. 918). Collective efficacy was viewed as a partial mediator of the relationship between concentrated disadvantage (operationalized by summary measures including the percentage below the poverty line, percentage on public assistance, percentage of female-headed households, percentage non-white, and percentage unemployed living in a neighborhood), residential stability (percentage living in the same house for five years or longer and percentage living in owner occupied homes), immigrant concentration (percentage Latino and percentage foreign-born) and crime and delinquency at the neighborhood level. Two factors, social cohesion, the mutual trust and solidarity of a community, and informal social control, the capacity of a community to act to regulate its members, characterize a community's level of collective efficacy. An underlying assumption of both social disorganization and collective efficacy theories is that members of socially organized communities share a common goal of living in an area free from the threat of crime (Browning, 2002; Bursik, 1988; Shaw & McKay, 1942, 1969). While this assumption may hold for violence between non-intimates, communities may differ in their recognition of IPV as deviant, a factor that must be considered when extending these theories to IPV.

Community Socioeconomic Status, Collective Efficacy, and IPV Against Women

For women experiencing IPV, place matters (Burke, O'Campo , & Peak, 2006). There are geographic differences in rates of IPV across countries, cities, and

neighborhoods (Garcia-Moreno et al., 2006; McQuestion, 2002; Miles-Doan & Kelly, 1997). In the 1990's, published research began linking community characteristics and IPV in the U.S. Miles-Doan and Kelly (1997), for instance, found that neighborhoods with concentrated poverty in Dade County, Florida had median rates of police-reported IPV nine times higher than economic better-off neighborhoods. Similarly, a study in urban Baltimore found that women living in neighborhoods with a low mean per capita income and high unemployment had a higher risk of experiencing IPV than women living in neighborhoods with higher mean per capita incomes and low unemployment (O'Campo et al., 1995). Building upon this early research, a growing number of studies have examined the relationship between communities and IPV, often drawing from social disorganization or collective efficacy theories. For instance, the relationship between community-level socioeconomic status, including measures of community poverty and community disadvantage, and IPV has been examined both in the United States and internationally (Ackerson, Kawachi, Barbeau, & Subramanian, 2008; Benson, Fox, DeMaris, & Van Wyk, 2003; Benson, Wooldredge, Thistlethwaite, & Fox, 2004; Boyle, Georgiades, Cullen, & Racine, 2009; Cunradi, Caetano, Clark, & Schafer, 2000; DeMaris, Benson, Fox, Hill, & Van Wyk, 2003; Gage, 2005; Kiss, Schraiber, Heise, Zimmerman, Gouveia, & Watts, 2012; Koenig, 2006; Lauritsen & Schaum, 2004; Van Wyk, Benson, Fox, & DeMaris, 2003; Wright & Benson, 2010; Wright & Benson, 2011). Evidence of an association, however, is inconsistent. A positive relationship between community disadvantage and IPV has been reported in the U.S. (Benson et al., 2003; Benson et al., 2004; DeMaris et al., 2003; Van Wyk et al., 2003; Wright & Benson, 2010; Wright & Benson, 2011). This relationship is less apparent in non-U.S. settings, where

measures of community socioeconomic status such as standard of living and neighborhood wealth in India (Ackerson & Subramanian, 2008; Boyle et al., 2009), neighborhood poverty in Haiti (Gage, 2005), and neighborhood deprivation in Brazil (Kiss et al., 2012) have demonstrated an inconsistent relationship with IPV.

Many of the studies using quantitative methods to examine the socioeconomic characteristics of communities have drawn data from large surveys that do not permit the direct measurement of social processes (Benson et al., 2003; Miles-Doan, 1998; Wu, 2008). Less is known, therefore, about the relationship between more direct measures of communities' capacity for social control, including collective efficacy, in relation to rates of IPV. In two Chicago-based studies, Browning (2002) and Wright and Benson (2011) examined the relationship between community collective efficacy and physical IPV. Both followed the methodology of Sampson and colleagues (1997) to construct a three-level hierarchical linear model to measure collective efficacy, and both found a negative relationship between collective efficacy and physical IPV. In Browning's analysis, the relationship between collective efficacy and physical IPV was moderated by community norms. Collective efficacy exerted a more powerful protective effect on IPV in neighborhoods where intervention in intimate relationships was more accepted. Little is known about collective efficacy in non-U.S. settings, and how, in these contexts, it relates to women's experiences of IPV.

Feminist Perspectives

Feminist theory, as articulated by Yllo, views IPV as growing out of "inequality within marriage (and other intimate relations that are modeled on marriage), and reinforces male dominance and female subordination within the home and outside it"

(Yllo, 2005, p. 22) Research examining rates of IPV in patriarchal societies has supported

this theoretical perspective by demonstrating an increase in IPV in societies in which

there are high levels of gender inequality between men and women in areas such as life

expectancy, infant mortality rates, literacy rates, and rates of formal education (Ackerson

& Subramanian, 2008; Koenig, Ahmed, Hossain, & Khorshed Alam Mozumder, 2003;

Schuler, Bates, & Islam, 2008). The majority of research has examined the relationship

between gender inequality and IPV at the state or country level (Ackerson &

Subramanian, 2008; Pallitto & O'Campo 2004; Yllo, 1984) but some recent work has

begun to examine gender inequality at the community level in relation to IPV (Koenig et

al., 2003; Yount & Li, 2010). This shift is important, as the extent of gender inequality

may vary between communities in the same country or culture (Koenig et al., 2003).

In some cultures, the physical punishment of women is allowed in certain

circumstances, while other cultures appear to provide protection to women experiencing

IPV (Campbell, 1999; Heise, 1998). Counts and colleagues (1999) present

anthropological evidence from 15 countries demonstrating that community sanctions

against husbands who beat their wives play an important role in controlling the levels of

wife beating. In four of the societies where wife battering was absent, there were

significant community sanctions against battering, and neighbors or kin provided

sanctuary for the woman if she was beaten. As Campbell notes, "There . . . seems to be

more active community interference against wife beating where masculinity norms do not

strongly encourage dominance of women" (Campbell, 1999, p. 273). In other situations,

there are high levels of wife beating and no community intervention against violence

toward wives.

Collective Efficacy and Norms Regarding IPV Against Women

As noted previously, a key assumption of social disorganization and collective efficacy theories is that members of socially organized communities (i.e. communities with high collective efficacy) share a common goal of living in an area that is free of crime (Browning, 2002; Bursik, 1988; Shaw & McKay, 1942, 1969). In communities with high gender inequality and norms tolerant of IPV, however, it cannot be assumed that members of these communities share a common goal of living in an area that is free of IPV. In communities with norms that are tolerant of IPV, higher levels of collective efficacy, where communities are close knit and act to regulate their members, might be related to an increase in a woman's risk of experiencing IPV, as community members do not intervene to prevent IPV, a behavior they view as acceptable. In contrast, in communities where tolerance of IPV is less prevalent, high collective efficacy may provide protection to women, as neighbors act to intervene in behavior they view as unacceptable.

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Bangladesh Context

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In a patriarchal system like the one in Bangladesh, poorly educated women are often secluded at home without independent sources of income or independent property (Schuler et al., 1996; Chowdhury, 2009). Labor is divided along gender lines, as men work outside the home, and women within the home (Chowdhury, 2009). Girls are often married at young ages as parents try to avoid escalating dowry costs (Blanchet, Biswas, & Lucky, 2001). Although the legal marriage age is 18, this law is rarely enforced (Bates et al., 2004). IPV against women occurs in both urban and rural areas, and across all educational and socioeconomic levels (Bates, Schuler, Islam, & Islam, 2004). Research

has reported lifetime rates of physical violence among women in Bangladesh ranging from 42% to 51% (Garcia-Moreno et al., 2005; Koenig et al., 2003). In addition, a WHO study found that 37% of women living in urban areas and 57% of women living in rural areas of Bangladesh had experienced sexual violence by their husbands at some point in their lives. The same study found that 48% of rural women and 44% of urban women who reported ever experiencing partner violence reported experiencing both physical and sexual violence, demonstrating a significant overlap between the two forms of violence (Garcia-Moreno et al., 2005).

Research has also demonstrated health effects on both women and their children in Bangladesh stemming from their experiences of IPV (Johnston & Naved, 2008). Women in both rural and urban areas of Bangladesh who had experienced violence, either physical or sexual, by an intimate partner reported significantly higher rates of self-reported ill health, pain, problems with walking and carrying on daily activities, memory loss, dizziness, and vaginal discharge than women in these same areas who never experienced IPV (Garcia-Moreno et al., 2005). Studies have also demonstrated that women who were physically abused by their husbands were more likely to report unwanted pregnancy, miscarriage, induced abortion, and stillbirth than women not experiencing violence (Silverman, Gupta, Decker, Kapur, & Raj, 2007) and to report sexually transmitted disease (STD) symptoms (Decker et al., 2008). In addition, research has also connected women's experiences of severe emotional and physical violence by their husbands with an increase in contemplation of suicide (Naved & Akhtar, 2008).

Women's experiences of violence in Bangladesh also have health implications for their children. Results of two studies demonstrate a positive association between mothers'

exposure to any form of violence (physical, sexual, emotional, or controlling behavior) and the risk of their children experiencing diarrhea and respiratory tract infections (Asling-Monemi, Naved, & Persson, 2009a; Silverman et al., 2009). An association between women experiencing any physical, sexual, or emotional violence or a high level of controlling behavior during marriage and an increased risk of fetal and early childhood growth impairment has also been demonstrated (Asling-Monemi, Naved, & Persson, 2009b). Another study (Asling-Monemi, Naved, & Persson, 2008) showed Bangladeshi women with more than two years of education had an increased risk of under-five mortality for their female offspring if the woman had ever been exposed to severe physical violence or high levels of controlling behavior in marriage.

Factors Associated with IPV in Bangladesh

There is a growing body of research exploring the factors associated with IPV in Bangladesh. Factors have been identified at the individual, relationship, family, and contextual (community and societal) levels.

Individual factors. In Bangladesh, a woman's young age has been associated with women's experiences of IPV (Ahmed, 2005; Bates et al., 2004; Hadi, 2000, 2005; Koenig et al., 2003; Naved & Persson, 2005; Sambisa, Angeles, Lance, Naved, & Thornton, 2011; Schuler, Hashemi, Riley, & Akhter, 1996). Young wives in Bangladesh have low status, which may place them at greater risk of experiencing IPV (Johnston & Naved, 2008). Interestingly, however, the relationship between young age and IPV has been shown to vary by location. One study found that being older was protective for women in an urban area, while it was not protective for women in a rural area (Naved & Persson, 2005). Another study found a protective relationship between older age of

women and experiences of violence in Jessore, a less conservative area of the country, but not in Sirajganj, a more conservative area (Koenig et al., 2003). Another factor, women's educational level, has also been associated with IPV in Bangladesh. Specifically, as women's levels of education increase, levels of IPV decrease (Ahmed, 2005; Bates et al., 2004; Hadi, 2000, 2005; Koenig et al., 2003; Sambisa et al., 2011; Schuler et al., 1996).

Researchers have also examined the relationship between women's income generating activities and women's autonomy in relation to IPV. Some research has shown a protective effect of women's involvement in economic activities (Hadi, 2005), while other research has shown either an increase in risk among women who contribute economically to the household (Bates et al., 2004), or no relationship (Schuler et al., 1996). Some of this variation may occur as a result of the community context in which women live. Naved and Persson (2005), for instance, found women who earned an income in rural, but not urban, areas of Bangladesh were at an increased risk of experiencing IPV. Koenig et at (2003) found similar variation in the relationship between individual women's autonomy and IPV in two areas of Bangladesh, with an increase in individual women's autonomy a risk for experiencing IPV in the more culturally conservative, but not less conservative, area.

Relationship factors. Statistically significant relationships have been found between IPV and poor spousal communication (Bates et al., 2004; Naved & Persson, 2005), history of abuse of a woman's husband's mother by his father (Naved & Persson, 2005), husband's low educational level (Naved & Persson, 2005; Sambisa, Angeles, Lance, Naved, & Curtis, 2010), and husband's young age (Bhuiya, Sharmin, & Hanifi,

2003; Johnson & Das, 2009; Schuler et al., 1996). In studies examining spousal violence as reported by men in Bangladesh, Johnson and Das (2009) found the strongest predictors of violence to be a husband's use of illicit drugs, a husband's unfaithfulness to his wife, and a husband having been married more than once. Sambisa and colleagues (2010) found alcohol and drug use and poor mental health increased men's likelihood of perpetrating IPV in urban Bangladesh.

Family factors. Family factors associated with a woman's increased risk for experiencing IPV in Bangladesh include low socioeconomic status (Ahmed, 2005; Bates et al., 2004; Hadi, 2005; Koenig et al., 2003; Sambisa et al., 2011), living a nuclear instead of extended family (Koenig et al., 2003), having many children (Sambisa et al., 2011), and the presence of a dowry agreement (Bates et al., 2004; Naved & Persson, 2005). In Bangladesh, although the payment of dowry from the bride's parents to the groom and his parents is illegal, it is also common (Bates et al., 2004; Johnston & Naved, 2008; Naved & Persson, 2010). Studies in Bangladesh have shown a positive relationship between dowry agreements and IPV (Bates et al., 2004; Naved & Persson, 2005), and an increase in frequency and severity of physical abuse if a dowry was demanded from a woman's family, but no payment was made (Naved & Persson, 2010). Naved and Persson (2010) propose that families who demand a dowry may be more likely to condone IPV. In this case, the demand of a dowry may be an indicator of patriarchal attitudes that put women at risk (Naved & Persson, 2010)

Contextual factors. Although IPV in Bangladesh occurs within family relationships, empirical research has demonstrated an association between contextual factors, including those considered at the community and societal level, and individual

women's experiences of violence. Some studies have reported an association between membership in micro-savings and credit programs and a reduction in IPV (Hadi, 2005; Schuler et al., 1996) and marital sexual violence (Hadi, 2000) while other studies have reported an increase in IPV related to membership in these groups (Bhuiya et al., 2003; Koenig et al., 2003; Naved & Persson, 2005) or no difference (Ahmed, 2005). Differences in results of these studies may stem from an inability to control for selection bias in some studies (Koenig et al., 2003; Naved & Persson, 2005), as it is unclear whether abused women choose to join micro-credit groups or membership in these groups places women at risk. An ethnographic study examining the relationships between men's violence against their wives and membership in micro-credit programs notes how these programs may reduce IPV "by channeling resources to families through women, and by organizing women into solidarity groups that meet regularly and make their lives more visible" (Schuler, Hashemi, & Badal, 1998, p. 155). Membership in these same groups, however, may increase IPV because "providing resources to women and encouraging them to maintain control over these resources may provoke violent behavior in men, because they see their authority over their wives being undermined" (Schuler et al., 1998, p. 155).

The associations between individual, relationship, and family factors and IPV vary across communities in Bangladesh (Koenig et al., 2003). Koenig and colleagues (2003) examined community factors related to IPV, specifically percentage of women with education, percentage of women in saving/credit groups, and an index of women's autonomy in two distinct areas of rural Bangladesh, one known to be more culturally conservative than the other. Results from the study demonstrated a context-specific

relationship between women's status and IPV. In the more culturally conservative area, individual membership in short-term credit groups and high individual women's autonomy were associated with an increased risk of violence, and community variables were not significant. In the less conservative area, however, both aggregate measures of women's credit membership and high women's autonomy were associated with a reduced risk of violence. A woman's own membership in a credit group and her autonomy were not significantly related to IPV, however.

Other community-level factors related to IPV in Bangladesh, including gender inequality and community norms regarding violence against women, have demonstrated a direct association with IPV. Schuler and colleagues conducted qualitative, in-depth interviews with 110 men and women in rural Bangladesh to explore the processes through which gender inequality impacts violence within marriage (2008). They found that in this rural area of Bangladesh, women's resources, both economic and social, were derived primarily through marriage, and women had very few alternatives outside of marriage. This lack of alternatives increased women's vulnerability to IPV.

In Bangladesh, women and men often consider IPV to be acceptable behavior (Johnson & Das, 2009; Khan, Rob, & Hossain, 2000; Sambisa et al., 2010; Sambisa et al., 2011, Schuler & Islam, 2008;). In the 2007 Bangladesh Demographic and Health Survey (DHS), thirty-six percent of both women and men surveyed agreed that a man is justified in beating his wife for at least one of the following reasons: if she does not obey elders; if she refuses to have sexual intercourse with him; if she argues with him; if she goes out without telling him; or if she neglects the children (National Institute of Population Research and Training [NIPORT], Mitra and Associates, and Macro

International 2009). Quantitative data from a survey of women and men in rural Bangladeshi villages showed that 84% of women and 92% of men reported condoning IPV (Schuler & Islam, 2008). Qualitative data from this same study, however, indicate that women had "resigned themselves to accept their husband's violence but nonetheless felt that it was wrong" (Schuler & Islam, 2008, p. 53). Women's survey responses, which closely mirrored those of the men in their villages, may have represented their perceptions of community norms rather than their own personal attitudes (Schuler & Islam, 2008; Schuler, Lenzi, & Yount, 2011; Schuler, Yount, & Lenzi, in press). Similarly, findings from a survey experiment on women's attitudes about IPV in rural Bangladesh showed that women justified IPV almost exclusively for willful, as compared to unintended, transgressions of gender norms (Yount, Halim, Schuler, & Head, in press). Research describing the intervention of community members in situations of IPV in Bangladesh describes occasions in which neighbors intervened on behalf of the abused woman. More frequently, however, neighbors failed to intervene because of cultural norms supporting a man's right to discipline his own wife, and the neighbors' belief that they were powerless to stop the abuser (Schuler et al., 2008). Studies examining spousal violence among men in Bangladesh found that men who believed wife-beating was justified under certain circumstances were more likely to report violence against their wives than men who believed wife-beating was not acceptable (Johnson & Das, 2009; Sambisa et al., 2010).

Current Research on Communities and IPV

While researchers have given increasing attention to the influences of communities on IPV against women, the majority of this research has focused on cities

and urban areas in the U.S. Less is known about these relationships in non-U.S. settings. There are challenges in the conceptualization and measurement of both communities and community characteristics. Individuals' perceptions of their communities may not correspond to definitions of communities commonly used in survey research, such as census tracts or primary sampling units (PSU) in Demographic and Health Surveys (DHS). Survey research examining community characteristics in relation to an individual-level outcome, such as IPV, requires large sample sizes and must employ statistical methods able to account for the clustered nature of the data. To our knowledge, no researchers have comparatively reviewed this empirical research to date. We addressed this gap through a systematic review of the global literature (Chapter 2). In this review, we aimed to identify the community-level correlates of IPV against women to detect gaps in this literature and to propose a framework for future research.

The findings of the systematic review provided the foundation for our next two manuscripts, in which we examined specific community-level correlates of IPV in Bangladesh. In the second manuscript (Chapter 3) we focused on the relationship between community income and IPV in urban and rural Bangladesh. Although some research findings have demonstrated a negative relationship between household wealth or income and physical IPV in Bangladesh (Vyas & Watts, 2009), to our knowledge, no researchers have explored the relationship between community income and physical and sexual IPV in Bangladesh, controlling for household income. We addressed this gap in the literature using a multi-level contextual effects analysis to disentangle the household and community-level effects of income on IPV. We expected that the relationship

between economic status and IPV in Bangladesh would operate at the household, not community-level.

In our third manuscript (Chapter 4), we examined the relationship between collective efficacy, measures of women's status (patriarchal norms and gender inequalities), an interaction between collective efficacy and patriarchal norms, and community income in relation to physical IPV in rural Bangladesh. While researchers have examined the relationship between community collective efficacy and physical IPV in urban, U.S. settings, to our knowledge, our research is the first to measure and examine the role of collective efficacy and its interaction with patriarchal norms in relation to physical IPV in a non-urban, non-U.S. setting. Additionally, this research is one of a few studies focused on community-level correlates of IPV in rural Bangladesh. We employed a 3-level count outcome model to examine the variation in physical IPV between and within communities and to assess the association between community-level correlates and physical IPV after including covariates at individual, relationship, and household levels. Based on feminist theory and empirical evidence, we hypothesized that measures of women's status, specifically patriarchal norms and gendered status inequalities, would be positively related to physical IPV. We also hypothesized that the relationship between collective efficacy and physical IPV would depend on the levels of patriarchal norms in a community. In communities characterized by high levels of patriarchal norms, we anticipated that collective efficacy would be associated with an increased risk of women experiencing physical IPV. In communities with lower levels of patriarchal norms, however, we anticipated that collective efficacy would be associated with a decreased

risk of physical IPV. Lastly, we did not expect to find a relationship between mean community income, a measure of a community's economic status, and physical IPV.

