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Impact of the Spread of Mass Education on Married Women's Experience with Domestic Violence

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Abstract

This paper investigates the association between mass education and married women's experience with domestic violence in rural Nepal. Previous research on domestic violence in South Asian societies emphasizes patriarchal ideology and the widespread subordinate status of women within their communities and families. The recent spread of mass education is likely to shift these gendered dynamics, thereby lowering women's likelihood of experiencing domestic violence. Using data from 1,775 currently married women from the Chitwan Valley Family Study in Nepal, we provide a thorough analysis of how the spread of mass education is associated with domestic violence among married women. The results show that women's childhood access to school, their parents' schooling, their own schooling, and their husbands' schooling are each associated with their lower likelihood of experiencing domestic violence. Indeed, husbands' education has a particularly strong, inverse association with women's likelihood of experiencing domestic violence. These associations suggest that the proliferation of mass education will lead to a marked decline in women's experience with domestic violence in Nepal.

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Keywords

Domestic violence; Education; Marriage; Social change; South Asia

1. Introduction

Extensive research confirms that domestic violence has significant social, physical, and mental health consequences for victims (Devries et al. 2011; Ellsberg et al. 2008; Naved and Akhtar 2008; Stephenson et al. 2006). Although domestic violence against women remains high in many world regions (Diop-Sidibe et al. 2006; Naved et al. 2006; Kishir and Johnson 2004; WHO 2001), South Asian women continue to face the highest levels and most severe forms of domestic violence in the world (Carvalho 2007; Naved et al. 2006; Panday et al. 2008). Despite the severity of domestic violence against women in South Asia, most empirical evidence on domestic violence comes from Western, industrialized societies; thus, little is known about the factors that can decrease women's likelihood of experiencing domestic violence in South Asia (Koenig et al. 2006; Naved et al. 2006; Panday et al. 2008).

Building on extensive evidence that mass education profoundly shapes the organization of societies and families, theory suggests that mass education may significantly pattern women's exposure to domestic violence. A thorough investigation of mass education and domestic violence, however, requires data that are representative of the female population, particularly those who are married, and also track the expansion of mass education both across communities and families and women's experience with domestic violence. In this paper, we leverage such unique data from rural Nepal in order to investigate the association between Western-oriented mass education and women's experience with domestic violence in marriage.

The results from this study will advance our knowledge of married women's experience with domestic violence in two important ways. First, we provide a new theoretical framework for the study of variation in domestic violence that focuses on education. This theoretical framework identifies multidimensional connections between the spread of Western-oriented mass education and women's experience with domestic violence. Our multilevel framework recognizes that changes in the community educational context restructure individual-level opportunities and constraints, which in turn affect individual behavior (Alexander 1988; Coleman 1990; Durkheim 1984 [1893]). Building on the life course perspective, this framework acknowledges the importance of changes in the educational context over time as well as the sequencing of these changes (Axinn and Barber 2001; Elder 1985). Our framework is also intergenerational and identifies how the educational experiences of multiple generations can protect women against domestic violence. More specifically, in addition to considering women's own and their husband's education, we also consider the educational experiences of their parents and parent-in-laws to provide a thorough understanding of how educational opportunity influences women's individual-level experiences of domestic violence.

Second, we use unusually detailed data from a contemporary, large-scale South Asian panel study—the Chitwan Valley Family Study (CVFS) in rural Nepal—to conduct empirical tests

of our framework. Because most studies of the spread of mass education are historical, empirical limitations preclude the exploration of important theoretical issues regarding the consequences of mass education (Barber and Axinn 2004; Caldwell et al. 1988; Khaniya and Kiernan 1994). In a setting where the spread of mass education occurred recently, however, we have direct information about its spread, consequences, and the individual-level behaviors that produced those consequences. With measures of childhood exposure to education at the community level and variation in parents' (and parent-in-laws'), husbands', and women's own educational experiences, we are able to provide comprehensive empirical estimates of the multidimensional, educational factors producing variation in women's experience with domestic violence.

2. Theoretical Framework

Scholars argue that patriarchal ideology, a significant component of the South Asian cultural configuration, is responsible for the high prevalence of domestic violence in South Asia (Ahmad et al. 2004; Cain et al. 1979; Johnson 1995; Srinivas 1952). This cultural configuration evolved through Hindu religious doctrines that emphasize strong hierarchal relations based on gender (male supremacy), caste, and seniority (Carvalho 2007; Majumdar 2003; Naved et al. 2006; Panday et al. 2008). For example, according to *Manusmriti* (9.3), one of the most regarded Hindu religious scripts, a woman is protected by her father in childhood, by her husband in youth, and by her sons in old age, and is never fit for independence. Married women are seen as their husbands' property and responsibility, and are expected to devote their life to servicing his and his children's needs.