These three manuscripts each fill important gaps in the empirical evidence regarding community-level correlates of IPV. They add to both the body of knowledge regarding IPV in Bangladesh and to current theoretical understanding of the relationship between community characteristics and individual women's experiences of IPV. The manuscripts also provide the foundation for future work exploring these relationships in greater depth in both Bangladesh and other countries. An understanding of the community context in which IPV occurs allows researchers and policy-makers to identify community characteristics that place women at increased risk, and provides a basis for the development and implementation of interventions targeting high-risk communities both in Bangladesh and elsewhere.

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Chapter 2: Community-level Correlates of Intimate Partner Violence Against Women

Globally: A Systematic Review

Abstract

Intimate partner violence (IPV) against women is a global health problem, one that has implications for women's health and wellbeing. The relationship between communities and the occurrence of IPV is an expanding area of research. Although a large number of community characteristics have been examined in relation to IPV, the research as a whole lacks a coherent theoretical focus or perspective. In this systematic review, we provide a comprehensive synthesis of the evidence regarding the community-level correlates of IPV against women. In our review of peer-reviewed research published between January 1, 1990 and January 31, 2011, we identify key community-level correlates, detect gaps, and offer recommendations for future research. Recognizing a difference in approach between U.S. and non-U.S. based research and an over-reliance on a primarily urban, U.S.-based perspective on communities and IPV, we advocate for a global perspective that better reflects the social and economic fabric of communities around the world. Specifically, future research should focus on the most promising, but currently under-studied, community-level correlates of IPV against women, namely gender inequality, gender norms, and adapted measures of collective efficacy/social cohesion.

Introduction

Over the past 20 years, researchers have given increasing attention to the influences of communities or neighborhoods on health outcomes, including *intimate partner violence* (IPV) against women. IPV, defined as "behavior within an intimate

relationship that causes physical, sexual, or psychological harm, including acts of physical aggression, sexual coercion, psychological abuse and controlling behaviors" (WHO, 2010, p. 11), is a violation of human rights and a health problem facing women around the world. Although women may be violent with men (Straus, 1999), and IPV occurs in same-sex relationships (Tjaden & Thoennes, 2000), globally the greatest burden of IPV is experienced by women at the hands of men (Breiding et al., 2008; Tjaden & Thoennes, 2000; WHO, 2010). In a multi-country study women from selected countries in Africa, Asia, Europe, and South America reported lifetime prevalence rates for ever-partnered women experiencing physical or sexual IPV, or both, from 15 to 71% (Garcia-Moreno et al., 2006). In a multi-state survey in the U.S., one in four women, compared to one in seven men, reported experiencing some form of IPV in their lifetime (Breiding et al., 2008). Women who experience IPV are at an increased risk for multiple psychological and physical health problems, including poor pregnancy outcomes (Yount et al., 2011).

In recent work, researchers have characterized IPV as an outcome of influences operating at multiple levels. Heise (1998) proposed an ecological framework that characterizes IPV as a result of direct and interacting influences of personal, situational, community, and socio-cultural factors. This framework has provided a way for researchers to begin to link community characteristics to women's risk of experiencing IPV. In the 1990's, a growing number of empirical studies were published linking community characteristics and IPV in the U.S. In Dade County, Florida, Miles-Doan & Kelly (1997) found that neighborhoods with concentrated poverty had median rates of police-reported IPV nine times higher than in economically better-off neighborhoods.

Similarly, a study in urban Baltimore found that women drawn from a clinic-based sample living in neighborhoods with a low mean per capita income and high unemployment had a higher risk of experiencing IPV compared to those living in neighborhoods with a high mean per capita income and low unemployment (O'Campo et al., 1995). Building on these formative studies, recent research has drawn from population-based samples to examine the relationship between communities and IPV. As studies drawing from police-reported or clinic-based samples may under-report the number of IPV incidents (Yount et al., 2011), and to address comparability of findings across studies, our review focuses only on population-based studies.

There are numerous challenges in conceptualizing and measuring communities and community characteristics in relation to IPV against women. Definitions of communities or neighborhoods commonly used in research, such as census tracts, may not correspond to individuals' perceptions of their neighborhood. Large sample sizes, or measures drawn from the U.S. Census, are often needed to measure community characteristics. In addition, quantitative research examining community characteristics in relation to an individual-level outcome, such as IPV, must account for the clustered nature of the data and differentiate between compositional and contextual effects. To our knowledge, there has been neither a comparative assessment nor a quantitative synthesis of this empirical research to date. To address this gap, we conducted a systematic review of the literature on the community-level correlates of IPV. Because the greatest burden of IPV falls on women, we focused our review exclusively on IPV against women. In our review, we aimed to identify the community-level correlates of IPV against women as

described in the global literature to detect gaps in this literature, and to propose a possible framework for future research.

Methods

Search Terms, Databases, and Search Strategies

Recognizing that the empirical literature on communities and IPV against women spans many disciplines and includes diverse terminology, we were purposively inclusive in our initial search terms. For example, we included several search terms (e.g., wife abuse, domestic abuse/violence) to capture the evolution of terminology used to refer to IPV over the past two decades (Figure 1). We conducted searches in a broad range of databases including CINAHL, Embase, Proquest, PubMed, PyscInfo, Sociological abstracts, and Web of Science. These databases included peer-reviewed articles from disciplines including but not limited to criminology, medicine, nursing, public health, psychology, and sociology. We also hand-searched references from articles included in the review, and conducted a cited reference search in Web of Science, reviewing the titles and/or abstracts of all peer-reviewed publications citing the articles meeting our final criteria for inclusion. As a last step in our search, we identified key authors from the articles we reviewed and screened the titles and/or abstracts of all publications identified in Web of Science from those authors.

[Figure 1]

Criteria for Inclusion/Exclusion and Search Results

The search was conducted in multiple steps (Figure 2). In the first step, we limited our search of databases to articles that were published between January 1,1990 and January 31, 2011, in English, and in peer-reviewed literature. Although the majority of

research on community characteristics and IPV has been published in the past decade, we extended our search to 1990 to capture the earliest work in this area. The restriction that we imposed on the language of publication reflected our uncertainty regarding the amount of information that might have been available in other languages, and the low feasibility of obtaining, translating, and evaluating literature in other languages. The peer-review restriction reflected the difficulty of obtaining the target population of studies without peer review and focused the systematic review on the highest quality research describing the association between community-level correlates and IPV. This first, broad search yielded 640 titles and/or abstracts (Figure 2).

In the second step of the search, the first author (KV) screened these titles and/or abstracts to identify all quantitative studies that examined at least one community-level correlate of IPV against women. In this step, the first author identified and retrieved the full text of 97 studies meeting these criteria.

[Figure 2]

Following this initial screening, two researchers (KV and MD) randomly selected a subset (5% or 5) of the 97 articles and separately reviewed their full texts to develop a final set of decision-rules for inclusion or exclusion. The final criteria, which are described in detail in Table 1, reflected our focus on population-based studies examining community-level correlates of recent (past 12 months or less) IPV against women that controlled for covariates at the individual, relationship, or household levels.

[Table 1]

Selection of Studies

Following the development and pilot testing of the final inclusion/exclusion

criteria on the random subset of articles, KV and MD independently reviewed the

remaining 92 articles for eligibility (step 3, Figure 2). The reviewers had more than 90

percent initial agreement on decisions about inclusion and exclusion, and resolved

discrepancies in judgments about eligibility through a process of discussion and

consensus. A total of 16 articles met the criteria for inclusion. To ensure our search

captured all relevant articles, we conducted additional search strategies, including a hand

search of references, a cited-reference search and a key-author search. We identified 479

additional articles (step 4, Figure 2). KV then screened these titles and/or abstracts for

mention of community-level correlates of IPV against women (step 5, Figure 2). Twenty-

four articles meeting the screening criteria were retrieved in full and independently

evaluated against inclusion/exclusion criteria by KV and MD (step 6, Figure 2), leading

to the inclusion of one other study, for a final total of 17 studies (16 articles from step 3

and one article from step 6).

Data Coding

With input from all authors, KV developed a data collection form specific to this

review, which KV and MD then pilot tested on a randomly selected sample of three of

the eligible studies. This form included general study information (e.g., study design,

sampling, setting, theoretical framework, statistical analysis, ethical protections);

outcome specific information (e.g., measurement of outcome and community-level

variables, control variables included in analysis); and measures of study quality. After

revising the form, KV and MD independently abstracted data from the 17 studies and resolved any discrepancies in coding through discussion and consensus.

Assessment of Study Quality

Before beginning data abstraction, we adapted a quality assessment form from the *Guide to Community Preventative Services* (Zaza et al., 2000) to assess both the reliability of study measures and the risk of bias in the following categories: selection, statistical analysis, and confounder. Two reviewers, KV and MD, independently classified each study for each category as low risk, moderate risk, or high risk for bias or measurement error (Table 2), resolving any discrepancies in classification through discussion and consensus. In assessing selection bias, we considered whether the method of sampling was likely to yield a study population that was representative of some identifiable universe (probability or non-probability sampling), whether the study reported a response rate higher than 80% (chosen to reflect a balance between typically high response rates in poorer countries, and lower response rates in higher income settings), and whether special human-subjects protections or procedures specific to research on violence were in place when the survey was conducted. In assessing the risk of measurement error, we considered whether authors addressed the reliability of both outcome and community-level variables. For example, if an author addressed both the reliability of the outcome and the reliability of more than 50% of community-level variables, the study was considered low risk for measurement error. To assess the extent of analytical bias, we considered whether the authors controlled for design effects in the analysis, reported which statistical tests were used, and used a statistical model designed to handle multi-level data. In assessing confounder bias, we considered the extent to

which the analyses controlled for variables at the individual, relationship, and family levels. Analyses rated as low risk controlled for variables at more than one level.

We present our assessment of the quality of included studies in Table 2. Across all studies, the greatest risks to study validity were selection bias and measurement error. We rated one study as having high risk, nine as having moderate risk, and seven studies as having low risk for selection bias. Overall, the authors provided little information on the reliability of study measures, thus increasing the risk of measurement error. In eight studies, the authors provided information on reliability for either the outcome or the community-level measures, but only one study (Wright & Benson, 2010) contained information about reliability on all measures. We, therefore, rated eight studies as having high risk, eight as having moderate risk, and one as having low risk of measurement error. In contrast, we found a low risk for statistical analysis and confounder bias in the included studies, with only one study in each case rated as moderate risk and the other 16 studies rated as having a low risk of bias (Table 2).

[Table 2]

Results

Characteristics of Included Studies

All of the included articles were published in 2000 or later, and a majority was U.S. based (11), cross-sectional (14) analyses of large data sets (Table 3). The authors of included studies used a variety of statistical methods, most often logistic regression or multi-level logistic regression, to analyze their data. The authors of nine studies grounded their analyses in an explicit theoretical framework. Of these, seven identified theories pertaining to social disorganization and/or collective efficacy. Authors of the remaining

eight studies did not report a theoretical basis for their research. In U.S. based studies, authors used census tracts, or census tracts grouped into neighborhood clusters, to represent communities or neighborhoods. Outside of the U.S., primary sampling units (PSU), villages or clusters of villages were used to represent communities. Nine studies included information on the number of communities included in the analysis, and the authors of four studies reported the number of individuals in each community (Table 3).

[Table 3]

The 17 articles included 20 analyses across four outcome types: physical IPV (13 analyses in 12 articles); sexual IPV (two analyses); emotional IPV (one analysis); and physical or sexual IPV (four analyses). In one article (Naved & Persson, 2005), physical IPV was analyzed separately for an urban and a rural area, and in another (Gage, 2005), physical IPV, sexual IPV, and emotional IPV were each analyzed separately. The majority of authors (59%) used women's self-reported experience of IPV as the outcome measure, whereas others (41%) used couple-reported IPV (the male partner reported perpetration or the woman reported experiencing IPV) as an outcome (Table 3). In 11 of the 17 articles, the authors used the Conflict Tactics Scale (CTS) or an adaptation of it to measure IPV against women. In the remaining six articles, the authors relied on answers to single questions to measure IPV (Table 3). Although the majority of authors operationalized IPV as a binary outcome, others measured IPV as a trichotomous (Cunradi et al., 2002; Demaris et al., 2003) or continuous (Jain et al., 2010; Caetano et al., 2010) outcome (Table 4).

[Table 4]

Ten of the 11 studies conducted in the U.S. drew from three sources: the National Survey of Families and Households (NSFH) Waves 1 & 2; the 1995 and 2000 National Alcohol Survey (NAS); and the Project on Human Development in Chicago Neighborhoods (PHDCN) (Table 4). In all but one of the NAS studies (Cunradi et al., 2002), the authors did not explicitly state the source of data, but we found strong evidence for the connection through citations and identical sample sizes. Outside of the U.S., three studies were based on data from the Second Indian National Family Health Survey 1998-1999 (NFHS-2), and two studies were based on data from the 2000 Haiti DHS (Table 4).

Across all 20 analyses, authors included a wide variety of covariates at the individual, family, and household levels. Common individual-level covariates were women's age (16 analyses), women's education (10 analyses), and women's race or ethnicity (eight analyses). Common relationship-level covariates were partner's level of education (seven analyses), education differences between partners (eight analyses), and male drinking or drug problems (11 analyses). Common household-level covariates were household wealth (14 analyses) and family size (eight analyses). Apart from these common covariates, however, authors reported numerous other variables which varied from study to study. Across all studies, we identified 27 unique individual-level covariates, 28 unique relationship-level covariates, and 10 unique household covariates used in models examining community-level variables in relation to IPV.

Community Correlates of IPV

In this section, we highlight patterns and significant findings for community-level correlates across all IPV outcomes. In many cases, the authors included multiple

regression models, adding variables, including other community-level variables, in a step-wise manner. As it is beyond the scope of this review to examine regression coefficients from each step-wise model, we focused only on the full models, those with the largest number of covariates. For comparison of studies with categorical outcomes, we converted logit β estimates to odds ratios (ORs). *Adjusted* ORs (aORs) and regression coefficients are presented in Table 5.

[Table 5]

Our review identified 27 distinct community-level variables analyzed in relation to four IPV outcome types. Among the community-level correlates identified, only 10 variables were analyzed in more than one study. Our ability to compare analyses of similar correlates was limited by differences in variable measurement, the type and number of covariates included, and analysis of datasets from the same source. For example, the seven studies with measures of concentrated disadvantage contained analysis of data from only two sources, the NSFH and the PHDCN. The lack of strict comparability of community-level correlates across studies precluded our conducting a meta-analysis.

We categorized the 27 community-level correlates related to IPV into five broad categories that captured the following concepts: social disorganization, collective efficacy/social cohesion, socioeconomic standing, community violence, and community gender norms. For the majority of the correlates we categorized under social disorganization and collective efficacy, the authors explicitly linked their conceptualization and measurement of study variables with underlying theory. In the absence of this link, we grouped conceptually related variables together to provide a

coherent framework appropriate for evaluating the current evidence on communities and IPV. Although we categorized Wright and Benson's (2010) measure of immigrant concentration with other measures of social disorganization, the authors hypothesized that the concentration of immigrants would be negatively related to IPV, opposite of the relationship proposed in social disorganization theory, an important distinction. The variables we included in each of these categories, along with a discussion of statistically significant findings ($p < 0.05$), are described below.

     Social disorganization. Social disorganization theory, first posited by Shaw and McKay (1942, 1969), states that communities characterized by economic depravation, ethnic heterogeneity, and residential mobility are constrained from organizing to realize the common goals of their residents. These constraints on the ability to organize for the common good, termed social disorganization, are related more generally to higher rates of crime and delinquency in the community (Sampson & Groves, 1989). Work by Miles-Doan (1998) marked the beginning of the application of social disorganization theory to explain community-level variation in IPV. Authors drawing from social disorganization theory often measured concentrated disadvantage using factor analytic or principal-component scores summarizing census-tract measures for the percentage of single-parent or female-headed households, percentage non-white, percentage unemployed, percentage on public assistance, and percentage living below the poverty line. Residential stability/instability often was measured using percentage that moved or did not move within the past five years. Five of seven analyses showed that concentrated disadvantage (Table 5) was significantly positively related with physical IPV against women (Benson et al., 2003; Benson et al., 2004; Demaris et al., 2003; Van Wyk et al., 2003; Wright &

Benson, 2010). Results from Browning (2002) and Wright and Benson (2010) were non-significant for residential stability, and in Benson and colleagues' (2003) analysis, the relationship between residential instability and physical IPV was negative and significant (aOR = 0.13), contrary to that hypothesized by social disorganization theory. Immigrant concentration, or percent Latino and percent foreign-born, was non-significant in both Browning's (2002) and Wright and Benson's (2010) analyses (Table 5).

Collective efficacy/social cohesion. Expanding on social disorganization theory, Sampson and colleagues (1997) further characterized the factor that intervenes between community structural characteristics and community-level crime as *collective efficacy*, or the level of social cohesion and informal social control in a community (Sampson et al., 1997). In our review, we identified five community-level variables related to the social cohesion and/or social control in a community (collective efficacy, perceived social cohesion, perceived informal social control, any friends in neighborhood cluster, and any family in neighborhood cluster) in relation to IPV against women. Results of analyses by Browning (2002) and Jain and colleagues (2010) of collective efficacy in relation to physical IPV show a negative relationship in both instances (aOR = 0.23 and b = -0.34, respectively), although this relationship was significant only in Browning's analysis (Table 5). Caetano and colleagues (2010), in a path analysis, considered collective efficacy through separate measures of perceived social cohesion and perceived informal social control in relation to any physical or sexual IPV against women. According to the findings, both were negatively related to IPV against women, but this direct path was significant only for perceived social cohesion (Table 5). Wright and Benson (2010) did not measure collective efficacy explicitly, focusing instead on a related concept, social

ties in a community. In their analysis, they found that the proportion of residents reporting one or more family members living within their neighborhood cluster showed a significant negative association with severe physical IPV (aOR 0.49). The proportion of residents having one or more friends in the neighborhood was not significantly related to severe physical IPV (Table 5).

Socioeconomic standing. Authors of other studies measured a variety of socioeconomic characteristics of communities. A complete list of these variables appears in Table 5. With two exceptions (Caetano et al., 2010, Gage & Hutchinson, 2006), authors did not link these variables with an explicit theoretical framework. Thus, we categorized these variables based on conceptual similarities. Our review found little support for a relationship between measures of community economic status and IPV. There was no significant relationship between standard of living (aggregate measures of household asset index scores) and physical IPV in India (Ackerson & Subramanian, 2008; Boyle et al., 2009) or community development (an index of infrastructure development and access to health services) and sexual IPV in Haiti (Gage & Hutchinson, 2006) and inconsistent support for a relationship between neighborhood poverty (a measure of households living in either the bottom quintile of the socioeconomic index or below the poverty line) and IPV in Haiti (Gage, 2005) and the U.S. (Caetano et al., 2010; Cunradi et al., 2000; Lauritsen & Schaum, 2004). We also found conflicting results for neighborhood male unemployment (percentage of males aged 25 – 29 unemployed for the past year) in Haiti (Gage, 2005), which showed a significant positive association with sexual, but not physical or emotional IPV. In the U.S., some findings showed a significant positive relationship (aOR = 3.11) between neighborhoods with high

unemployment (percent of population over age 16 in labor force but unemployed) and severe, but not moderate, IPV (Cunradi et al., 2002); whereas, others did not find such a relationship (Caetano et al., 2010) (Table 5).

Other socioeconomic variables, such as levels of education, also were inconsistently related to IPV. In India, Boyle and colleagues (2009) did not find any relationship between women's education or the total number of years in school per woman averaged across a community, in relation to women's experience of physical IPV. In the U.S., Caetano and colleagues (2010) also did not find a relationship between the percentage over age 25 with high school diplomas and physical or sexual IPV. In India, Ackerson and colleagues (2008), however, found that women living in communities with the lowest tertile level of male literacy had significantly higher odds (aOR =1.14) of experiencing physical IPV compared to women living in communities with the highest tertile level of male literacy. In the same study, women living in communities with intermediate, but not low, levels of female literacy had significantly higher odds (aOR = 1.20) of experiencing physical IPV compared to women living in communities with the highest levels of female literacy.

Community violence. Four community-level variables represented norms regarding community violence (i.e., non-intervention norms/privacy of family fighting, intolerance of deviance) or community violence itself (i.e., perceived violence/violent victimization, level of physical punishment of children by males) in relation to IPV. Of these variables, only non-intervention norms/privacy of family fighting showed a consistent, significant relationship with IPV. Specifically, Browning (2002) and Wright and Benson (2010) both considered the association between the percent of community

respondents' agreement (or disagreement, for Wright and Benson) with the statement
"fighting between friends or within families is nobody else's business'' (Browning, 2002,
p. 838) and physical IPV. Browning found a significant positive relationship (aOR =
2.45) between agreement with the statement (termed non-intervention norms) and severe
physical IPV. Consistent with this finding, Wright and Benson found a significant
negative relationship (aOR = 0.34) between disagreement with the statement (termed
privacy of family fighting) and severe physical IPV. Browning's analysis also included
an interaction term for collective efficacy and norms of nonintervention. This interaction
term was positive and significant (aOR 3.44), indicating that as norms favoring non-
intervention increased, the magnitude of the negative relationship between collective
efficacy and physical IPV decreased.

In Haiti, Gage (2005) found a less straightforward relationship between levels of
physical punishment of children by men and IPV against women. Women living in
communities with medium, but not high, levels of physical punishment of children (as
opposed to low levels as the reference) had higher odds (aORs 1.85 and 1.58,
respectively) of experiencing physical and emotional IPV, but there was no significant
relationship between this community-level measure and women's experiences of sexual
IPV. Intolerance of deviance, a measurement of residents' attitudes about "the
wrongfulness of drinking, drug use, and fighting among teenagers" (Wright & Benson,
2010, p. 490) and perceived violence, a measure of respondents' perceptions of violence
or violent victimization in their communities in Chicago (Browning, 2002; Jain et al.,
2010) and Bangladesh (Naved & Persson, 2005), were not significantly related to
women's experiences of IPV.

Community gender norms. Across all included studies, only two variables, acceptance of partner mistreatment and attitudes towards gender roles, measured gender norms at the community-level. Examining data from India, Boyle and colleagues (2009) created a six-item index reflecting women's acceptance of a husband beating his wife under certain circumstances. The community-level measure, created through averaging the index scores of women in a community, had a significant positive relationship to physical IPV (aOR 1.19). In Bangladesh, Naved and Persson (2005) created an index for women's attitudes towards gender roles. This index, composed of five questions, asked women if they agreed with statements such as "a good wife obeys her husband even if she disagrees with him" and "if a husband mistreats his wife, others should intervene" (p. 293) among others. Individual responses were aggregated across communities. Results of the analysis did not demonstrate a relationship between women's attitudes and physical IPV for women in either rural or urban Bangladesh.

Discussion and Recommendations for Future Research

This review provides a synthesis of the empirical evidence regarding community-level correlates and IPV against women, highlighting significant findings from Asia, the Caribbean, and the U.S. Notable findings include the large number of community-level correlates examined in relation to IPV against women and the differences in approach between U.S. and non-U.S. based research. The community-level correlates analyzed in studies of U.S. and non-U.S. based settings differed in important ways. Concentrated disadvantage, for example, was analyzed in relation to physical IPV in seven US-based studies. Similarly, only U.S.-based studies included variables related to social cohesion or

collective efficacy. In contrast, studies based in non-Western settings included variables related to community gender norms.

Theories of social disorganization and collective efficacy, rooted in the field of criminology in the U.S., have been primarily used to explain IPV against women living in cities and other urban areas. The studies included in our review offer limited support for social disorganization theory due to the small number of analyses conducted (all US-based), the diverse ways in which social disorganization theory was operationalized, and use of the same data sets across studies. In spite of these limitations, some patterns emerge. For example, we found no support for a direct, adjusted relationship between either residential stability/instability or immigrant concentration and IPV against women. Concentrated disadvantage was positively related to physical IPV in the U.S., but we did not find consistent support for a relationship between standard of living and IPV in non-U.S. settings. We conclude that concepts drawn from social disorganization theory, such as concentrated disadvantage, residential stability, and immigrant concentration, as currently conceptualized, may not be applicable to non-urban, non-U.S. settings. Future research should continue to explore these relationships.

This review reveals a heavy reliance on data from the U.S., specifically from a small number of U.S.-based data sets. Two-thirds of the studies were set in the U.S., and those primarily drew from one of three sources, two national surveys, the NSFH and the NAS, and the Chicago-based PHDCN (Table 4). There is a pressing need to expand the examination of communities and IPV against women from a primarily urban, U.S.-based perspective based primarily on social disorganization theory, to a broader, global perspective that better reflects the social fabric of communities around the world. The

data provided by multi-country studies focused on IPV against women, such as the World

Health Organization's Multi-country Study of Women's Health and Domestic Violence

Against Women (Garcia-Moreno et al., 2006) offer just such opportunities.

Differences in the use of statistical methods, control variables, and reporting made

comparison of results across studies difficult. While examining community

characteristics and IPV in different ways may expand current understanding of these

relationships, future research would benefit from consistency in construct definitions and

measures and in the application of statistical methods and reporting of results across

studies. Multi-level modeling techniques, in addition to accounting for clustering within

communities, also allow for the comparison of variation between communities and

interactions between levels. Future research should apply multi-level modeling analysis

to further examine the complex interaction of individuals and their communities in

relation to women's experiences of IPV.

This review offers some important findings and direction for future research. In

the few US-based studies focusing on social aspects of communities (collective efficacy,

social cohesion) in relation to IPV, higher levels of collective efficacy or social cohesion

were related to lower risks of women experiencing IPV, controlling for other community,

family, relationship, and individual factors (Browning, 2002; Caetano et al., 2010; Jain et

al., 2010; Wright & Benson, 2010). However, this relationship has not been explored in

non-U.S. settings. Concepts of collective efficacy, the social cohesion and social control

in a community should be transferable cross-culturally, with some adaptation in

measurement. Future work, therefore, should test these associations in both U.S. and also

non-US settings, and should specifically consider the role of social cohesion among women in a community and women's experience of IPV.

Although feminist perspectives on IPV, which view women's experience of violence stemming from gender inequality in the family and society (Yllo, 1984, 2005; Yodanis, 2004), are common in the gender-based violence literature, this perspective was not represented in the studies included in our review. While research in India (Boyle et al., 2009) and Bangladesh (Naved & Persson, 2005) included measures of community gender norms, *no studies included variables intended to represent community-level gender inequality, or disparity between men and women in key facets of family and social life.* Although the authors of studies from Bangladesh (Koenig et al., 2003; Naved & Persson, 2010), India (Koenig et al., 2006), and Egypt (Yount & Li, 2010) have examined aggregate measures of women's autonomy (Koenig et al., 2003), gender norms (Koenig et al., 2006; Yount & Li, 2010), wife-beating norms (Koenig et al., 2006; Naved & Persson, 2010), and gender stratification (Yount & Li, 2010) in relation to IPV against women, none of these studies met the inclusion criteria for this review. Ackerson and Subramanian (2008), included in the review, considered gender inequality as a variable measured at the state, not community, level. Because the extent of gender inequality and gender norms may vary between communities in the same country or culture (Koenig et al., 2003), these variables should be a focus of future research.

As a consequence of our decision to focus on the direct association of community-level variables on IPV against women, adjusted for both confounders and mediators, we were unable to fully capture the complexities of gender in relation to IPV against women. Community-level women's education, for instance, may not have a direct

association with IPV, but there may be an indirect association, through community gender norms and attitudes towards women. Additionally, the associations of community-level variables with IPV may be masked because of cross-level interactions. Four studies included cross-level interactions, but reporting was inconsistent across studies. Only Boyle and colleagues (2009) included odds ratios and standard errors of cross-level interaction terms in a table. Others summarized only significant interactions (Gage, 2005) or did not report odds ratios (Ackerson et al., 2008; Gage & Hutchinson, 2006). In India, researchers found the protective effect of living in communities with high literacy levels to be stronger for women with high levels of education (Ackerson et al., 2008), but the protective effect of women's education was muted in communities accepting of mistreatment (Boyle et al., 2009). In Haiti, Gage (2005) found an increased risk of IPV (emotional, sexual, and physical) for women having a partner with a history of excessive alcohol use and living in a community with high male unemployment. In the same study, women whose partners dominated financial decision-making and who lived in neighborhoods with high male unemployment were at decreased risk of experiencing sexual IPV. Another analysis in Haiti (Gage & Hutchinson, 2006) did not find a significant interaction between women's individual power and community factors in relation to sexual IPV. These indirect and interacting effects represent a promising area for future research.

In this review, the language restriction and inclusion criteria increased comparability of findings across studies but limited our ability to capture the full range of research on communities and IPV. Although beyond the scope of the review, qualitative

methods, such as concept mapping, have been used to identify a range of community characteristics relevant to future research on IPV against women (O'Campo et al., 2005).

To our knowledge, this is the first systematic review to identify and evaluate the evidence regarding community-level correlates related to IPV against women. These findings have implications for both research and policy. We hope that future research and interventions will focus on the role of community-level gender inequality, gender norms, and collective efficacy/social cohesion in relation to IPV. Ideally, as the empirical evidence in this area grows, research should coalesce around key theories, eventually allowing for both the synthesis of results across studies and the application of these findings to programs and policies targeting IPV against women.

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Table 1. Final inclusion and exclusion criteria

	Included	Excluded	Rationale
Sampling	Probability sample of community dwelling population.	Samples from women's shelters, clinics, etc.	IPV studies drawing from the general population may differ from those with women recruited from women's shelters, or those seeking health services, impacting the comparability of studies (Yount et al, 2011).
Outcome	Self-report of experiencing IPV, including women's self report or couples' report of IPV perpetration and/or victimization.	Attitudes towards IPV, acceptance of IPV, perpetration of IPV (only), re-victimization, recidivism, intimate partner femicide, police reported IPV.	Focus of review is on women's recent experience of IPV, not attitudes or perceptions.
	Outcome (women's experience of IPV) within past 12 months	Lifetime experience of IPV	In comparison to measurement of IPV over a lifetime, a measure of past 12 months is a better reflection of current community context, as women may live in different communities over their lifetime.
Community-level variables	Community-level variables measured at aggregate level. Includes: census tract, village, and neighborhood.	Variables measured at country, state, district, county, or province level.	Focus of review is on community level.
Covariates	Covariates included at individual, relationship, or family levels.	No covariates included in analysis.	Inclusion of individual, relationship, or family variables allows for the examination of community-level factors controlling for other potentially significant factors, such as age, income, and educational level.

Table 2. Assessment of potential threats to study validity.

Article	Selection Bias	Measurement Error	Statistical Analysis Bias	Confounder Bias
Ackerson et al., 2008	Low risk	High risk	Low risk	Low risk
Ackerson & Subramanian, 2008	Moderate risk	High risk	Low risk	Low risk
Benson et al., 2003	Moderate risk	Moderate risk	Low risk	Low risk
Benson et al., 2004	High risk	Moderate risk	Low risk	Low risk
Boyle et al., 2009	Low risk	Moderate risk	Low risk	Low risk
Browning, 2002	Moderate risk	High risk	Low risk	Low risk
Caetano et al., 2010	Moderate risk	High risk	Low risk	Low risk
Cunradi et al., 2000	Low risk	Moderate risk	Low risk	Low risk
Cunradi et al., 2002	Low risk	High risk	Low risk	Low risk
DeMaris et al., 2003	Moderate risk	Moderate risk	Low risk	Low risk
Gage, 2005	Low risk	High risk	Low risk	Low risk
Gage & Hutchinson, 2006	Low risk	High risk	Low risk	Low risk
Jain et al., 2010	Moderate risk	Moderate risk	Low risk	Moderate risk
Lauritsen & Schaum, 2004	Moderate risk	Moderate risk	Low risk	Low risk
Naved & Persson, 2005	Low risk	High risk	Low risk	Low risk
VanWyk et al., 2003	Moderate risk	Moderate risk	Moderate risk	Low risk
Wright & Benson, 2010	Moderate risk	Low risk	Low risk	Low risk

Table 3. Characteristics of included studies.

	n	%	Author (date)
Year of Publication (n=17)			
1990 - 1999	0	0	
2000 - 2005	10	59	Benson et al. (2003), Benson et al. (2004), Browning (2002), Cunradi et al. (2000), Cunradi et al. (2002), DeMaris et al. (2003), Gage (2005), Lauritsen & Schaum (2004), Naved & Persson (2005), Van Wyk et al. (2003)
2006 – January 2011	7	41	Ackerson et al. (2008), Ackerson & Subramanian (2008), Boyle et al. (2009), Caetano et al. (2010), Gage & Hutchinson (2006), Jain et al. (2010), Wright & Benson (2010)
Region (n=17)			
North America	11	65	Benson et al. (2003), Benson et al. (2004), Browning (2002), Caetano et al. (2010), Cunradi et al. (2000), Cunradi et al. (2002), DeMaris et al. (2003), Jain et al. (2010), Lauritsen & Schaum (2004), Van Wyk et al. (2003), Wright & Benson (2010)
Asia	4	23	Ackerson et al. (2008), Ackerson & Subramanian (2008), Boyle et al. (2009), Naved & Persson (2005)
Caribbean	2	12	Gage (2005), Gage & Hutchinson (2006)
Latin America	0	0	
Africa	0	0	
Study Design (n=17)			
Cross-sectional	14	82	Ackerson et al. (2008), Ackerson & Subramanian (2008), Benson et al. (2004), Boyle et al. (2009), Browning (2002), Caetano et al. (2010), Cunradi et al. (2000), Cunradi et al. (2002), Gage (2005), Gage & Hutchinson (2006), Lauritsen & Schaum (2004), Naved & Persson (2005), Van Wyk et al. (2003), Wright & Benson, (2010)
Longitudinal-Cohort	3	18	Benson et al. (2003), DeMaris et al. (2003), Jain et al. (2010)
Definition of Community (n=17)			
Census tract	9	53	Benson et al. (2003), Benson et al. (2004), Caetano et al. (2010), Cunradi et al. (2000), Cunradi et al. (2002), DeMaris et al. (2003), Jain et al. (2010), Lauritsen & Schaum (2004), Van Wyk et al. (2003),
Neighborhood cluster	2	12	Browning (2002), Wright & Benson (2010)

Primary Sampling Unit (PSU)/Village/Village cluster	6	35	Ackerson et al. (2008), Ackerson & Subramanian (2008), Boyle et al. (2009), Gage (2005), Gage & Hutchingson (2006), Naved & Persson (2005)
Number of Communities (n=17)			
>1,000	3	18	Ackerson et al. (2008), Ackerson & Subramanian (2008), Boyle et al. (2009)
100 – 1,000	2	12	Gage (2005), Gage & Hutchingson (2006)
< 100	4	23	Browning (2002), Jain et al. (2010), Naved & Persson (2005), Wright & Benson (2010)
Not reported	8	47	Benson et al. (2003), Benson et al. (2004), Caetano et al. (2010), Cunradi et al. (2000), Cunradi et al. (2002), DeMaris et al. (2003), Lauritsen & Schaum (2004), Van Wyk et al. (2003),
Average Number of Individuals per Community (n=17)			
> 10	2	12	Boyle et al. (2009), Gage & Hutchingson (2006)
< 10	2	12	Benson et al. (2004), Browning (2002)
Not reported	13	76	Ackerson et al. (2008), Ackerson & Subramanian (2008), Benson et al. (2003), Caetano et al. (2010), Cunradi et al. (2000), Cunradi et al. (2002), DeMaris et al. (2003), Gage (2005), Jain et al. (2010), Lauritsen & Schaum (2004), Naved & Persson (2005), Van Wyk et al. (2003), Wright & Benson, (2010)
Theoretical Framework (n=17)			
Social Disorganization/ Collective Efficacy	7	41	Benson et al. (2003), Benson et al. (2004), Browning (2002), Caetano et al. (2010) DeMaris et al. (2003), Jain et al. (2010), Van Wyk et al. (2003)
Other	2	12	Gage & Hutchinson (2006), Wright & Benson (2010)
No theory identified	8	47	Ackerson et al. (2008), Ackerson & Subramanian (2008), Boyle et al. (2009), Cunradi et al. (2000), Cunradi et al. (2002), Gage (2005), Lauritsen & Schaum (2004), Naved & Persson (2005)
Type of Statistical Analysis (n= 17)			
Logistic regression	6	35	Benson et al. (2003), Benson et al. (2004), Cunradi et al. (2000), Gage (2005), Lauritsen & Schaum (2004), Van Wyk et al. (2003)
Generalized multinomial logit model	2	12	DeMaris et al. (2003), Cunradi et al. (2002)
Multi-level logistic regression	7	41	Ackerson et al. (2008), Ackerson & Subramanian (2008), Boyle et al. (2009), Browning (2002), Gage & Hutchinson (2006), Naved & Persson (2005), Wright & Benson, (2010)
Multi-level linear regression	1	6	Jain et al. (2010)

Path Analysis	1	6	Caetano et al. (2010)
Outcome of Analysis (n= 20)			
Physical IPV	13	65	Ackerson et al. (2008), Ackerson & Subramanian (2008), Benson et al. (2003), Benson et al. (2004), Boyle et al. (2009), Browning (2002), DeMaris et al. (2003), Gage (2005), Jain et al. (2010), Naved & Persson (2005) *urban & rural,* Van Wyk et al. (2003), Wright & Benson, (2010)
Physical or Sexual IPV	4	20	Caetano et al. (2010), Cunradi et al. (2000), Cunradi et al. (2002), Lauritsen & Schaum (2004)
Sexual IPV	2	10	Gage (2005), Gage & Hutchinson (2006)
Emotional IPV	1	5	Gage (2005)
Outcome Type (n=17)			
Woman self-report	10	59	Ackerson et al. (2008), Ackerson & Subramanian (2008), Boyle et al. (2009), Browning (2002), Gage (2005), Gage & Hutchinson (2006), Jain et al. (2010), Lauritsen & Schaum (2004), Naved & Persson (2005), Wright & Benson (2010)
Couple report	7	41	Benson et al. (2003), Benson et al. (2004), Caetano et al. (2010), Cunradi et al. (2000), Cunradi et al. (2002), DeMaris et al. (2003), Van Wyk et al. (2003)
IPV Measurement Instrument (n=17)			
Conflict Tactics Scale or Adaption	11	65	Benson et al. (2003), Benson et al. (2004), Browning (2002), Caetano et al. (2010), Cunradi et al. (2000), Cunradi et al. (2002), Gage (2005), Gage & Hutchinson (2006), Jain et al. (2010), Naved & Persson (2005), Wright & Benson (2010)
None described	6	35	Ackerson et al. (2008), Ackerson & Subramanian (2008), Boyle et al. (2009), DeMaris et al. (2003), Lauritsen & Schaum (2004), Van Wyk et al. (2003)

Table 4. Data source, sample size, community-level variables, and outcomes of included studies.