Although Hindu ideology was originally associated with a single ethnic group (i.e., high caste Hindus of the Indo-Aryan origin), over time, Hindu principles spread as other groups began to adopt its practices and customs (Adhikari 1998; Regmi 1999). In many parts of South Asia this ideology continues to be pervasive, even among non-Indo-Aryan groups. This cultural process is often referred as "sanskritization," referencing the Sanskrit scholarship that guides high-caste Hindus. As a result, both as an ideological and normative force, Hindu religious doctrine strongly influences marital practices and relationships in Nepal, including the acceptability of domestic violence (Acharya and Bennett 1981).

In Nepal, because of social, political, and economic isolation from other countries, exposure to foreign cultures and ideologies remained uncommon until the mid-1950s (Berreman 1972; Bista 1972). Nepalese families had little exposure to different views and beliefs about social and gender relationships, such as those emphasizing independence and personal freedom, gender equality, and marital relationships based on individual choice (Macfarlane 1986; Smith 1973). The dramatic social and economic changes in Nepal in more recent decades, however, has afforded greater exposure to other cultures and, in turn, has led to ideological shifts (English 1985; Panday 1999). In the mid-1970s, Nepal began receiving a large portion of foreign aid in order to support the public education system and increase infrastructure to improve the living conditions among the rural poor (Panday 1999). As a result, there has been a dramatic increase in primary and secondary schools, wage work, transportation and communication infrastructure, and mass media (Beutel and Axinn 2002; Jamison and Lockheed 1987). Extensive research shows that, among other aspects of social

change, exposure to community educational context and educational experiences have particularly dramatic consequences for many dimensions of family change, including the entry into marriage, marital arrangements, childbearing, and the nature of marital relationships (Allendorf and Ghimire 2013; Ghimire et al. 2006; Hoelter et al. 2004).

2.1. Spread of Mass Education and Domestic Violence

Because Nepal was kept in complete isolation from the rest of the world with a ban on the general public attending school, formal schooling was a privilege for the elite. After the ruling class – The Rana Family regime – was overthrown in 1951, there was a proliferation of schools throughout Nepal. Even as school enrollment increased – from 31% ever attended school among those born between 1936 and 1945 to 84% among those born between 1966 and 1975 – inequalities existed among genders. The historical background of inequality in schooling based on caste assisted in setting the stage for gendered inequality. By the 1990s school enrollment among school-aged children reached close to 100% for both males and females, erasing the historic gender disparities in school participation (Beutel and Axinn 2002; Stash and Hannum 2001; Brauner-Otto 2012, 2009).

The spread of education has been a powerful vehicle for importing Western ideas in Nepal (Caldwell 1982; Caldwell et al. 1988; English 1985; Thornton 2005). That is, because the Nepalese educational system and course materials were adopted from the British educational system, the school environment exposes pupils to Western ideas and values such as individual freedom, equality, independence, and consensual and late marriage (Sharma 1994). A powerful force for social and cultural change, in the following sections, we describe how multiple dimensions of mass education may independently lower women's likelihood of experiencing domestic violence.

2.1.1. Community educational context—The educational context in women's communities may influence their experience with domestic violence in two ways. First, research shows that exposure to educational institutions during childhood shapes individuals' long-term personality characteristics independent of their own educational experiences (Axinn and Yabiku 2001). In a Hindu context like rural Nepal, young people who live close to schools in early childhood are more likely to have exposure to male-female interactions outside of the traditional family setting, providing a cultural model of cross-gender interactions that are built on consensual behavior and not dictated by hierarchical, patriarchal norms. Exposure to these values and experiences are likely to shape individuals' expectations of gender-based interactions later in life, ultimately discouraging males from engaging in domestic violence, and lowering women's tolerance of domestic violence.