Article	Data Source	N	Community-level Variables in Model	Outcome	
Ackerson et al., 2008	1998 -1999 INFHS-2	83,627	Neighborhood female literacy, neighborhood male literacy*	Physical IPV	Any violence vs. none
Ackerson & Subramanian, 2008	1998-1999 INFHS-2	83,627	Neighborhood wealth	Physical IPV	Any violence vs. none
Benson et al., 2003^	NSFH waves 1 & 2 (1988 & 1994)	3006	Concentrated disadvantage, residential instability	Physical IPV	Any violence vs. none
Benson et al., 2004^	NSFH wave 2 (1994)	4392	Concentrated disadvantage	Physical IPV	Any violence vs. none
Boyle et al., 2009	1998-1999 INFHS-2	68,466	Standard of living, women's education, acceptance of partner mistreatment	Physical IPV	Any violence vs. none
Browning, 2002^	PHDCN 1995-1997 Chicago Health and Social Life Survey	199	Concentrated disadvantage, residential stability, immigrant concentration, collective efficacy, norms of nonintervention, non-intervention X collective efficacy, violent victimization	Physical IPV (Severe)	Any violence vs. none
Caetano et al., 2010^	NAS wave 2 (2000)	919	% poverty, % high school graduate, % unemployed, % working class, perceived social cohesion, perceived informal social control	Any physical or sexual IPV	Continuous measure (0 = no acts of violence, 1 = any one violent act, 2 = two or more types of violent acts)
Cunradi et al., 2000^	NAS (1995)	555 (white) 358 (black) 527 (Hispanic)	% poverty	Any physical or sexual IPV	Any violence vs. none
Cunradi et al., 2002^	NAS (1995)	1615	% unemployed	Any physical or	Severe violence,

				sexual IPV	moderate, violence, or none
DeMaris et al., 2003^	NSFH waves 1 & 2 (1998 & 1994)	4095	Economic disadvantage	Physical IPV	Intense male violence, physical aggression, or none
Gage, 2005	2000 Haiti DHS	2564	Neighborhood male unemployment rate, level of physical punishment of children by males, neighborhood poverty level	Physical IPV; Sexual IPV; Emotional IPV	Any violence vs. none
Gage & Hutchinson, 2006	2000 Haiti DHS	2240	Community development, female-headed household concentration	Sexual IPV	Any violence vs. none
Jain et al., 2010^	PHDCN Longitudinal Cohort (1995 -2002)	352	Concentrated poverty, perceived violence, collective efficacy	Physical IPV	Continuous measure (sum of number and frequency of acts of violence during past year)
Lauritsen & Schaum, 2004^	NCVS (1995)	~90,000	% poverty, % female-headed households with children, % black, % less than 18	Any physical or sexual IPV	Any violence vs. none
Naved & Persson, 2005	Bangladesh subset of WHO Multi-Country Study (2001)	1,373 (Urban) 1,329 (Rural)	Attitudes towards gender roles, perceived violence	Physical IPV	Any violence vs. none
Van Wyk et al., 2003^	NSFH - Wave 2 (1994)	6257	Disadvantage	Physical IPV	Any violence vs. none
Wright & Benson, 2010^	PHDCN Longitudinal Cohort	4640	Concentrated disadvantage, concentrated immigration, residential stability,	Physical IPV (Severe)	Any violence vs. none

intolerance of deviance,
privacy of family fighting, any
friends in neighborhood
cluster, any family in
neighborhood cluster

DHS – Demographic and Health Survey; INFHS-2 – Second Indian National Family Health Survey; NSFH – National Survey of Families and Households; NAS
– National Alcohol Survey; NCVS – National Crime Victimization Survey; PHDCN - Project on Human Development in Chicago Neighborhoods;
* neighborhood female literacy and neighborhood male literacy were analyzed in separate models.
^ denotes research was conducted with a US-based sample

Table 5. Community-level correlates of current IPV against women

Community-level Variables°	Physical IPV	Sexual IPV	Emotional IPV	Physical or Sexual IPV
SOCIAL DISORGANIZATION				
Concentrated Disadvantage				
Benson et al., 2003^	aOR 1.36* SE (0.13)			
Benson et al., 2004^	aOR 1.31**			
Browning, 2002^	aOR 1.50, SE (0.64)			
DeMaris et al., 2003^ (economic disadvantage)				
Intense male violence	aOR 1.05**, (1.02, 1.09)			
Physical aggression	aOR 1.01 (.98, 1.03)			
Jain et al., 2010^ (concentrated poverty)	Continuous (-0.02), SE (0.33)			
Van Wyk et al., 2003^ (disadvantage)	*aOR 1.17 (with individual level race in model)* *aOR 1.23** (without individual level race in model)*			
Wright & Benson, 2010^	*aOR 1.24**			
Residential Stability/Instability				
Benson et al., 2003^ (instability)	aOR 0.13*, SE (0.84)			
Browning, 2002^ (stability)	aOR 0.97, SE (0.58)			
Wright & Benson, 2010^ (stability)	*aOR 1.01*			
Immigrant Concentration				
Browning, 2002^	aOR 1.69, SE (0.65)			
Wright & Benson, 2010^	*aOR 0.94*			

COLLECTIVE EFFICACY/SOCIAL COHESION

Collective Efficacy

Browning, 2002^	aOR 0.23**, SE (0.66)	
Jain et al., 2010^	Continuous (-0.34), SE (0.28)	

Perceived Social Cohesion

Caetano et al., 2010^		Path model estimate (-0.08)*, SE (0.03)

Perceived Informal Social Control

Caetano et al., 2010^		Path model estimate (-0.01), SE (0.04)

Any Friends in Neighborhood Cluster

Wright & Benson, 2010^	*aOR 0.55*	

Any Family in Neighborhood Cluster

Wright & Benson, 2010^	*aOR 0.49**	

SOCIOECONOMIC STANDING

% Poverty

Caetano et al., 2010^		Path model estimate 0.12, SE (0.08)
Cunradi et al., 2000^		aOR (white) 1.68, (0.47, 6.00) aOR (black) 3.09**, (1.35, 7.04) aOR (Hispanic) 1.34, (0.71, 2.54)
Lauritsen & Schaum, 2004^		*OR 0.98**

Standard of Living

Ackerson & Subramanian, 2008 (Neighborhood wealth)	aOR (richest is ref) aOR (3rd quartile) 1.10, (0.96, 2.17)	

	aOR (2nd quartile) 0.96, (0.81, 1.14) aOR (1st quartile) 1.05, (0.87, 1.26)		
Boyle et al., 2009 (Standard of living)	aOR 1.04 (0.91, 1.20)		
Gage 2005 (Neighborhood poverty level)	aOR (low is ref) aOR (medium poverty) 0.89, SE (0.17) aOR (high) 0.93, SE (0.31)	aOR (low is ref) aOR (medium) 1.77*, SE (0.51) aOR (high) 2.36** (0.77)	aOR (low is ref) aOR (medium) 0.994, SE (0.170) aOR (high) 1.09, SE (0.30)

Community Development

Gage & Hutchinson, 2006		*aOR (low is ref)* *aOR (medium) 0.65* *aOR (high) 0.96*	

Neighborhood Male Unemployment Rate

Gage, 2005	aOR (low is ref) aOR (medium) 1.14, SE (0.25) aOR (high) 1.01, SE (0.29)	aOR (low is ref) aOR (medium) 1.78**, SE (0.35) aOR (high) 2.22**, SE (0.50)	aOR (low is ref) aOR (medium) 1.06, SE (0.26) aOR (high) 1.07, SE (0.29)

% Unemployed

Caetano et al., 2010^				Path model estimate (-0.01), SE (0.05)
Cunradi et al., 2002^				aOR (low is reference)
Severe IPV				aOR (medium 5-10%) 1.92, (0.72 – 5.16) aOR (high >10%) 3.11*, (1.08 -

		9.01)
Moderate IPV		aOR (low is reference)
		aOR (medium 5-10%)
		0.82, (0.40 - 1.69)
		aOR (high >10%)
		1.53 (0.74 - 3.18)
Women's Education		
Boyle et al., 2009	aOR 0.99, (0.96, 1.02)	
% High School Graduate		
Caetano et al., 2010^		Path model estimate 0.05, SE (0.08)
Neighborhood Female Literacy		
Ackerson et al., 2008	aOR (highest is reference) aOR (middle) 1.20*, (1.07, 1.35) aOR (lowest) 1.14, (0.99, 1.31)	
Neighborhood Male Literacy		
Ackerson et al., 2008	aOR (highest is reference) aOR (middle) 1.07, (0.96,1.19) aOR (lowest) 1.14*, (1.01,1.28)	
Female-Headed Household Concentration		
Lauritsen & Schaum, 2004^		*aOR 1.03**
% Working Class		
Caetano et al., 2010^		Path model estimate (-0.01), SE (0.05)
Racial Composition (% black)		

Lauritsen & Schaum, 2004^			*aOR 0.99*
Age Composition (% less than 18)			
Lauritsen & Schaum, 2004^			*aOR 1.03**

COMMUNITY VIOLENCE

Non-intervention Norms/Privacy of Family Fighting

Browning, 2002^	aOR 2.45*, SE (0.40)
Wright & Benson, 2010^	*aOR 0.34***

Collective Efficacy X Nonintervention Norms

Browning, 2002^	aOR 3.44**, SE (0.46)

Intolerance of Deviance

Wright & Benson, 2010^	*aOR 0.87*

Perceived Violence/Violent Victimization

Jain et al., 2010^ (perceived violence)	Continuous variable (-0.20), SE (0.33)
Browning, 2002^ (violent victimization)	aOR 1.32, SE (0.37)
Naved & Persson, 2005 (perceived violence)	
(Urban)	aOR 5.60
(Rural)	aOR 6.07

Level of Physical Punishment of Children by Males

Gage, 2005	aOR (low is reference)	aOR (low is reference)	aOR (low is reference)
	aOR (medium)	aOR (medium)	aOR (medium)
	1.85**, SE (0.46)	0.80, SE (0.21)	1.58*, SE (0.36)
	aOR (high)	aOR (high)	aOR (high)
	1.14, SE (0.24)	1.13, SE (0.25)	1.46, SE (0.32)

COMMUNITY GENDER NORMS

Acceptance of Partner Mistreatment

Boyle et al., 2009	aOR 1.19*, (1.08, 1.32)

Attitudes Towards Gender Roles

    Naved & Persson, 2005

        (Urban)   aOR 1.08 (Urban)

        (Rural)   aOR 0.93 (Rural)

° Odds ratios (aOR) and other coefficients adjusted for individual, relationship, family, or other community-level variables included in original analysis (listed in Table 4).

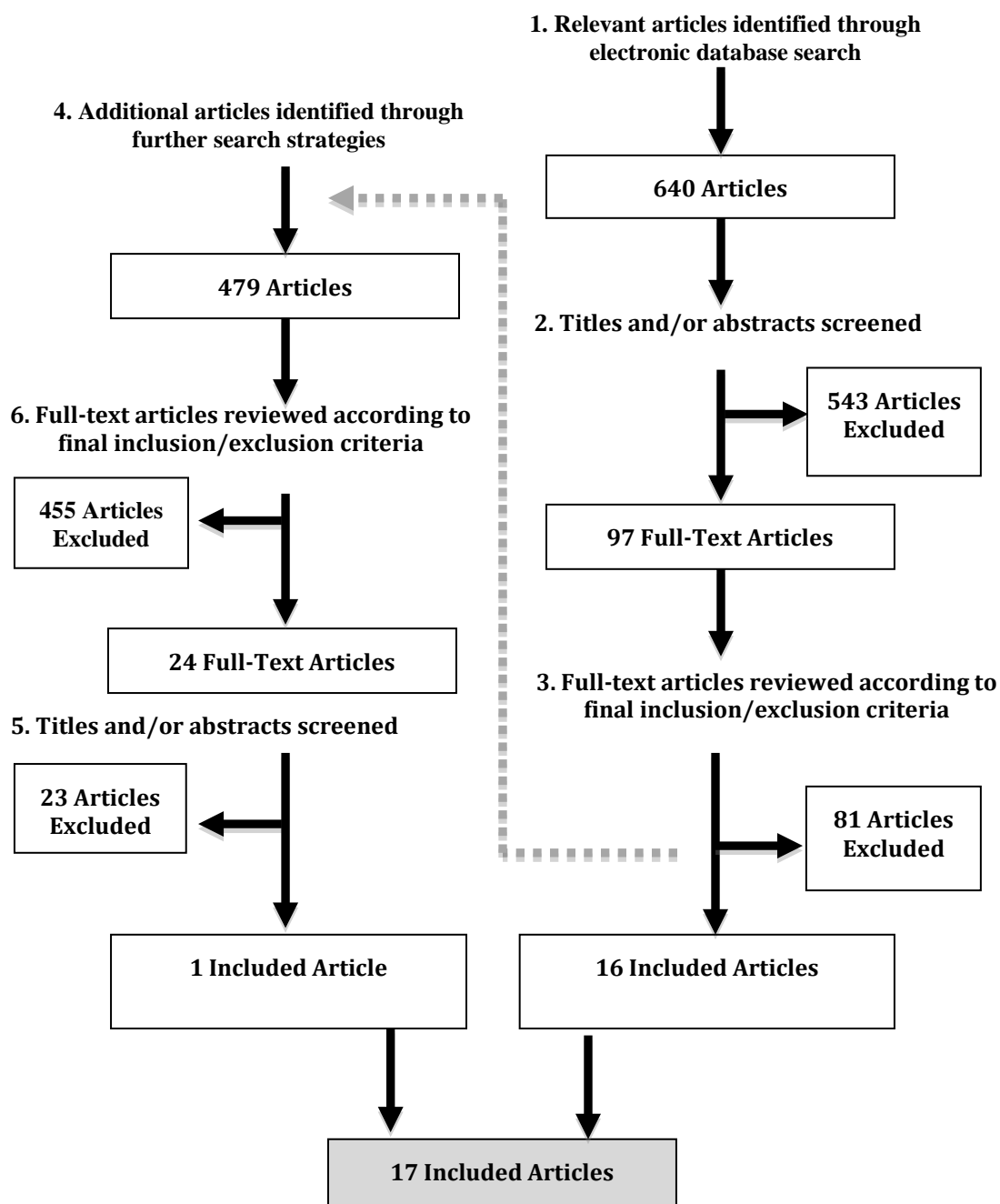^ denotes research was conducted with a US-based sample

Italics – converted from published Exp (B) to adjusted Odds Ratio (aOR).

Significance *<0.05, **<0.01

Figure 1. Search terms for identifying community-level correlates of IPV against women.

Search Terms:	

- Intimate partner violence OR
- Domestic violence OR
- Domestic abuse OR
- Wife abuse OR
- Spouse (spousal) violence OR
- Spouse (spousal) abuse OR
- Wife beating OR
- Intimate terrorism OR
- Sexual violence OR
- Sexual abuse

NOT

- Child abuse
- Stranger rape
- War violence
- Community violence

AND

- Community (major subject heading) OR
- Community-level OR
- Community level OR
- Neighborhood OR
- Neighborhood-level OR
- Neighborhood level OR
- Village OR
- Village-level OR
- Village level OR
- Multilevel OR
- Multi-level OR
- Social disorganization OR
- Collective efficacy OR
- Community poverty OR
- Neighborhood poverty OR
- Gender stratification OR
- Gender inequality

Figure 2. Steps in the search, screening, and selection of studies.

4. Additional articles identified through further search strategies

479 Articles

6. Full-text articles reviewed according to final inclusion/exclusion criteria

455 Articles Excluded

24 Full-Text Articles

5. Titles and/or abstracts screened

23 Articles Excluded

1 Included Article

1. Relevant articles identified through electronic database search

640 Articles

2. Titles and/or abstracts screened

543 Articles Excluded

97 Full-Text Articles

3. Full-text articles reviewed according to final inclusion/exclusion criteria

81 Articles Excluded

16 Included Articles

17 Included Articles

Chapter 3: Community Economic Status and Physical and Sexual Intimate Partner

Violence Against Women in Bangladesh: Compositional or Contextual Effects?

Abstract

The relationship between economic status and intimate partner violence (IPV)

against women has been theorized to operate at both the household and community

levels. In Bangladesh, the majority of research has focused on household-level measures

of economic status, such as household assets or income, in association with IPV. Less is

known about the relationship between community-level income and IPV, and whether

this relationship is a compositional (characteristics of individuals living in a specific area)

or contextual (characteristics of a group or area) effect. In this research, we used a multi-

level contextual effects analysis to disentangle the household- and community-level

associations between income and physical and sexual IPV against women. This analysis

is based on interviews from a sample of 2702 ever-married women living in 42 rural

villages and 39 urban *moholla* who were surveyed in the Bangladesh subset of the World

Health Organization's Multi-Country Study on Women's Health and Domestic Violence

Against Women (Garcia-Moreno et al., 2005). Results of our analyses showed that as

household income increased, women's risk of experiencing physical or sexual IPV

decreased. Controlling for the effect of living in a low-income household, we found no

additional risk of experiencing IPV for women living in a low-income community. These

results support a household-, not community-level, relationship between income and IPV.

Future research on communities and IPV in Bangladesh should focus on community

characteristics, apart from community income, to explain community-level variation in

IPV against women.

Introduction

Intimate partner violence (IPV) against women, defined as "behavior within an intimate relationship that causes physical, sexual, or psychological harm, including acts of physical aggression, sexual abuse, and controlling behaviors" (WHO, 2010, p.11) is a major public health problem impacting women around the world. The consequences of IPV, for both women and their families, are severe. Women experiencing IPV are at increased risk for multiple physical, psychological, and reproductive health problems, including poor pregnancy outcomes (Yount et al., 2011). Women in all countries and across all social, economic, cultural, and religious groups are at risk for experiencing IPV (WHO, 2002). A multi-country study of IPV against women found that physical and sexual IPV often co-occur within intimate relationships, and 15 to 71% of ever-partnered women reported experiencing physical or sexual IPV, or both, at some point in their lives (Garcia-Moreno et al, 2005). Similarly, another multi-country, population-based study reported lifetime rates of IPV against ever-married women ranging from 18 – 48% (Kishor & Johnson, 2004). In Bangladesh, research has demonstrated that between 42% and 51% of women participating in population-based surveys reported experiencing physical violence at the hands of their husband or intimate partner at some point in their lives (Garcia-Moreno et al., 2005; Koenig et al., 2003). Additionally, population-based studies in Bangladesh reported rates of current and lifetime sexual IPV against women ranging from 20-27% (current) to 37-50% (lifetime) (Garcia-Moreno et al., 2005; Hadi, 2000).

An ecological framework (Heise, 1998) characterizes IPV as an outcome of direct and interacting personal, situational, community, and socio-cultural influences. Globally,

the majority of research on correlates of IPV has focused on individual, relationship, and family factors, but recent research has begun to examine the relationship between communities and IPV. The most commonly studied community-level correlates of IPV are measures of economic status, such as *concentrated disadvantage* (operationalized by summary measures including percentage below the poverty line, percentage on public assistance, percentage of female-headed households, percentage non-white, and percentage unemployed living in a neighborhood), percentage living in poverty, asset-based measures of community wealth, and percentage unemployed. The relationship between economic status and IPV has been theorized to operate at multiple levels. At the community level, researchers have drawn from social disorganization theory, a theory rooted in U.S. criminology. At the household level, researchers have drawn from resource theory (Goode, 1971), which posits that there is an inverse relationship between individual resources and IPV.

Pertinent to the discussion of economic status and IPV is the differentiation of contextual and compositional effects. Specifically, a contextual effect refers to the characteristics of a group or area, whereas a compositional effect refers to the characteristics of individuals living in a specific area (Diez-Roux, 2000; 2002). A contextual effect is present if the aggregate of a person level characteristic, such as mean neighborhood income, is related to an outcome after controlling for the effect of the person level characteristic, such as household income (Raudenbush & Bryk, 2002).

Although recent researchers have demonstrated a negative association between household economic status, measured in terms of household assets and income, and physical IPV in Bangladesh (Ahmed, 2005; Bates et al., 2004; Hadi, 2005; Koenig et al.,

2003; Sambisa et al., 2010; Sambisa et al., 2011), to our knowledge, none have explored

the association between community-level economic status and physical and sexual IPV in

Bangladesh, controlling for household economic status. To address this gap in the

literature we used a multi-level contextual effects analysis to disentangle the household-

and community-level associations between income and IPV.

Theoretical Perspectives and Empirical Research

Community-level Factors and IPV

In the 1990's researchers began to explore the relationship between community

economic status and IPV particularly in urban, U.S. settings. Subsequent research,

especially in the U.S., has often drawn from social disorganization theory (Shaw &

McKay, 1942, 1969), a criminology theory used to explain crime and delinquency in

urban, North American cities, to explain community-level variations in IPV against

women. The main premise of the theory is that economically deprived, ethnically

heterogeneous neighborhoods with high levels of residential mobility are unable to

organize to reduce crime and deviant behavior in their neighborhoods. Social

disorganization has been examined in relation to IPV through multi-level regression

analyses of community variables such as concentrated disadvantage (Benson et al., 2003;

Benson et al., 2004; Demaris et al., 2003; Jain et al., 2010; Van Wyk et al., 2003; Wright

& Benson, 2010, 2011), neighborhood deprivation (Kiss et al., 2012), the percentage

of population living in poverty (Caetano et al., 2010; Cunradi et al., 2000; Lauritsen &

Schaum, 2004), asset-based measures of standard of living (Ackerson & Subramanian,

2008; Boyle et al., 2009; Gage, 2005), neighborhood unemployment or male

unemployment (Caetano et al., 2010; Cunradi et al., 2002; Gage, 2005), residential

stability/instability (Benson et al., 2003; Browning, 2002; Wright & Benson, 2010), and immigrant concentration (Browning, 2002; Wright & Benson, 2010). Measures of community economic status, such as concentrated disadvantage, poverty, and standard of living, have been analyzed most frequently (VanderEnde et al., under review). Results of these analyses, which controlled for variables at the individual, relationship, or household level, showed a positive relationship between neighborhood concentrated disadvantage and physical IPV in the U.S. (Benson et al., 2003; Benson et al., 2004; Demaris et al., 2003; Van Wyk et al., 2003; Wright & Benson, 2010, 2011). These results were countered, however, by findings from Brazil (Kiss et al., 2012), India (Ackerson & Subramanian, 2008; Boyle et al., 2009), Haiti (Gage, 2005) and the U.S. (Caetano et al., 2010; Cunradi et al., 2000; Lauritsen & Schaum, 2004) indicating an inconsistent association between neighborhood deprivation, standard of living, or neighborhood poverty and IPV. Other aspects of the theory, specifically the association between IPV against women and residential instability and immigrant concentration, are not supported by empirical findings from Chicago-based research (Browning, 2002; Wright & Benson, 2010).

Based on these inconsistent research findings, we argue that current theoretical explanations for the relationship between community economic status and IPV against women, as proposed by social disorganization theory, may not be applicable to non-urban, non-U.S. settings. Specifically, concentrated disadvantage, as frequently measured in the U.S., is composed of a index of measures, such as percentage on public assistance, percentage non-white, and percentage of female-headed households, that may not be directly transferable across cultural contexts. As noted previously, other measures

frequently included in concentrated disadvantage indexes, such as percentage in poverty and percentage unemployed, when analyzed independently, have not been consistently associated with IPV against women in the literature. In addition, an underlying assumption of social disorganization theory is that organized communities act to prevent deviant behavior. We question whether is assumption is applicable in the case of IPV against women. Specifically, communities may differ in their recognition of IPV as deviant behavior, a factor that distinguishes IPV from other forms of violence.

Household-level Factors and IPV

Goode's theory of resources and force (1971) asserts that in households with fewer economic resources, individuals have less power and prestige, and thus have fewer resources available to achieve their desired goals. As a consequence, they are more likely to rely on force to exert power. Others view stress as a mediator of the relationship between household poverty and IPV, as low income increases stress, leading to violence (Gelles, 1974; Jewkes, 2002). These explanations of the relationship between household economic status and physical IPV against women have empirical support from research from India (Jejeebhoy & Cook, 1997), Thailand (Hoffman et al., 1994), Cambodia (Yount & Carrera, 2006), the Philippines (Hindin & Adair, 2002), Egypt (Yount, 2005; Yount & Li, 2010), and North America (Smith, 1990). A systematic review of studies from 34 sites in low- and middle-income countries found that higher household wealth (as measured by assets) was, in general, negatively related to IPV against women (Vyas & Watts, 2009). Similarly, results from a multi-country study of correlates of IPV against women in 15 sites in 10 countries demonstrated an association between higher household socioeconomic status (SES) and a decreased risk of experiencing IPV (physical and/or

sexual) in the majority (14 of 15) of sites. This relationship was statistically significant in

8 of the sites (Abramsky et al., 2011). In contrast, Kishor & Johnson's (2004) analysis of

DHS data from nine countries found an inconsistent relationship between household SES

and IPV, with analyses of data from India, Egypt, and Peru showing a decrease in odds of

women experiencing violence as household wealth increased, while analyses from other

countries demonstrated either non-significant or inconsistent relationships.

In Bangladesh, the relationship between economic status and IPV against women

has focused mainly on household-, not community-level factors. Results from studies

have shown that women living in poorer households are at increased risk of experiencing

physical and mental IPV compared to women living in wealthier households (Ahmed,

2005; Hadi, 2005). In rural Bangladesh, Bates and colleagues (2004) found women's

odds of experiencing physical IPV decreased with increasing economic status, measured

through the use of an aggregate scale of household building materials and ownership of

assets, such as a radio or television. Analyses of the 2006 Urban Health Survey in slum

and non-slum areas of urban Bangladesh found evidence that increasing household

wealth had a negative relationship with physical and sexual IPV, but did not find a

significant association between IPV and residing in slum, versus non-slum urban areas

(Sambisa et al., 2010; Sambisa et al., 2011). Ownership of land also has been shown to

have a negative association with IPV. In two rural areas of Bangladesh, for example,

Koenig and colleagues (2003) reported an inverse relationship between household

landholdings and domestic violence, with women living in households with more land at

a lower risk of violence. In another study (Hadi, 2000) ownership of land was shown to

have a negative association with sexual IPV, but only for women with children in the neonatal period.

Other Factors

  Community-level factors. Analyses of the relationship between economic status and IPV need to account for potential confounders at both the community and household levels. In population-based studies of nine countries, urban residence was associated with an increase in women's reports of experiencing IPV in six countries, while in two countries (India and Egypt) urban residence was associated with a decrease in women's reports of IPV (Kishor & Johnson, 2004). In DHS surveys, urban residence has been associated with higher levels of wealth (Rutstein & Johnson, 2004). In the 2007 Bangladesh DHS more than half of the population in urban areas was classified in the highest wealth quintile, compared to with only nine percent of those in rural areas (National Institute of Population Research and Training [NIPORT], Mitra and Associates, and Macro International 2009).

  Individual-level factors. Individual demographic factors, specifically age and educational level, may also confound the relationship between economic status and IPV. In Bangladesh, persons living in lower wealth quintiles were less likely to have attended school (NIPORT, Mitra and Associates, and Macro International 2009) and both women's young age and low educational level have been associated with an increased risk of IPV (Ahmed, 2005; Bates et al., 2004; Hadi, 2000, 2005; Koenig et al., 2003; Naved & Persson, 2005; Schuler et al., 1996). In addition, other risk factors have been consistently associated with IPV against women in Bangladesh. Marriages involving a dowry, poor spousal communication, and a history of abuse of a woman's husband's

mother by his father all have been associated with an increased risk of IPV in urban and rural areas (Bates et al., 2004; Naved & Persson, 2005, 2010).

Summary

Based on the above evidence, we hypothesized that the relationship between economic status and IPV against women in Bangladesh is a household-, not community-level, association. After accounting for potential confounders and other risk factors for IPV, we expected that women living in poorer households would be more likely to experience IPV than women living in less poor households. Controlling for household economic status, we anticipated no increased risk of experiencing IPV for women living in poorer communities compared to less poor communities. While the majority of research has examined community-level correlates of physical IPV, much less is known in regards to sexual IPV. Researchers examining community-level correlates of IPV in Haiti have shown different patterns for physical and sexual IPV. Specifically, neighborhood poverty and neighborhood male unemployment were positively associated with sexual, but not physical IPV (Gage, 2005). Likewise, researchers from Bangladesh (Garcia-Moreno et al., 2005) have shown that physical and sexual IPV have different prevalence patterns across urban and rural areas. For this reason, we considered separate models for each outcome, physical and sexual IPV.

Methods

This analysis is based on data drawn from the Bangladesh subset of the World Health Organization's (WHO) *Multi-Country Study on Women's Health and Domestic Violence Against Women* (Garcia-Moreno et al., 2005). The International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) an international research organization

based in Dhaka, in collaboration with Naripokkho, a women's activist organization
(Naved & Persson, 2005) collected data for the study from an urban and a rural area of
Bangladesh. The urban setting for the study, a city with a population of over 10 million
people includes areas of extreme poverty and low literacy. The population of the city is
90% Muslim. The rural setting for the study is a densely populated rural district of
Bangladesh located southeast of the capital. Also a predominantly Muslim area, it is
characterized by subsistence farming and pervasive landlessness (Garcia-Moreno et al.,
2005).

Using a multi-stage sampling strategy, clusters comprised of 42 villages in the
rural area and 39 *moholla* (the smallest administrative unit, in the urban area) were
randomly selected (Garcia-Moreno et al., 2005). In the rural area, a household list,
updated each month by icddr,b, was used to randomly select 20% of households within
each cluster, for a total of 1946 selected households. In the urban area, every sixth
household in a cluster was selected, starting from a randomly selected point using the
probability-proportionate-to-size method, for a total of 2105 selected households (Garcia-
Moreno et al., 2005). Of the households selected, approximately 10% in each area were
empty or destroyed. The response rate for the remaining households was 95.8% in the
rural area and 95.9% in the urban area (Garcia-Moreno et al., 2005). A total of 3505
household questionnaires, which included general information about economic indicators,
including household income, were administered to any adult in the household. This form
also included a list of the age and initials of females in the household. If more than one
eligible female resided in the household, one woman was selected randomly from the list
to participate. Women between 15 – 49 years of age residing in the study households

were eligible to participate in the study. The women's questionnaire was administered in a private setting, and included an individual consent form. In total, 3130 women were interviewed between June 25 and November 25, 2001. Of these, 2702 ever-married women between the ages of 15 and 49 were included in the present analysis (Garcia-Moreno et al., 2005).

In studies on IPV, the reliability of studies may be influenced by high rates of non-disclosure of violence. The design and wording of questions, the training of interviewers, and the way in which the study is implemented all influence the rates of disclosure of personal experiences of IPV (Ellsberg & Heise, 2005; Ellsberg et al., 2001). The WHO Multi-Country study addressed this issue through a comprehensive process of selecting and training of interviewers. Local interviewers were selected at each country site with standard selection criteria applied across all study locales. Only female interviewers and supervisors were considered, and an emphasis was placed on cultural sensitivity (Jansen et al., 2004). Interviewer training consisted of a standardized 3-week training program developed by the core research team. The training sensitized interviewers on gender issues and gender-based violence, and provided special training on skills to minimize any distress experienced by respondents during the interview. Interviewers were familiarized with the study questionnaire through role-plays and field practice. During the final week of interviewer training, the questionnaire was pilot tested in the research area. Field support was provided for the interviewers throughout the study period (Jansen et al., 2004).

Measurement of Study Variables

Dependent variables. Two dimensions of IPV were considered as separate dependent variables: *current physical and sexual IPV*. These variables were measured using items adapted from the revised Conflict Tactics Scale (CTS2) (Straus et al., 1996). Physical violence in the past 12 months was represented by a woman who reported that her husband or partner: (a) slapped her or threw something at her that could hurt her; (b) pushed or shoved her; (c) hit her with his fist or with something else that could hurt her; (d) kicked her, dragged her or beat her up; (e) choked or burnt her on purpose; (f) threatened to use or actually used a gun, knife or other weapon against her. Sexual violence in the past 12 months was represented by women who reported that their husband or partner: (a) physically forced her to have sexual intercourse when she did not want to; (b) forced her to do something sexual she found degrading or humiliating; or (c) she had sexual intercourse when she did not want to because she was afraid of what he might do. Outcomes were dichotomous, either any experience of violence in the past 12 months, or none.

The Conflict Tactics Scale and the Revised Conflict Tactics Scale, from which the measurement of IPV was drawn, have been used widely in the measurement of IPV both in the US and internationally (Langhinrichsen-Rohling, 2010). These scales provide a standard approach to the measurement of IPV (Johnson, 2006). Good internal consistency has been established for the scale, with Cronbach alphas of 0.81 and 0.66 reported for measures of physical and sexual violence across all sites in the WHO Multi-country study (Garcia-Moreno et al., 2005). The measurement of physical and sexual IPV in this analysis, therefore, is consistent with both previous quantitative measures of IPV in Bangladesh (Naved & Persson, 2005) and internationally (Garcia-Moreno et al., 2005).

Independent variables. *Household income*, a measure of household economic status, was represented by annual household income in taka, divided by the number of individuals in the household. In the household questionnaire administered to an adult household member before the interview with the selected woman, respondents were asked, "how much is your household's total annual income, in cash and kind?" We divided the total household income in taka by the number of individuals in each household, creating a per capita measure. The use of annual income in taka as measure allowed for comparability across urban and rural areas, which may differ in household construction materials and type of household assets, making it an appropriate choice for our analysis. *Community income*, a measure of community economic status, was represented by the mean household income (per capita) for each village or *moholla*. We used information on household income from all completed household questionnaires (n=3424) to construct this measure. In Bangladesh, relatively few women earn an income (NIPORT, Mitra and Associates, and Macro International 2009; Naved & Persson, 2005), thus this measure of income is mostly likely weighted towards husbands' earnings.

Control variables. As our sample was drawn from urban and rural areas of Bangladesh, we controlled for residence, a potential community-level confounder. We also controlled for women's age (in years) and education (in years), and other demographic variables, potential household-level confounders. To assess the significance of the relationship between household- and community-level income and physical or sexual IPV, net of other known risk factors for IPV, we included the following as controls in our analysis: marriage involving a dowry (yes, no); husband family history of IPV (yes, no); relative education between husband and wife (husband with less education,

husband and wife equal education, husband with more education); and spousal communication (high, moderate, low).

Analysis

First, descriptive statistics were generated in PASW version 18.0 ® for Mac for all independent, dependent and control variables to identify missing and improbable values and to verify assumptions for statistical tests were met.

Secondly, we examined the correlations between each covariate and physical and sexual IPV. Bivariate analyses of income (measured continuously in thousands of taka per year) and physical and sexual IPV revealed a positively skewed relationship, necessitating a log transformation of the income variable.

Level-1 model for binary outcomes. Hierarchical generalized linear model (HGLM) analyses predicting women's likelihood of experiencing physical or sexual IPV were generated using HLM7 (Raudenbush et al., 2011). With data that have an inherently structured nature, it is an advantage to employ statistical methods that are able to match this underlying hierarchical structure (Gelman & Hill, 2007; Raudenbush & Bryk, 2002). Multi-level models provide this structure by allowing researchers to analyze effects occurring at each level, across levels, and also to assess the amount of variation at each level (Raudenbush & Bryk, 2002). The outcomes of interest in our research, physical and sexual IPV, were measured dichotomously, with $y = 1$ if a woman experienced violence in the past year, and $y = 0$ if no experience of violence in the past year. HGLM offers a modeling framework for multilevel data with nonlinear outcomes and non-normally distributed errors. The level-1 model in HGLM is made of 1) a sampling model, 2) a link function, and 3) a structural model (Raudenbush & Byrk, 2002). Using HGLM for binary

outcomes, the level-1 sampling model is binomial, and the link is logit. The sampling

model is written as:

$$\phi_{ij} = \text{prob}(Y_{ij} = 1|\beta_j)$$

Where Y_{ij} has a binomial distribution and a probability of success ϕ_{ij}. When the sampling

model is binomial, HGLM uses the logit link function. This equation is written as:

$$\eta_{ij} = \log[\phi_{ij}/(1 - \phi_{ij})$$

The transformed predicted value, η_{ij}, is now the log odds of success. The structural model

for the level-1 HGLM is

$$\eta_{ij} = \beta_{0j} + \beta_{1j}X_{ij} + ...\beta_{Qj}X_{Qj}$$

Contextual effects model. Once the level-1 model has been adjusted for binary

outcomes using the sampling, link, and structural models, the level-2 models are the same

as in standard hierarchical linear models. The focus of this research, disentangling the

relationship between income and physical and sexual IPV in Bangladesh, was

accomplished through analysis of two-level contextual effects models with binary

outcomes. To assess for the presence of a contextual effect (i.e. an association between

community income and physical and sexual IPV after controlling for the effect of

household income), we included a measure of household income at level 1, and its

aggregate, a measure of mean community income, in the level-2 model for the intercept.

The structural model for level 1, including control variables (X_{pj}), with all

predictors grand mean centered:

Level-1 model:

$$\eta_{ij} = \beta_{0j} + \beta_{1j}\text{hhincome} + \sum_{p=1}^{P-1} \beta_{pj}X_{pj}$$

Where η_{ij} is the log odds for woman i in community j as a function of the (adjusted) community mean log odds of experiencing IPV (β_{0j}), household income (β_{1j}), and level-1 covariates ($\sum_{p=1}^{P-1} \beta_{pj} X_{pj}$). The level-1 intercept and coefficients become outcomes at level 2.

Level-2 model:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} \text{CommunityIncome}_j + \gamma_{02} \text{Location} + u_{0j}$$

$$\beta_{pj} = \gamma_{p0} \text{ for p} > 0.$$

At level 2, we model the (adjusted) community mean log-odds of experiencing IPV (β_{0j}) as a function of the grand mean log-odds of experiencing IPV (γ_{00}), mean community income (γ_{01}), a community-level control for location (γ_{02}) and the random effect of community j (u_{0j}). We constrained the slope of each level-1 covariate to be the same fixed value for each level-2 unit ($\beta_{pj} = \gamma_{p0}$ for p > 0). We included weights to adjust for the probability of selection at level 1 and employed adaptive Guassian estimation techniques. We assumed that the random effect of the intercept (u_{0j}) is normally distributed with a mean of zero and a variance of τ_{00}.

We fit two separate models for physical and sexual IPV. First, to assess the variability of physical and sexual IPV across communities, we ran an unconditional model with random intercepts, examining the magnitude and standard error of the variance estimates. We did not calculate an intraclass correlation coefficient (ICC), as the level-1 variance in models with binary outcomes is heteroscedastic, and thus less informative (Raudenbush & Byrk, 2002). In the second model, we assessed for the presence of a contextual effect by adding a level-1 household income measure (log transformation) along with level-1 control variables, all grand-mean centered. At level 2 we added measures of community income with a control for location. We tested an

interaction between community income and location at level 2 (not shown), and found it

non-significant, indicating that the relationship between community income and physical

and sexual IPV did not differ by residence. We did not include the interaction term in

subsequent models. Grand-mean centering household income and other level-1 variables

allowed for the interpretation of the level-2 intercept *adjusted for the effect of level-1*

variables. Therefore, a statistically significant result for the direct effect of community

income (γ_{01}) would indicate a contextual effect.

Results

Characteristics of the Sample

Characteristics of the sample are included in Table 1. The sample was

predominantly Muslim (>80%) in both urban and rural areas, with more Hindu

respondents in the rural versus urban area (16.1% versus 4.9%). The women were, on

average, 30.6 years of age and had 5.5 years of formal schooling, with urban women

reporting more years of schooling than their rural counterparts. Over half of women in

the rural area reported a marriage involving a dowry (53.3%) compared to 14.2% of

women in the urban area. While the majority of women in the urban area (63.8%) had

less education than their husbands, over half of women in the rural area reported equal

(33.6%) or more years (19.3%) of education than their husbands. Across all sites, 9.4% of

women reported a history of IPV in their husband's family. Annual household income,

weighted by number of individuals in the household, varied widely both within and

between urban and rural areas. On average, however, household income was higher in the

urban area (mean 33,100 taka per year) compared to rural area (9,700 taka per year). A

log transformation adjusted for the skewed distribution of the income variable. Across all

sites, a greater percentage of women reported experiencing any sexual IPV in the past 12 months (22.2%) compared to any physical IPV in the past 12 months (17.4%). This pattern was particularly apparent in the rural area, where 24.2% of women reported current sexual IPV, compared to 15.8% of women reporting current physical IPV.

[Table 1]

Characteristics of Communities

Information regarding community characteristics is presented in Table 2. The sample available for the construction of the community income variable (n = 3424) was larger than that available for the individual-level outcomes, which was limited to information from ever-married women between the ages of 15 – 49 (n= 2702). Across all sites, the mean number of ever-married women per community was 33.4, but this varied widely between communities (SD 37.1). The percentages of women reporting physical IPV or sexual IPV per community ranged widely from 0% to 50% for physical IPV and from 0% to 71% for sexual IPV. The mean annual household income per community followed a similar pattern to household level income, with higher mean incomes reported in the urban area.

[Table 2]

Bivariate Associations

Correlations among variables are presented in Table 3. At the community level (village or *moholla*) income and urban residence were strongly correlated (r = 0.871). Both income and urban residence were negatively correlated with sexual IPV. However, income was not correlated with physical IPV while urban residence was positively

correlated with physical IPV. At the household level income was negatively correlated with both physical and sexual IPV, and the cross-level association between community and household income was strong (r = 0.673). At the individual level, spousal communication (r = -.172), women's age (r = -.170), husband's family history of violence (r = .153), and women's years of schooling (r = -.130) showed the strongest bivariate associations with physical IPV, while women's age (r = - .131), a marriage involving a dowry (r = .120), and husband's family history of violence (r = .112) and spousal communication (r = -.118) showed the strongest associations with sexual IPV.

[Table 3]

Multivariate Results

Physical IPV. The results of multivariate models are presented in Table 4. Results from model 1, an unconditional model with random effects, show variation in physical IPV between communities (tau 0.12, SE 0.05). In model 2, we added community income and household income, along with control variables. At level 1, household income was negatively related to physical IPV. After accounting for the effect of household income and other level-1 variables, community income was not statistically significant, suggesting no contextual effect for community income and physical IPV. Urban residence was positively related to physical IPV. After accounting for variables included in model 2, the unexplained variation in physical IPV across communities is greatly reduced (tau 0.00, SE 0.03).

[Table 4]

Sexual IPV. The results of multivariate models for sexual IPV are presented in Table 4. Similar to physical IPV, the unconditional model showed unexplained variation

in sexual IPV between communities (tau = 0.14, SE 0.06). In the contextual model
(model 2), there was no relationship between both community income and urban
residence and sexual IPV, suggesting the lack of a contextual effect for the relationship
between community income and sexual IPV. At level 1, household income was
negatively associated with sexual IPV (p <0.10). In contrast to the model for physical
IPV, the addition of individual and community variables did not reduce the unexplained
variance in model 2 (tau 1.15, SE 0.06).