Second, the spread of schools increases the likelihood that individual women—and their family members—have the opportunity to go to school themselves (Elder 1985; Axinn and Barber 2001). For parents or children to have the opportunity to go to school, schools must be located nearby, or parents must send their children to live near schools.¹ As a result, the

¹In rural Nepal, families sometimes send children great distances so they can attend school, but the majority of rural families do not have the resources necessary to take advantage of distant schooling opportunities (Acharya and Bennett 1981; Brauner-Otto 2012; Stash and Hannum 2001).

availability of schools in a community increases the likelihood that both parents and their children will attend school (Beutel and Axinn 2002; Jamison and Lockheed 1987). As we describe below, by increasing the availability of education to individuals, the spread of schools unleashes a powerful chain of individual experiences that we hypothesize will reduce women's likelihood of domestic violence.

Hypothesis 1: Proximity to school during childhood will reduce women's experience with domestic violence.

2.1.2. Parents' education—A large body of literature has documented important intergenerational influences of education (Cleland and Rodriguez 1988; Marini 1978; Thornton et al. 2007). Socialization processes, social control, and parent's and children's similarity of social position result in parents experiences having extraordinarily powerful influence on their children's lives (Bengtson 1975; Gecas and Seff 1990; Smith 1988; Axinn and Thornton 1993). As a result, parents' education is likely to influence children, including children's expectations of marital relations, and ultimately, their tolerance of domestic violence. In Nepal, educated parents are less likely to themselves engage in domestic violence, thereby encouraging their children to also enter and maintain violence-free marriages. From this perspective, the values and beliefs that more highly educated parents teach their children will discourage their sons from perpetrating violence, and will likely discourage their daughters from tolerating such behavior. Furthermore, parents' education may also influence their child's spouse through their involvement in the process of spousal selection, in which parents are almost always involved to some degree in Nepal marital processes, which remains common in Nepal (Ghimire et al. 2006). In particular, because husbands' behavior is a determinant of women's experience of domestic violence (Majumdar 2003; Panday et al. 2008), a woman's parents-in-law's educational experiences may be particularly influential on her likelihood of experiencing domestic violence.

Hypothesis 2: Parents' and parent-in-laws' education will lower women's experience with domestic violence.

2.1.3. Wife's own and her husband's education—Finally, a woman's and her husband's educational experiences are likely to further lower the likelihood of domestic violence in ways that are independent of both community context and parental experiences. At least three mechanisms are relevant, beginning with the formation of the marriage itself.

First, although arranged marriage remains common in Nepal, recent evidence indicates that individuals' education increases their likelihood of participating in spouse choice (Ghimire et al. 2006). Women's and men's greater involvement in the selection of their own spouse are associated with change in the nature of marital relationships, leading to more communication and affection and less disagreement and conflict between spouses (Rindfuss and Morgan 1983; Thornton and Lin 1994). The increase in communication and affection and reduction in disagreement and conflict is likely to encourage mutual respect and equality within marriages (Allendorf and Ghimire 2013; Ghimire et al. 2006; Hoelter et al. 2004), which in turn will reduce the likelihood of violence within marital relationship.

Second, scholars argue that education promotes young people's independence from their family and leads to the adoption of new ideas and values. In the Nepalese setting, this process is likely to involve young people reorienting their values away from historical Hindu principles, including patriarchy, and toward more Western ideas regarding independence, equality, and interpersonal relations based on mutual consent (Allendorf and Ghimire 2013; Hoelter et al. 2004). Young men's and young women's adoption of these new ideas and values will further discourage men from perpetrating violence, and women from accepting such behavior.

Third, scholars also argue that education in the South Asian context increases a woman's autonomy relative to her husband, mother-in-law, or other key household members (Dyson and Moore 1983; Mason 1987). In Nepal, the spread of mass education also gave women new skills and credentials, providing them with a route to greater economic independence from their families and husbands (Axinn and Barber 2001). Educational change has not only given women a new framework for thinking about the (in)acceptability of domestic violence, but has also given them new opportunities to gain self-sufficiency, enabling them to leave the household in response to violence. More highly-educated women's economic independence and social autonomy may be an especially powerful force that both influences how men treat their wives and how wives respond to their husbands' violent behavior.

Hypothesis 3: Both women's own and their husband's educational attainment will discourage domestic violence against wives.

Of course, married women are at the will of their husbands, and men's susceptibility of violent behavior may be most closely associated with their own educational experiences. It is possible that a woman's exposure to schools in her community, her parents' education, and her own educational experiences only protect her against domestic violence by increasing her likelihood of having a more-highly educated husband. That is, because educational opportunities in a community, parental education and women's education all influence their choice of a husband, if husbands' own education lowers their likelihood of perpetrating violent behavior within marriage, husbands' education may be a key mechanism linking the broader educational context to women's likelihood of domestic violence. From this perspective, men's exposure to Western-oriented schools that discourage such behavior may be the most powerful determinant of women's experiences.