Discussion

In this analysis, we examined the relationship between economic status and
physical and sexual IPV, a relationship that has been theorized to operate at both the
household and community levels. To differentiate between compositional (household)
and contextual (community) effects, we employed a multi-level contextual effects
analysis to disentangle the household- and community-level associations of income with
IPV. We expected that the relationship between economic status and IPV against women
in Bangladesh would be a household-, not community-level, association. After
controlling for potential confounders, we hypothesized that women living in poorer
households would be more likely to experience IPV than women living in wealthier
households and that, controlling for household income, women living in poorer
communities would not be at increased risk of experiencing IPV compared to women
living in wealthier communities. The study findings support both of our hypotheses.

The relationship between household income and physical and sexual IPV was
negative across all models, although the magnitude of this association was smaller for
sexual IPV. As household income increased, women's risk of experiencing physical or

sexual IPV decreased. These findings are consistent with other research from Bangladesh demonstrating a negative relationship between IPV and both household wealth (Ahmed, 2005; Bates et al., 2004; Hadi, 2005; Sambisa et al, 2010, Sambisa et al., 2011) and increased land ownership (Hadi, 2000; Koenig et al., 2003). These findings are also consistent with results from a multi-country study of correlates of IPV against women (Abramsky et al., 2011) and a systematic review examining the relationship between household wealth and IPV against women in low and middle-income countries (Vyas & Watts, 2009).

As hypothesized, the relationship between community income and physical and sexual IPV was non-significant across all models after controlling for urban residence. From these results, we conclude that in these areas of Bangladesh, the relationship between income and both physical and sexual IPV operates at the household level. Controlling for the effect of living in a poorer household, we found no additional risk of experiencing IPV for women living in a poorer community. These results are consistent with findings from India (Ackerson & Subramanian, 2008; Boyle et al., 2009) demonstrating no significant relationship between community standard of living and physical IPV, and findings from Brazil (Kiss et al., 2012) demonstrating no significant relationship between living in socioeconomically deprived neighborhoods and women's risk of experiencing IPV. These results are also consistent with findings from research in urban Bangladesh demonstrating a negative relationship between household wealth and IPV, but no significant relationship between residence in slum versus non-slum urban communities and IPV (Sambisa et al., 2010; Sambisa et al., 2011).

These results, specifically the non-significance of community income in relation to IPV, lend support to our argument that current theoretical explanations for the relationship between community economic status and IPV, such as those drawn from social disorganization theory, inadequately explain the relationship between income and IPV in non-U.S. settings such as Bangladesh. Instead, we maintain, and our findings support, that the relationship operates at the household level, as men with limited financial resources may use force to exert power in relationships (Goode, 1971).

We also found that urban residence was positively associated with physical, but not sexual IPV. Another compelling finding was the unexplained variance in IPV between communities, particularly the difference in the models for physical and sexual IPV. While the unconditional models for physical and sexual IPV showed similar levels of variation between communities, the pattern was quite different in the final model. While the addition of individual- and community-level variables in model 2 reduced levels of unexplained variance in physical IPV between communities to a negligible level (tau 0.00, SE 0.03), this was not the case for the variance in sexual IPV between communities (tau 0.15, SE 0.06). These findings suggest that, at the community level, physical and sexual IPV may not share the same underlying causal mechanisms, and the same set of correlates may not adequately explain both forms of IPV. This is similar to research findings from Haiti, which showed different patterns for community-level correlates of physical and sexual IPV (Gage, 2005).

These findings are relevant to policy in Bangladesh. A focus on poverty reduction has been noted as an important, but not singular, strategy to reduce IPV globally (Jewkes, 2002). In Bangladesh, poverty alleviation, specifically through microcredit programs

targeting women, has been a focus of both government and non-governmental organizations. Although our findings indicate a relationship between income and IPV at the household, not community level, we encourage caution in the application of this finding to policy. The relationship between women's earnings and IPV differs from the relationship between household income and IPV (Vyas & Watts, 2009). In Bangladesh, for instance, women's membership in microcredit programs has been shown to have both positive and negative associations with women's risk of IPV (Vyas & Watts, 2009). Program and policies aimed at reducing IPV against women through microcredit programs must take into account the relative distribution of resources in the household, and the potential impact that this may have on women's risk of experiencing IPV.

Our study has several limitations. First, the cross-sectional design does not allow for causal inferences. Second, the sample is drawn from two distinct areas of Bangladesh (urban and rural) and is not representative of the country as a whole. Despite these limitations, the use of a multi-stage sampling design has advantages for a study focused on community-level associations. The sample clusters, consisting of villages in the rural area and *mohollas* in the urban area, are more likely to correspond to individuals' perceptions of community than other constructs of community such as census tracts, common in U.S. studies of communities and IPV. Finally, we measured economic status using reported annual income, weighted by the number of household members. The use of household income has been critiqued as a measure of economic status in less developed countries, and the use of a household wealth index, which represents a more permanent status than income, has been recommended (Rutstein & Johnson, 2004). While recognizing this limitation, use of annual income in taka as a measure allows for

comparability across urban and rural residence, which may differ in household construction materials and type of household assets. Because household income in taka is most likely weighted towards male earnings, it corresponds to a theoretical argument that men with less control over resources (i.e. less income) would resort to use of violence to exert control. Lastly, the consistency of our findings with other research on poverty and IPV in Bangladesh lends support to our use of the income measure.

Despite the above-mentioned limitations, this study has a number of strengths. To our knowledge, it is the first to specifically address the compositional versus contextual effects of economic status and IPV in Bangladesh. The findings support an income/IPV relationship operating at the household level, suggesting that future research on community-level correlates of IPV should focus less on economic status and instead focus on other promising correlates, such as gender inequality and collective efficacy (VanderEnde et al., under review). Urban residence was associated with an increased risk of physical, but not sexual, IPV. Likewise, at the community level, physical and sexual IPV demonstrated different patterns of variation. Future research should also focus on community characteristics that might explain these differences.

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Table 1. Individual characteristics of ever-married women.

	Urban	Rural	Total
	n = 1373	n = 1329	n = 2702
Current physical IPV			
yes	261 (19.0%)	210 (15.8%)	471 (17.4%)
no	1112 (81.0%)	1119 (84.2%)	2231 (82.6%)
Current sexual IPV			
yes	277 (20.2%)	322 (24.2%)	599 (22.2%)
no	1096 (79.8%)	1007 (75.8%)	2103 (77.8%)
Age, mean (SD)	29.9 (8.1)	31.21 (8.4)	30.6 (8.3)
Years of schooling, mean (SD)	7.32 (5.0)	3.5 (3.9)	5.5 (4.9)
Annual household income per capita, in thousands of taka, mean (SD)	33.1 (36.6)	9.7 (10.7)	21.6 (29.6)
Household income (log transformation)	1.4 (0.3)	0.9 (0.3)	1.1 (0.4)
Marriage involving a dowry			
yes	195 (14.2%)	709 (53.3%)	904 (33.5%)
no	1174 (85.5%)	620 (46.7%)	1794 (66.4%)
missing	4 (0.3%)	0 (0.0%)	4 (0.1%)
Husband witnessed abuse of mother by his father			
yes	109 (7.9%)	145 (10.9%)	254 (9.4%)
no	1261 (91.8%)	1180 (88.8%)	2441 (90.3%)
missing	3 (0.2%)	4 (0.3%)	7 (0.3%)
Women's relative education			
Husband more education	876 (63.8%)	593 (44.6%)	1469 (54.4%)

Equal education	300 (21.8%)	447 (33.6%)	747 (27.6%)
Husband less education	171 (12.5%)	257 (19.3%)	428 (15.8%)
Missing	26 (1.9%)	32 (2.4%)	58 (2.1%)
Spousal Communication			
High	950 (69.2%)	831 (62.5%)	1781 (65.9%)
Medium	207 (15.1%)	327 (24.6%)	534 (19.8%)
Low	216 (15.7%)	171 (12.9%)	387 (14.3%)
Religion			
Muslim	1301 (94.8%)	1115 (83.9%)	2416 (89.4%)
Hindu	67 (4.9%)	214 (16.1%)	281 (10.4%)
Buddhist	3 (0.2%)	0	3 (0.1%)
Christian	2 (0.1%)	0	2 (0.1%)

Table 2. Community characteristics.

	Urban (n= 39)		Rural (n=42)		Total (n=81)	
	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
Eligible respondents per community						
IPV variables (n=2702)	35.2 (41.6)	1 - 159	31.6 (32.7)	3 - 184	33.4 (37.1)	1 - 184
Community income variable (n=3424)	44.0 (51.5)	2 - 195	40.7(40.2)	3 - 224	42.3 (45.7)	2 - 224
Current physical and sexual IPV prevalence (%)						
Physical IPV	17.3 (11.8)	0 - 50	16.3 (9.2)	0 - 36	16.8 (10.4)	0 - 50
Sexual IPV	17.4 (12.7)	0 - 50	25.2 (13.5)	0 - 71	21.4 (13.6)	0 - 71
Community level income						
Mean annual household income per capita, in thousands of taka, mean, (SD)	36.8 (22.4)	9.6 – 103.3	9.5 (4.5)	3.5 – 30.2	22.6 (20.9)	3.5 – 103.3
Community income (log transformation)	1.4 (0.2)	1.0 - 1.9	0.9 (0.1)	0.6 – 1.3	1.1 (0.3)	0.6 – 1.9

Table 3. Pearson correlations among variables

Community level (n = 81)	1	2	3	4	5	6	7	8	9	10
1. Mean income	1.0									
2. Urban location	**.871**	1.0								
Individual level (n= 2702)										
3. Household income	**.673**	**.585**	1.0							
4. Women's age	**-.038**	**-.077**	-.007	1.0						
5. Women's years of schooling	**.495**	**.386**	**.584**	**-.144**	1.0					
6. Marriage involving dowry	**-.402**	**.414**	**-.367**	**-.172**	**-.312**	1.0				
7. Husband family history IPV	**-.069**	**.051**	**-.062**	.005	**-.098**	**.065**	1.0			
8. Spousal education differences	**.191**	**.176**	**.196**	**.131**	.015	**-.195**	-.026	1.0		
9. Spousal communication	**.036**	.024	**.099**	.034	**.161**	**-.083**	-.030	.033	1.0	
10. Physical IPV	-.007	**.042**	**-.091**	**-.170**	**-.130**	**.091**	**.153**	**-.076**	**-.172**	1.0
11. Sexual IPV	**-.051**	**-.049**	**-.078**	**-.131**	-.038	**.120**	**.112**	-.030	**-.118**	**.300**

Correlations significant at 0.05 level (2-tailed) are noted in **bold.**

Table 4. Multivariate models for current physical and sexual IPV.

	Est. β (SE)	
	Model 1	**Model 2**
Current physical IPV vs. none		
Intercept	-1.62 (0.07)***	-1.84 (0.07)***
Community-level variables		
Community income (log)		- 0.30 (0.47)
Urban Residence		0.97 (0.24)***
Individual-level variables		
Household income (log)		- 0.42 (0.21)**
Women's age		- 0.06 (0.01)***
Women's education		- 0.08 (0.02)***
Marriage involving a dowry		0.23 (0.13)*
Husband family history of IPV		1.10 (0.16)***
Education differences		
Husband more schooling		Referent
Equal years of schooling		0.24 (0.13)*
Husband less schooling		0.41 (0.16)*
Spousal communication		
Low communication		Referent
Moderate communication		- 0.36 (0.17)**
High communication		- 0.96 (0.14) ***
Random effects		
tau (SE)	0.12 (0.05)	0.00 (0.03)
Current sexual IPV vs. none		
Intercept	-1.28 (0.07) ***	-1.38 (0.08)***
Community-level variables		
Community income (log)		- 0.16 (0.54)
Urban Location		0.03 (0.29)
Individual-level variables		
Household income (log)		- 0.33 (0.18)*
Women's age		- 0.04 (0.01)***
Women's education		0.00 (0.01)
Marriage involving a dowry		0.33 (0.12)**
Husband family history of IPV		0.82 (0.15)***
Education differences		
Husband more schooling		Referent
Equal years of schooling		- 0.05 (0.12)
Husband less schooling		- 0.03 (0.15)
Spousal communication		
Low communication		Referent
Moderate communication		- 0.14 (0.16)
High communication		- 0.67 (0.14)***
Random effects		
tau (SE)	0.14 (0.06)	0.15 (0.06)

*** p<0.001, ** p<0.05, *p<0.10

Chapter 4: Community-level Correlates of Intimate Partner Violence Against Women in

Rural Bangladesh

Abstract

While there is a growing body of research examining correlates of intimate

partner violence (IPV) against women in Bangladesh, the majority of this research has

focused on characteristics of women and their families. Little research to date has

examined community-level correlates of IPV against women in the context of rural

Bangladesh. In this study, we use a multi-level analysis to explore the association of

community-level collective efficacy, patriarchal norms, gendered status inequalities, and

community income with physical IPV against women within the past 12 months. This

analysis is based on interviews from women living in 41 villages who were surveyed as

part of a World Health Organization multi-country study on IPV. The results showed that

women residing in communities in which few women question traditional gender norms

(i.e., communities with higher patriarchal norm scores) reported lower log physical IPV

rates then women living in communities in which women question traditional gender

norms (i.e., communities with lower patriarchal norm scores). Additionally, the level of

patriarchal norms in a community modified the relationship between collective efficacy

and physical IPV. Specifically, collective efficacy was negatively associated with log

physical IPV rates, but the effect was strongest in communities with lower patriarchal

norm scores. Community income and gendered status inequalities were not associated

with log physical IPV rates. These findings suggest that future research should focus on

the possible protective effect of collective efficacy, especially in communities in which

traditional gender norms are in transition.

Introduction

Intimate partner violence (IPV) against women, or "behavior within an intimate relationship that causes physical, sexual, or psychological harm, including acts of physical aggression, sexual abuse, and controlling behaviors" (WHO, 2010, p. 11) is a global health problem, one that has serious health consequences for women and their children (Yount et al., 2011). Although both women and men may experience violence at the hands of their intimate partners, globally, women experience IPV more frequently, and with more ensuing health consequences, than men (Breiding et al., 2008; Swan et al., 2008; WHO, 2010). Women in Bangladesh are particularly vulnerable. Between 42% and 51% of Bangladeshi women participating in population-based surveys reported experiencing physical violence at the hands of their husband at some point in their lives (Koenig et al., 2003; Naved & Persson, 2005; Sambisa et al., 2011), and rates of lifetime sexual IPV against women in Bangladesh ranged from 37% to 50% (Garcia-Moreno et al., 2005; Hadi, 2000).

Women's experiences of IPV negatively affect their health and the health of their children (Yount et al., 2011). For women in Bangladesh, physical IPV has been associated with an increase in unwanted pregnancy, miscarriage, induced abortion, stillbirth (Silverman et al., 2007), sexually transmitted infection symptoms (Decker et al., 2008), and contemplation of suicide (Naved & Akhtar, 2008). For children, their mother's exposure to IPV has been associated with an increase in diarrhea and respiratory tract infections (Asling-Monemi et al., 2009a) and fetal and early childhood growth impairment (Asling-Monemi et al., 2009b).

The majority of research exploring the factors associated with IPV in rural Bangladesh has focused on individual, relationship, household, and societal factors. While differences in women's experiences of IPV in distinctive geographic areas of Bangladesh have been noted (Koenig et al., 2003; Naved & Persson, 2005), to our knowledge, few researchers to date have examined the characteristics of communities in rural Bangladesh in relation to IPV against women. In this research, we use a multi-level analysis to explore the association of community income, collective efficacy, and community measures of women's status (patriarchal norms and gendered status inequalities) and past year physical IPV against women in a rural area of Bangladesh.

Theoretical Perspectives and Empirical Research on Communities and IPV

An ecological framework proposed by Heise (1998) depicts IPV against women as the result of direct and interacting influences operating at the individual, relationship, household, community, and societal levels. In the past, much of the research on the correlates of IPV has focused on individual, relationship, and household factors, but more recently, researchers have been focusing on the relationship between communities and IPV (VanderEnde et al., under review). In the 1990's, researchers began to explore the characteristics of urban communities in the U.S. in relation to women's risk of experiencing IPV (Miles-Doan & Kelly, 1997; O'Campo et al., 1995). Although more recent studies in non-U.S. settings have expanded the geographic scope of evidence regarding the influences of communities on IPV, the majority of this work is still focused on urban neighborhoods in the U.S.

Community socioeconomic status, collective efficacy, and IPV. In a recent systematic review of community-level correlates of IPV, VanderEnde and colleagues

(under review) reported the majority of quantitative research, both in U.S. and non-U.S. settings, has focused on the relationship between aspects of a community's socioeconomic status, such as poverty, standard of living, unemployment, education, and literacy and IPV. In the U.S., research in this area has been based on social disorganization theory (Shaw & McKay, 1942, 1969), which states that urban neighborhoods characterized by concentrated disadvantage (operationalized in later research by summary measures including the percentage of female-headed households, percentage non-white, percentage unemployed, percentage on public assistance and percentage below the poverty line in a neighborhood), ethnic heterogeneity, and residential mobility are unable to organize to realize the common goals of their residents, and thus are unable to control levels of crime and delinquency in their neighborhoods. Later work by Sampson and colleagues (1997) characterize this ability to organize for the common good as *collective efficacy*, or "social cohesion among neighbors combined with their willingness to intervene on behalf of the common good" (p. 918). Collective efficacy is characterized by social cohesion and informal social control. Social cohesion is the mutual trust and solidarity of a community. Informal social control is the capacity of a community to act to regulate its members. Collective efficacy is viewed as the way in which urban neighborhoods are theorized to impede the occurrence of personal violence in their communities. A community's level of collective efficacy is thought to partially mediate the relationship between concentrated disadvantage, residential stability, and ethnic heterogeneity and crime and delinquency at the neighborhood level (Sampson et al., 1997).

Evidence of the association of community level variation in socioeconomic status and IPV against women has been mixed. While some research has demonstrated a positive relationship between concentrated disadvantage and physical IPV in the U.S. (Benson et al., 2003; Benson et al., 2004; DeMaris et al., 2003; Van Wyk et al., 2003; Wright & Benson, 2010; Wright & Benson, 2011), other measures of community socioeconomic status, such as poverty, standard of living, unemployment, and income have shown non-significant or inconsistent relationships with IPV in the U.S. (Caetano et al., 2010; Cunradi et al., 2000; Lauritsen & Schaum, 2004), India (Ackerson & Subramanian, 2008; Boyle et al., 2009; Koenig, 2006), Haiti (Gage, 2005), and Brazil (Kiss et al., 2012). Results of studies including measures such as residential stability and immigrant concentration have demonstrated a relationship with IPV against women that is inconsistent with social disorganization theory (Browning, 2002; Wright & Benson, 2010).

In two Chicago-based studies, authors examined the relationship between community collective efficacy and physical IPV. Browning (2002) and Wright and Benson (2011) both found a negative relationship between collective efficacy and physical IPV. Wright and Benson (2011), however, found this relationship was not significant in a model that included measures of concentrated disadvantage, suggesting that collective efficacy did not mediate the relationship between disadvantage and IPV against women. In Browning's (2002) analysis, the relationship between collective efficacy and IPV was moderated by community nonintervention norms. Collective efficacy exerted a more powerful protective effect on IPV in neighborhoods where intervention in intimate relationships was accepted. To our knowledge, the association

between collective efficacy and IPV against women has not been examined outside of an urban, U.S.-based setting.

 Feminist perspectives. Feminist perspectives on IPV, which view violence against women in intimate relationships as a consequence of inequality within marriage and society (Yllo, 1984, 2005; Yodanis, 2004) are common in the literature on IPV against women, yet few researchers have focused on gender inequality and gender norms and IPV at the community level, especially in non-U.S. settings (VanderEnde et al., under review). Researchers examining rates of IPV in patriarchal societies have shown an increase in IPV in societies in which there are high levels of gender inequality between men and women in areas such as life expectancy, infant mortality rates, literacy rates, and rates of formal education (Ackerson & Subramanian, 2008; Schuler et al., 2008). Authors of research in Egypt (Yount & Li, 2010), and India (Boyle et al., 2009; Koenig, 2006) have examined the association between aggregate measures of gender norms (Koenig, 2006; Yount & Li, 2010), norms about wife-beating (Boyle et al., 2009; Koenig, 2006), and gender stratification (Yount & Li, 2010) and IPV against women. In India, for example, researchers have found high levels of community wife-beating norms to be a strong predictor of recent male perpetration of IPV (Koenig, 2006) and women's report of IPV (Boyle et al., 2009). In Egypt, governate-level measures of gender-stratification and norms regarding family roles were weakly or inconsistently associated with physical IPV against women (Yount & Li, 2010).

 Collective efficacy and norms regarding IPV against women. Applications of the theory of collective efficacy to explain community-level variation in IPV should account for the gendered context in which IPV against women occurs. Specifically, in

communities with high levels of norms tolerant of IPV, it cannot be assumed that community members share a common goal of living in an area that is free of IPV. Inherent in the definition of collective efficacy is the concept of informal social control, or the community acting to regulate its members (Sampson et al., 1997). Logically, it follows that in communities with norms that are tolerant of IPV, high collective efficacy might be related to an increase in a woman's risk of experiencing IPV, because community members would not intervene to prevent IPV, a behavior they view as acceptable. In contrast, where there is less tolerance for IPV, high collective efficacy may provide protection to women, as neighbors act to intervene to stop behavior that they view as unacceptable.

Bangladesh Context

In Bangladesh, IPV against women occurs across all educational and socioeconomic levels (Bates et al., 2004). In rural Bangladesh, poorly educated women are often secluded at home without independent sources of income or independent property. Labor is often divided along gender lines, with men working outside the home, and women working within the home (Schuler et al., 1996; Chowdhury, 2009). Although IPV against women in Bangladesh occurs within family relationships, research has demonstrated that many of the associations between individual, relationship, and household factors and IPV vary across communities in Bangladesh (Koenig et al., 2003). Koenig and colleagues (2003) examined community-level factors related to IPV in two distinct areas of rural Bangladesh, one known to be more culturally conservative than the other. In the more culturally conservative area, short-term membership in credit groups and high individual women's autonomy were associated with an increased risk of

violence, while community-level factors were not significant. In the less conservative area, however, the extent of community-level credit membership and women's autonomy were associated with a reduced risk of violence, while a woman's own credit group membership and autonomy were not significantly associated with this risk.

Thirty six percent of men and women interviewed in the 2007 Bangladesh Demographic and Health Survey (DHS) agreed that a man is justified in beating his wife under certain circumstances, which include a wife not obeying her elders, if she refuses to have sexual relations with her husband, if she argues with her husband, if she goes out without telling him, or if she neglects the children (National Institute of Population Research and Training [NIPORT], Mitra and Associates, and Macro International 2009). A recent study examining spousal violence among men in Bangladesh found that men who believed that wife-beating was acceptable were four times more likely to report violence against their wives than men who believed wife-beating was not acceptable (Johnson & Das, 2009). Another study of men and women in rural Bangladeshi villages showed that 84% of women and 92% of men reported condoning IPV (Schuler & Islam, 2008). Findings from a survey experiment in rural Bangladesh showed that this justification was provided almost exclusively for willful, as opposed to unintended, transgressions of gender norms (Yount et al., forthcoming). In rural Bangladesh, women's answers to questions regarding personal attitudes to wife beating may actually reflect women's perceptions of community gender norms (Schuler et al., 2011; Schuler et al., forthcoming).

A recent qualitative analysis of 110 in-depth interviews with men and women in six rural Bangladeshi villages explored the processes through which gender inequality

impacts violence within marriage (Schuler et al., 2008). Findings from the study demonstrated that women were vulnerable to IPV because of a lack of alternatives open to them. Women's economic and social resources are derived primarily through marriage, and women have very few alternatives outside of marriage. Schuler and colleagues (2008) suggest that this lack of options puts women in a weak bargaining position in that they are not able to ask others to intervene on their behalf. Moreover, in communities where cultural norms support a man's right to discipline his own wife, neighbors may be less likely to intervene on behalf of the abused women.

In Bangladesh, the relationship between economic disadvantage and IPV against women has focused mainly on household characteristics. Household economic disadvantage, measured through asset scores (Bates et al., 2004) and land ownership (Hadi, 2000; Koenig et al., 2003) have been associated with a decrease in odds of IPV against women. Similarly, a woman's young age, low educational level, family history of violence, her husband's young age, his family history of violence, marriage involving a dowry, and poor spousal communication have each been associated with an increase in IPV against women (Ahmed, 2005; Bates et al., 2004; Bhuiya et al., 2003; Hadi, 2000, 2005; Johnson & Das, 2009; Koenig et al., 2003; Naved & Persson, 2005; Schuler et al., 1996). Other individual-level factors, however, appear to have an inconsistent relationship with IPV. For example, some researchers have shown women's involvement in economic activity to be protective (Hadi, 2005), whereas others have shown an increased risk (Bates et al., 2004), or no relationship (Schuler et al., 1996). Naved & Persson (2005) found an increased risk of experiencing IPV for women who earned an income in a rural, but not an urban, area of Bangladesh. Similarly, Koenig and colleagues

(2003) found women with high levels of autonomy to be at increased risk of experiencing IPV in a culturally conservative, but not a less conservative, area.

Summary

Based on the foregoing discussion and review, we expected that communities with high levels of patriarchal norms and status inequalities between men and women would have higher levels of IPV against women. Although community-level collective efficacy has not, to our knowledge, been explored in relation to IPV against women in rural Bangladesh, we nonetheless anticipated that rural villages in Bangladesh, with typically strong extended family ties and shared religious and cultural values, would be characterized by high levels of collective efficacy. Furthermore, we expected that patriarchal norms in a community would moderate the relationship between collective efficacy and IPV. That is, in communities with high levels of patriarchal norms, we expected that high collective efficacy would be associated with an increase in risk of IPV. In contrast, in communities with low levels of patriarchal norms, high collective efficacy would protect women against risk of IPV. We did not expect to find a relationship between community income and physical IPV against women.

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Methods

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The setting for the study presented in this paper was a densely populated, predominantly Muslim rural area of Bangladesh, characterized by subsistence farming and high levels of landlessness. This analysis is based on data from the Bangladesh subset of the World Health Organization's (WHO) Multi-Country Study on Women's Health and Domestic Violence Against Women (Garcia-Moreno et al., 2005). The International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b), an

international research organization based in Dhaka, collected the data from both an urban and rural area of Bangladesh in collaboration with Naripokkho, a women's activist organization (Naved & Persson, 2005).

Using a multi-stage sampling strategy, 42 villages were randomly selected for the study. From these villages, 20% of households in each village were randomly selected from a comprehensive household list, updated each month by icddr,b, for a total of 1946 selected households. Of the selected households, approximately 10% were empty or destroyed. The response rate for the remaining households was 95.8% (Garcia-Moreno et al., 2005; Naved & Persson, 2005). A household questionnaire, which included socioeconomic items including income, was administered to one adult per household for a total of 1732 adults. The age and initials of all females residing in the selected household were listed on the household questionnaire. If more than one eligible woman lived in the household, one woman was randomly selected for participation in the woman's study. The women's questionnaire, which was administered in a private setting, included an individual consent form. In all, 1527 women in the rural area were interviewed between June – November, 2001. Of these, 1329 ever-married women between the ages of 15 – 49 were included in the present analysis.

Interviewer training, study implementation, and wording of questions may influence rates of disclosure of IPV (Ellsberg & Heise, 2005; Ellsberg et al., 2001). The WHO Multi-country study addressed this concern through the rigorous selection and training of interviewers, including a 3-week training program designed for research on gender-based violence, including training on confidentiality and minimizing distress to study participants (Jansen et al., 2004).

Measurement of Study Variables

   Dependent variable. The outcome of interest in this study, physical IPV, was

measured as a count of the types of physical violent acts women experienced in the past

12 months. Based on the revised Conflict Tactics Scale (CTS2) (Straus et al., 1996), the

possible responses for physical IPV ranged from 0, indicating no experience of physical

IPV in the past year, to 6, indicating women's positive response to all 6 items measuring

physical IPV in the past year. These six items included a woman's report of her husband:

1) slapping her or throwing something at her that could hurt her, 2) pushing or shoving

her, 3) hitting her with his fist or something else that could hurt her, 4) kicking her,

dragging her, or beating her up, 5) burning or choking her on purpose, or 6) threatening

to or actually using a weapon, such as a knife or gun, against her. The advantages of a

count outcome model are that it captures more variation in responses to IPV items, as

opposed to any versus none. This is important for a 3-level multi-level model, because it

allows for consideration of between person variation in the experience of violent acts.

Unlike a dichotomous outcome model, which does not discriminate between a single

violent act and the experience of multiple types of violent acts, the count outcome model

permits this distinction.

   Independent variables. *Collective efficacy,* or social cohesion among neighbors

combined with their ability to enact social control (Sampson et al., 1997), was

constructed from a cluster of five items measuring the respondent's response (yes, no) to

the following five questions: do neighbors in your village generally tend to know each

other well?; if there were a street fight in your village, would people generally do

something to stop it?; if someone in your village decided to undertake a community

project, would most people be willing to contribute time, labor, or money?; in this village do most people generally trust one another in matters of lending or borrowing things?; if someone in your family suddenly fell ill or had an accident, would your neighbors offer help? In the original study, data from 3090 women residing in both urban and rural areas of the country who provided an answer to any of the five items were used to construct a measure of community collective efficacy. However, only the data from rural areas were used in the final analyses. Following the methodology of Sampson and colleagues (1997), we employed a 3-level linear item-response model to account for item variation within persons, person variation within communities, and variation between communities. The level-1 model adjusted for within-person collective efficacy scores, accounting for item difficulty, measurement error, and missing data. The level-2 model estimated community collective efficacy scores, and the level-3 model allowed each community's mean collective efficacy score to vary randomly around the grand mean. The empirical Bayes residuals from the level-3 model were used as community measures of collective efficacy in the multivariate models (Raudenbush & Bryk, 2002).

Principal component analysis (PCA) with varimax rotation was used to construct measures of *women's status*, a latent variable, through multiple observable variables representing key dimensions of gender inequality and patriarchal norms (Malhotra et al., 2002; Schuler et al., 2008; Yllo, 1984; Yodanis, 2004; Young et al., 1994) as manifest in communities in Bangladesh. PCA was chosen for the purpose of data reduction. The seven variables used to construct the index are described in Table 1. As with the construction of the collective efficacy measure, data from 2702 women clustered in 80 communities (39 urban and 41 rural) were used to construct the measure (one rural

community with three respondents was not included because of missing data), but only

measures from rural communities were included in the final analysis. Two components

had eigenvalues >1 and were extracted. The first component accounted for 41.55% of

variance, and the second component accounted for 26.79% of variance, for a total of

68.33% of the variance accounted for by these two components. The results of the scree

plot supported a 2-component solution. Five variables loaded highly around the first

component (see Table 1), with the other two variables (relative school attendance and

relative literacy) loading highly on the second component (Table 1). We included these

component scores as community-level measures of women's status. Based on the

variables that loaded highly on each component, the first component was called

*patriarchal norm*s and the second *gendered status inequalities*. Conceptually, the

component loadings were consistent with previous empirical research on gender norms

and gender inequality (Koenig et al., 2006, Yount et al., 2010). Further exploration of the

variables included assessing the reliability of the seven variables included in the women's

status PCA. The Cronbach's alpha for the seven variables was 0.794, and the Cronbach's

alpha for the 5 variables loading on the first component (patriarchal norms) was 0.826,

indicating good internal consistency.

We included a measure of *mean community income* to represent community

economic status. An adult member of each household selected was asked "how much is

your household's total annual income, in cash (taka) and kind?" We divided this number,

the total annual income in taka, by the number of persons living in the household,

creating a measure weighted by household size. We used information from completed

household questionnaires (n=1709) to construct a measure of the mean annual household income (per capita) for each village.

[Table 1]

Controls

We included individual, relationship, and household level covariates as controls in our models. These covariates included: women's age and education (measured in years); participation in women's groups (yes, no); marriage involving a dowry (yes, no); woman earns income (yes, no); respondent family history of IPV (yes, no); husband family history of IPV (yes, no); relative education between husband and wife (husband with less education, husband and wife equal education, husband with more education); husband age in years; spousal communication (high, moderate, low); household income in taka (log transformation); and religion (Muslim, non-Muslim).

Analytic Strategy

We used PASW version 18.0 ® for Mac to run all descriptive statistics and to construct PCA measures of patriarchal norms and gendered status inequalities. Both the three-level item response model used to measure collective efficacy, and the set of three-level count outcome models were run using HLM7 software (Raudenbush et al., 2011). We examined univariate distributions and bivariate relationships for all variables, calculating descriptive statistics (proportions, means) for all independent and dependent variables.

Level-1 model. Hierarchical generalized linear model (HGLM) analyses provide a modeling framework for multilevel data with non-linear outcomes, such as count data, with non-normally distributed errors. At level 1, the model includes a sampling model, a

link function, and a structural model (Raudenbush & Bryk, 2002). For count outcomes, the level-1 sampling model is Poisson and the link is log. It is written as:

$$\lambda_{ijk} = E(Y_{ijk}|\pi_{ijk})$$

Where $Y_{ijk,}$ is the number of types of violent physical acts i in the past 12 months, experienced by woman j in community k. The log link function is written as:

$$\eta_{ijk} = \log[\lambda_{ijk}]$$

Where η_{ijk} is the log of the event rate, λ_{ijk}. The structural model for the level-1 count outcome model for physical IPV is

$$\eta_{ijk} = \pi_{0jk}$$

Where π_{0jk} is the mean log physical IPV rate for woman j in community k.

Level-2 model. The model for level 2 accounts for variation in log physical IPV rates between women within communities and includes covariates for individual, relationship, and household covariates, all grand mean centered:

$$\pi_{0\,jk} = \beta_{00k} + \sum_{p=1}^{P-1} \beta_{pk} X_{pk} + r_{0\,jk}$$

Where β_{00k} is the mean log physical IPV rate for community k as a function of the level-2 covariates ($\sum_{p=1}^{P-1} \beta_{pk} X_{pk}$) plus normally distributed random error (r_{0jk}). The level-2 intercept and coefficients become outcomes at level 3.

Level 3 model. The level 3 model accounts for variation in log physical IPV rates between communities.

$$\beta_{00k} = \gamma_{000} + \sum_{p=1}^{P-1} \gamma_p X_p + u_{00k}$$

$$\beta_{pk} = \gamma_p \text{ for p} > 0.$$

At level 3, we model the (adjusted) community mean log of physical IPV events (B_{00k}) as a function of the grand mean log physical IPV rates (γ_{000}), community-level variables ($\sum_{p=1}^{P-1} \gamma_p X_p$) and the random effect of community k (u_{00k}). Each community-level variable was centered around its mean, and the slope of each level-2 covariate was fixed to be the same value for each level-3 unit ($\beta_{pk} = \gamma_p$ for p > 0). We included weights to adjust for the probability of selection at level-2 and employed full penalized quasi-likelihood (PQL) estimation techniques (Raudenbush & Bryk, 2002). We assumed that the random effect of the intercept (u_{00k}) was normally distributed with a mean of zero and a variance of τ_{00}.

We fit seven separate multi-level models. To assess the variation in log physical IPV rates across communities, we ran an unconditional model with random intercepts. In the second model, we added individual, relationship, and household variables at level 2, all grand-mean centered. In models 3 - 7 we added community-level variables at level 3 to test for a relationship between each variable and the outcome. In the final model, we examined the interaction between community collective efficacy and patriarchal norms in relation to a woman's experience of physical IPV. All individual, relationship, and household variables from model 2 were maintained in models 3 – 7.

Results

Characteristics of the Sample

Characteristics of the sample are listed in Table 2. The sample was predominantly Muslim (83.9%) and in general, women had little formal schooling (mean of 3.5 years), and reported an average household income, per capita, of under 10,000 taka per year. Approximately one-fifth of the sample (19.3%) reported having more education than their husbands. Women's mean age was 31.2 years, and their husbands' mean age

was 41.0 years. Just over half of women (53.3%) reported a marriage involving a dowry.

A minority of women reported participating in women's groups (27.3%) or earning an

income (20.5%). A small portion of the sample reported witnessing their father abusing

their mother (8.8%), or reported that their husband witnessed such abuse in his family

(10.9%). In general, women reported high (62.5%) or medium (24.6%) levels of spousal

communication in their marriage.

[Table 2]

Descriptions of communities and community characteristics, including descriptive

statistics for community level collective efficacy, patriarchal norms, gender status

inequalities, and community income, are presented in Table 3.

[Table 3]

The percentage of respondents reporting the occurrence of specific physical acts

of IPV in the past 12 months is presented in Table 4. Women most often reported that

their husband slapped or threw something at her (14.1%), or pushed or shoved her

(10.7%). Other acts of physical violence, such as kicking, choking, or threatening the use

of a weapon, were reported less frequently.

[Table 4]

Multivariate Results

The results of the multivariate models are presented in Tables 5 and 6. Results

from the unconditional model (Model 1, Table 5) demonstrated significant variation in

log physical IPV rates at the individual (tau = 2.12, SE = 0.23) and community levels (tau

= 0.07, SE = 0.06). When individual, relationship, and household covariates were added

at level 2 (Model 2, Table 5), the community-level variation in log physical IPV rates

became non-significant (tau = 0.00, SE =0.03), while the individual level variation

remained significant (tau =1.93, SE =0.22). A woman's age (older), education (more

years), and levels of spousal communication (high) were negatively associated with past

year physical IPV, while both a woman's and also her husband's family history of IPV

were positively associated with past year physical IPV. All other level-2 covariates were

not associated with the outcome.

The associations between community-level variables (collective efficacy,

patriarchal norms, gendered status inequalities, and community income) and log physical

IPV rates were explored in separate models (Models 3 – 6, Table 6). In each case, these

relationships were non-significant. When we included an interaction term between

collective efficacy and patriarchal norms in Model 7, however, the community-level

variables included in the model (collective efficacy, patriarchal norms, and the interaction

term) were significant. This result suggests that community collective efficacy and

patriarchal norms interact in their association with physical IPV. A graphic representation

of this interaction is presented in Figure 1. Higher levels of patriarchal norms were

associated with lower predicted log physical IPV rates. Collective efficacy was also

negatively associated with physical IPV, but the association was stronger in communities

having lower levels of patriarchal norms. For instance, at low levels of patriarchal norms

(when the patriarchal norm scale is set to 1.5 standard deviations below the mean) the

predicted log physical IPV rate changes from 1.01 at mean level of collective efficacy to

-0.37 at high levels of collective efficacy (the collective efficacy scale is set to 1.5

standard deviations above the mean). At high levels of patriarchal norms (1.5 standard

deviations above the mean), the same movement on the collective efficacy scale changes

the predicted log physical IPV rate from -4.27 at mean levels of collective efficacy to -4.62 at high levels of collective efficacy (Figure 1). For comparison, we ran models identical to those shown in Table 6 on data from the urban subset of the same study (not shown), but did not find any significant relationships.

Discussion

To our knowledge, this is one of few studies that has focused on community-level correlates of IPV against women in Bangladesh, and the first to examine the interaction between collective efficacy and patriarchal norms in relation to physical IPV in a non-urban, non-U.S. setting. By employing a 3-level count outcome model, we were able to model variation in physical IPV against women both between and within communities, and to examine the association between community characteristics and physical IPV after including covariates at individual, relationship, and household levels. We expected that two community measures of women's status, patriarchal norms and gendered status inequalities, would be positively related to physical IPV. We anticipated that the relationship between collective efficacy and physical IPV would depend on the levels of patriarchal norms in a community: when patriarchal norms are high, we anticipated that collective efficacy would be associated with an increased risk of IPV, when patriarchal norms are low, that collective efficacy would be associated with a decreased risk of IPV. Lastly, we predicted, as shown in the previous chapter, that mean community income, a measure of a community's economic status, would not be associated with physical IPV.

Findings from our analysis support some, but not all, of our hypotheses. We found a significant interaction between collective efficacy and patriarchal norms in relation to physical IPV. However, we found that when we included an interaction between

collective efficacy and patriarchal norms in our model, women living in communities with high levels of patriarchal norms reported lower log physical IPV rates (Model 7, Table 6; Figure 1). This conflicts with the findings of several studies in India, in which community-level acceptance of wife-beating was a strong predictor of women's report of physical IPV (Boyle et al., 2009) or male perpetration of physical IPV (Koenig, 2006). Compared with these studies, however, our study focused on a smaller number of communities in one rural district of Bangladesh. In contrast to Koenig and colleagues (2006) who reported a wide variation across communities in attitudes towards gender roles and IPV, we found comparatively high levels of women's acceptance of IPV and conservative gender roles, even in communities ranking low on our patriarchal norm scale. For instance, the percentage of women agreeing that a good wife obeys her husband ranged from 71% to 100%, while the percentage of women reporting attitudes tolerant of IPV ranged from 64% to 100% (Table 1), levels similar to those reported in another survey in rural Bangladesh (Schuler & Islam, 2008). In our analysis, communities having higher patriarchal norm scores represented communities in which very few women reported beliefs in conflict with traditional gender norms. We reason that these communities may be associated with lower rates of physical IPV for two reasons. First, women in these communities may be less likely to report physical violence because IPV is perceived as corrective, thus they may avoid admitting physical violence to avoid the risk of feeling blame. Yount and colleagues (forthcoming), investigating women's attitudes about wife beating in rural Bangladesh, note that changes in rural women's lives, such as increased schooling and more media exposure may have exposed them to new attitudes about gender. Variation across community measures of patriarchal

norms in our study are consistent with this finding. We suggest that in communities in which a greater percentage of women question traditional gender norms (those with lower patriarchal norm scores), men may feel their authority over their wives is threatened, and may be more likely to use violence to exert power and control, compared with men living in communities in which few women question traditional gender norms. Thus, there is a need for future research to collect community-level measures of men's attitudes about IPV as an alternative measure of patriarchal norms.

Results from our analysis show that the level of patriarchal norms in a community modified the relationship between collective efficacy and physical IPV. As hypothesized, collective efficacy had a negative association with log physical IPV rates, but this effect was strongest in communities with lower levels of patriarchal norms (Figure 1). Contrary to our expectations, collective efficacy was not associated with an increase in log physical IPV rates in the presence of high patriarchal norms. These results are similar to Browning (2002), who found that the magnitude of the protective effect of collective efficacy on IPV increased in communities in which intervention in intimate relationships was sanctioned. *These findings suggest that collective efficacy, a concept previously explored in urban, U.S. neighborhoods, is relevant to rural communities in Bangladesh.* Thus, the possible protective effect of collective efficacy, especially in communities in which traditional gender norms are in transition, should be a focus of future research. Future research may also consider the role of NGO-membership groups in rural Bangladesh, such as micro-credit, savings, or asset-transfers programs with gender equity training, and their impact on both community-level collective efficacy and gender norms in reference to IPV against women.

Lastly, as expected and demonstrated in the previous chapter, the relationship between mean community income and physical IPV was not significant. This finding corroborates those from India (Ackerson & Subramanian, 2008; Boyle et al., 2009; Koenig, 2006) and Haiti (Gage, 2005). Yet, our analyses did not demonstrate a relationship between community gendered status inequalities and physical IPV. We expected that this measure, defined as male/female literacy ratios and ever school attendance, to be positively associated with IPV. These finding should be interpreted with caution, however. Our study focused on a small number of communities, which may have limited our ability to detect differences at the community level.

The cross-sectional design of our study does not allow for causal inferences, and we were limited in our ability to represent the dynamic nature of communities and community context in rural Bangladesh. Because of these limitations, there is a need for longitudinal research to explore changes over time in community cohesion and community norms, and the impact of such changes on changes in women's experiences of IPV. Moreover, our research focused on a limited number of communities in a single relatively homogenous rural area in Bangladesh, restricting both our statistical power to detect differences between communities and our ability to generalize our finding to other contexts. The strength of the interaction between collective efficacy and patriarchal norms, however, despite the small number of communities, indicates a strong relationship, one that we hope researchers will explore in the future.

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Table 1. Community Women's Status Index Items (n=41)

Items loading on first component (*Patriarchal Norms*)	Mean (SD)	Range
Marriages involving a dowry (%)	51.6 (19.4)	11.0 – 100.0
Women reporting attitudes tolerant of IPV (%)	82.6 (9.0)	64.0 – 100.0
Women reporting agreement with the following statements: (%)		
"It is important for a man to show his wife or partner who is boss"	71.6 (15.1)	33.0 – 100.0
"It is a wife's obligation to have sex with her husband even if she doesn't feel like it"	61.8 (16.3)	31.0 – 100.0
"A good wife obeys her husband even if she disagrees"	91.7 (6.4)	71.0 – 100.0
Items loading on second component (*Gendered Status Inequalities*)		
Relative male/female literacy (ratio)	1.25 (0.36)	0.64 – 2.30
Relative male/female ever school attendance (ratio)	1.12 (0.33)	0.64 – 2.40

Table 2. Characteristics of ever-married women (n=1329)**.**

Age, mean (SD)	31.21 (8.4)
Years of schooling, mean (SD)	3.5 (3.9)
Participation in women's groups	
Yes	363 (27.3%)
No	964 (72.5%)
Missing	2 (0.2%)
Marriage involving a dowry	
Yes	709 (53.3%)
No	620 (46.7%)
Respondent earns an income	
Yes	272 (20.5%)
No	1057 (79.5%)
Respondent witnessed abuse of mother by her father	
Yes	117 (8.8%)
No	1210 (91.0%)
Missing	2 (0.2%)
Husband witnessed abuse of mother by his father	
Yes	145 (10.9%)
No	1180 (88.8%)
Missing	4 (0.3%)
Women's relative education	
Husband more education	593 (44.6%)
Equal education	447 (33.6%)
Husband less education	257 (19.3%)
Missing	32 (2.4%)
Spousal Communication	
High	831 (62.5%)
Medium	327 (24.6%)
Low	171 (12.9%)
Religion	
Muslim	1115 (83.9%)
Hindu	214 (16.1%)
Husband's age, mean (SD)*	41.0 (9.5)
Annual household income per capita, in thousands of taka, mean (SD)**	9.7 (10.7)
Household income (log transformation)	0.9 (0.3)

* Missing = 26, ** Missing = 8

Table 3. Community characteristics (n = 42).

	Mean (SD)	Range
Eligible respondents per community	31.6 (32.7)	3 - 184
Collective efficacy	3.77 (0.45)	2.70 – 4.67
Patriarchal norms*	0.76 (0.43)	- 0.19 – 1.72
Gender status inequalities*	0.00 (1.12)	- 1.65 – 3.39
Community level income		
Mean annual household income per capita, in thousands of Taka, mean, (SD)	9.5 (4.5)	3.5 – 30.2
Community income (log transformation)	0.9 (0.1)	0.6 – 1.3

* n = 41

Table 4. Percent of respondents reporting acts of physical IPV in the past 12 months.

1. Slapped you or threw something at you that could hurt you?	14.1 %
2. Pushed you or shoved you?	10.7 %
3. Hit you with his fist or with something else that could hurt you?	6.5 %
4. Kicked you, dragged you or beat you up?	5.9 %
5. Choked or burnt you on purpose?	2.8 %
6. Threatened to use or actually used a gun, knife, or other weapon against you?	2.0 %

Table 5. 3-level count outcome models for physical IPV.

	Model 1 (Unconditional)	Model 2
Intercept	-1.44 (0.09)*	-1.66 (0.09)*
Individual-level variables		
Women's age		-0.04 (0.02)*
Women's education		-0.11 (0.03)*
Participation in women's groups		0.09 (0.17)
Marriage involving a dowry		0.24 (0.18)
Woman earns income		0.09 (0.19)
Respondent family history of IPV		0.74 (0.22)*
Husband family history of IPV		0.75 (0.21)*
Education differences		
Husband more schooling (ref)		
Equal years of schooling		-0.03 (0.18)
Husband less schooling		0.00 (0.22)
Household income (log)		-0.44 (0.29)
Husband age		0.00 (0.02)
Religion		0.46 (0.23)
Spousal communication		
Low communication (ref)		
Moderate communication		-0.32 (0.23)
High communication		-1.00 (0.21)*
Random effects tau (SE)		
Individual level	2.12 (0.23)*	1.93 (0.22)*
Community level	0.07 (0.06)*	0.00 (0.03)

* Significant at p<0.05

Table 6. Community-level variables and log physical IPV rates.

| | Coefficient (SE) | | | | |
	Model 3	**Model 4**	**Model 5**	**Model 6**	**Model 7**
Intercept	-1.66 (0.09)*	-1.64 (0.09)*	-1.65 (0.09)*	-1.66 (0.09)*	-1.63 (0.09)*
Community-level variables					
Community Income	-0.11 (0.76)				
Collective Efficacy (CE)		-0.32 (0.21)			-1.28 (0.46)*
Patriarchal Norms			0.17 (0.24)		-4.09 (1.97)*
Gender Status Inconsistencies				-0.01 (0.09)	
Patriarchal Norms & CE (intxn)					1.18 (0.53)*
Random effects tau (SE)					
Individual level	1.93 (0.22)*	1.91 (0.22)*	1.91 (0.22)*	1.93 (0.22)*	1.90 (0.21)*
Community level	0.00 (0.03)	0.01 (0.04)	0.02 (0.04)	0.00 (0.04)	0.00 (0.04)

Models include all variables at individual, relationship, and household levels shown in Table 5. * Significant at p <0.05.

Figure 1. Effect of collective efficacy on predicted log physical IPV rates by level of patriarchal norms.
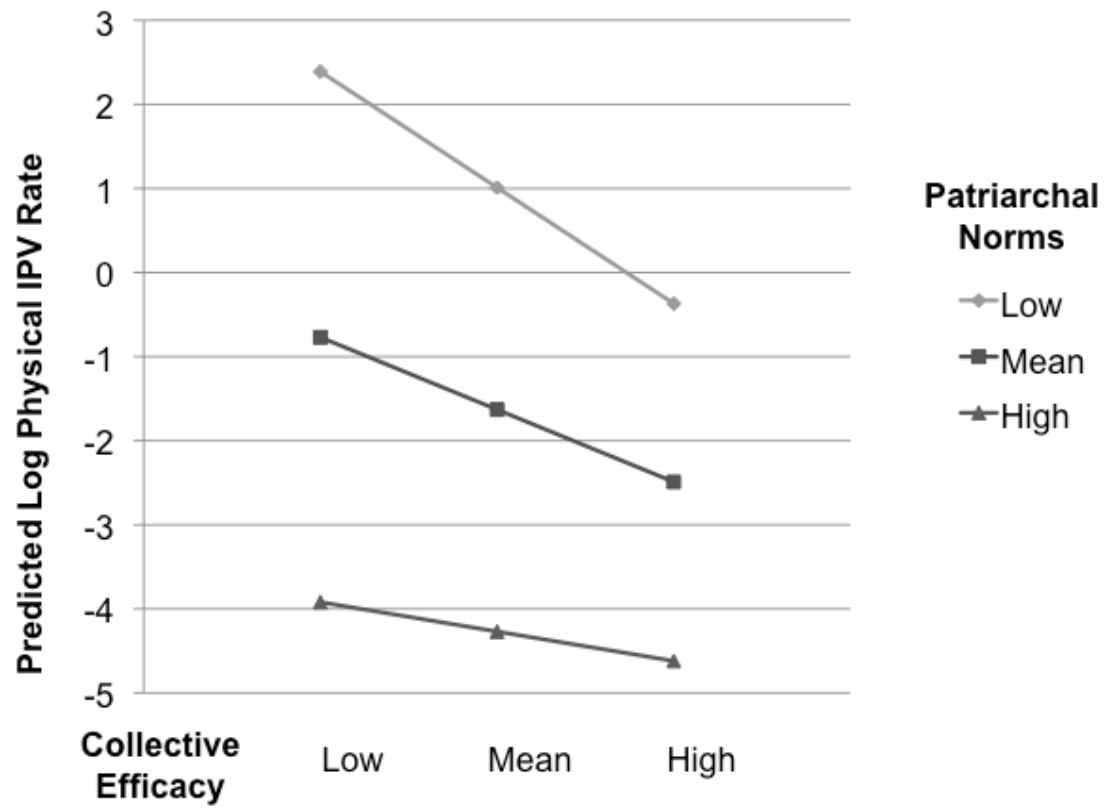
Chapter 5: Summary and Conclusion

Summary

The three manuscripts (chapters 2-4) included in this dissertation research represent unique contributions to the literature and advance theoretical understanding of community characteristics and IPV against women in Bangladesh. The systematic review (Chapter 2) provided an up to date comprehensive synthesis of current evidence regarding community-level correlates of IPV against women. The review's findings identified promising, understudied community-level correlates of IPV, thus pointing to new research foci, which we then explored in two subsequent studies focusing on community-level correlates of IPV against women in Bangladesh (Chapters 3 and 4).

From the systemic review, we noted that a large number of community-level correlates have been examined in relation to IPV against women, but that there have been differences in the approaches used in U.S. and non-U.S. based research. While U.S. based research, in general, has relied on social disorganization and collective efficacy theories to explain community-level variation in IPV, this approach was not found in the non-U.S. studies. The review provided partial support for social disorganization theory in U.S. settings. For example, while there was no evidence in support of a direct (adjusted) relationship between either immigrant concentration or residential stability/instability and IPV, concentrated disadvantage was positively related to physical IPV. In non-U.S. settings, none of the studies focused on immigrant concentration or residential stability, and none of the studies found consistent evidence supporting an association between other measures of community socioeconomic status, such as standard of living or neighborhood poverty, in relation to IPV. Based on the systematic review, we concluded

that concepts drawn from social disorganization theory, such as concentrated disadvantage, residential stability, and immigrant concentration, as currently articulated, might not be applicable to non-urban, non-U.S. settings.

In our second manuscript (Chapter 3), we built on this finding, exploring the relationships between community mean income and household income, measures of economic status, and physical and sexual IPV against women in both an urban and also a rural area of Bangladesh. We expected that the relationship between income and IPV against women in Bangladesh would be a household- (compositional), not community-level (contextual), association. To test this hypothesis, we employed a multi-level contextual effects analysis to differentiate between compositional and contextual effects, and to disentangle the household- and community-level associations of income with IPV. As we anticipated, household income was negatively associated with physical and sexual IPV. In contrast, community income was not associated with physical and sexual IPV in models controlling for household income, urban residence and other relevant covariates. We concluded that in the urban and rural Bangladesh settings, the association between income and IPV operates at the household-level. After controlling for living in a low-income household, we found no additional risk of experiencing IPV for women living in low-income communities. These results further support the findings from our systematic review, specifically, that the relationship between community disadvantage and IPV, as represented in social disorganization theory, inadequately explains the relationship between income and IPV in a non-U.S. setting such as Bangladesh.

In the systematic review, two-thirds of the included studies were set in the U.S., and those primarily drew from one of three sources, two national surveys, the NSFH and

the NAS, and the Chicago-based PHDCN. We noted a need to expand the research on communities and IPV against women to better reflect the social fabric of communities around the world. Our review also highlighted promising, but currently under-studied, community-level correlates of IPV. These included collective efficacy, gender inequality, and gender norms.

In our third manuscript (Chapter 4) we addressed these two gaps in the literature by employing 3-level count outcome models. We examined the relationship between community collective efficacy, patriarchal norms, gendered status inequalities and community income in relation to physical IPV in a rural area of Bangladesh, controlling for covariates at the individual, relationship, and household levels. This is one of few studies that have focused on community-level correlates of IPV against women in Bangladesh, and to our knowledge, the first to examine the interaction between collective efficacy and patriarchal norms in relation to physical IPV in a non-urban, non-U.S. setting. Our findings supported some, but not all, of our hypotheses. First, based on our previous study (Chapter 3), we hypothesized that community income would not be associated with log physical IPV rates, which was again the case. Secondly, we anticipated that patriarchal norms and gendered status inequalities would be positively related to log physical IPV rates and that the relationship between collective efficacy and physical IPV would depend on the levels of patriarchal norms in a community. As expected, we found that collective efficacy was negatively associated with log physical IPV rates, and that this association was strongest in communities with lower levels of patriarchal norms. Contrary to our expectations, however, when we included an interaction between collective efficacy and patriarchal norms in our model, women living

in communities with high levels of patriarchal norms reported lower log physical IPV rates. Also contrary to our expectations, we did not find an association between community gendered status inequalities and log physical IPV rates.

In interpreting the negative association between community patriarchal norms and log physical IPV rates, we reasoned that communities with higher patriarchal norm levels may represent communities in which very few women reported beliefs that are in conflict with traditional gender norms. We further reasoned that in these communities, a majority of women may view IPV as corrective, and out of a fear of feeling blamed, may have been less likely to report physical violence. Additionally, we argued that the variation in levels of patriarchal norms across communities may reflect a change in women's attitudes towards traditional gender norms. That is, in communities characterized by a greater percentage of women who question traditional gender norms (those with lower patriarchal norm scores), men may be more likely to use violence to exert power and control because they feel their authority over their wives is threatened.

These findings, which depict complex and interacting roles of collective efficacy and patriarchal norms in relation to IPV against women, align with our systematic review. Specifically, the findings provide support for the application of collective efficacy, a concept previously explored in urban, U.S. neighborhoods, to rural communities in Bangladesh. These findings also highlight both the role of community-level factors in relation to IPV against women in a rural Bangladesh setting, and the importance of accounting for community-level gender norms in relation to IPV against women.

Limitations and Strengths

Our systematic review and subsequent analyses were limited in certain respects. Our systematic review focused on the direct association of community-level variables on IPV against women, adjusted for mediators and confounders. As a consequence, we were unable to fully capture the complexities of these relationships, including indirect and cross-level interactions. Additionally, the inclusion criteria for our review, specifically the language restriction and focus only on peer reviewed quantitative research, while increasing comparability of finding across studies, limited our ability to capture the full body of literature on communities and IPV.

Our second and third manuscripts (Chapters 3 & 4) were secondary analyses of the Bangladesh subset of the WHO Multi-country Study of Women's Health and Domestic Violence Against Women, a study focused on correlates of IPV against women in both an urban and also a rural area of Bangladesh. The cross-sectional study design did not allow us to make causal inferences, and we were limited in our ability to represent the dynamic nature of communities and community context. Despite this limitation, the multi-stage sampling design held advantages for research focused on community-level effects. The sampling frame, which consisted of villages in the rural area and *mohollas* in the urban area, was more likely to correspond to individuals' perceptions of their community than larger measures, such as census tracts or primary sampling units, common units of analysis in studies of communities and IPV.

Each of the manuscripts has strengths and represents a unique contribution to the literature on communities and IPV against women. The systematic review is, to our knowledge, the first to identify and evaluate the evidence on community-level correlates

related to IPV against women. Our second manuscript is one of the first studies to employ a multi-level contextual effects analysis to disentangle the household and community-level associations of income and IPV against women in Bangladesh. Our third manuscript presents a novel extension of the collective efficacy construct to a non-urban, non-U.S. setting, and emphasizes the importance of the interaction between collective efficacy and community gender norms in relation to IPV against women.

Implications for Future Research

As a whole, these studies provide a foundation for future research exploring the relationship between communities and IPV against women, especially in Bangladesh. Promising areas of inquiry include the possible protective effect of community collective efficacy against IPV in communities in which traditional gender norms are in transition. In addition, there is a need for longitudinal research to explore changes over time in community collective efficacy and community gender norms, and the impact of such changes on women's experiences of IPV. While our measure of community patriarchal norms was based on women's attitudes regarding IPV, we recommend that future research collect measures of men's attitudes about IPV as an alternative measure of these norms. Comparison of these findings may provide insight into differences between men and women's attitudes regarding IPV, and the impact, if any, of these differences on women's experiences of IPV. Future research may also consider the relationship of membership in NGO groups such as micro-credit, savings, or asset-transfer programs and gender equity training, and their effects on both community-level collective efficacy and gender norms in reference to IPV against women.

While the primary focus of our research was IPV against women in Bangladesh, our findings have implications for the study of communities and IPV against women beyond Bangladesh. Our systematic review highlighted an over-reliance on a primarily urban, U.S.-based perspective on communities and IPV, and we advocated for a global perspective more representative of communities around the world. By highlighting the role of collective efficacy and patriarchal norms in rural communities in Bangladesh, we lend strength to this argument. Likewise, our systematic review highlighted differences in the use of statistical methods and reporting of results across studies. Future research, we argued, should employ multi-level modeling analysis to account for clustering within communities, to compare variation in IPV between communities, and to allow for interactions between factors at different levels. For these reasons, we used multi-level modeling in our analyses and recommend its use in future research that examines community-level correlates of IPV against women.

Implications for Practice

The findings from this dissertation research have implications for public health and nursing practice. Specifically, the findings highlight the relevance of community characteristics in relation to IPV against women. Clinicians and public health professionals, when developing, implementing, and evaluating programs targeting the prevention of IPV, must look beyond individuals and families and consider community factors such as collective efficacy and gender norms. For example, findings from the analysis of community-level correlates of IPV against women suggest that women living in communities in which gender norms are in transition may be at increased risk of experiencing IPV. These findings have particular significance for programs and policies

aimed at changing community-level characteristics, such as gender norms. In light of the complex and dynamic relationships between individuals and the communities in which they reside, organizations should continually evaluate both the short and long-term impacts of community-level interventions aimed at the prevention of IPV and adapt their programs and policies accordingly.