Hypothesis 4: Husband's education will explain—at least in part—potential associations between women's community educational context, parents' education, and parent-in-laws' education on their likelihood of domestic violence.

3. Methods

3.1. Data

The data used to test our hypotheses came from a study of 171 communities in the Western Chitwan Valley in Nepal. The neighborhoods in our study closely resemble the characteristics of the entire Chitwan Valley population (Barber et al. 1997).

The CVFS selected a systematic probability sample of 171 neighborhoods in Western Chitwan and defined a neighborhood as a geographic cluster of five to fifteen households. Once a community was selected, a household census along with a household relationship grid was administered in all households in the selected communities. All individuals aged 15 to 59 residing in the sampled households and their spouses—regardless of age or residence—were interviewed using a standardized questionnaire and a life history calendar (LHC) with a 97% response rate. This process yielded a sample of 1,813 currently married women. Because a small number of women (N=30) married more than once, and because these women may have distinct educational and domestic violence profiles compared to their peers who have only been married once, we focus only on women who are still in their first union. Out of the sample of 1,783 married women, 8 women have missing information, resulting in a final analytic sample of 1,775 married women.

In the standardized interviews, individuals were asked questions about their family background, personal characteristics, experiences, and childhood community context. The LHC portion of the survey collected information on residence, marriage, childbearing, schooling, travel, and work experience (Axinn et al. 1999). CVFS survey practice involves employing multiple interviewers to a household so that all eligible members for individual interview could be interviewed simultaneously and independently using identical survey instruments. This practice allows us to leverage husband's individual reports of their own, and their parents' education, which likely improves independence in measurement on these key constructs. This also helped to create privacy in which women would feel comfortable answering potentially difficult questions truthfully.

3.2. Measuring Domestic Violence

The outcome of interest is women's experience with domestic violence. Despite worldwide engagement in understanding and addressing this issue, there is no standard definition of domestic violence. The main point of contention is that what constitutes "violence" differs across cultural contexts. Some urge a broad definition that includes any act of omission that causes harm to women or subordinates them. For example, Article 2 of the United Nations Declaration on the Elimination of Violence Against Women (1993) states:

"Violence against women shall be understood to encompass, but not be limited to, the following: (a) Physical, sexual and psychological violence occurring in the family, including battering, sexual abuse of female children in the household, dowry-related violence, marital rape, female genital mutilation and other traditional practices harmful to women, non-spousal violence and violence related to exploitation; (b) Physical, sexual and psychological violence occurring within the general community, including rape, sexual abuse, sexual harassment and intimidation at work, in educational institutions and elsewhere, trafficking in women and forced prostitution; (c) Physical, sexual and psychological violence perpetrated or condoned by the State, wherever it occurs" (Rauschnig et al. 1997:355).

In spite of declarations against domestic violence and social actions designed to reduce it, many cultures—including the one we study here—have beliefs, norms, and social

institutions that legitimize it (Mathur 2004; Yount et al. 2011; Raj and Silverman 2007; Raj et al. 2005; Sarkar 2010; Silverman et al 2008). For example, in Nepal, a physical altercation instigated by another person would be socially unacceptable and punishable, but the same interaction instigated by the husband is considered normative (Heise et al. 1999). Thus, the multi-dimensional and culturally-specific nature of domestic violence makes it difficult to measure (Raj and Silverman 2007; Sarkar 2010). Because of these complexities, in this study we focus on one discrete, less ambiguous dimension of domestic violence: exposure to physical violence.

We measure women's experience with domestic violence based on women's responses to the question in the private individual interview, "Has your husband ever beaten you?" If the respondent answered affirmatively, this response was categorized as having experienced domestic violence and coded as "1" (otherwise coded as "0"). As shown in Table 1, 17% of women in our sample report having experienced domestic violence at least once since they were married. It is important to recognize that a limitation of our measure is that we do not have data on the timing or frequency of violence within marriage. To address the fact that we cannot account for temporal ordering—except that the physical violence occurred during the course of marriage—all covariates in our model are pre-marital indicators, allowing us to maintain temporal order despite the lack of data on the precise timing of violence.

It is also important to recognize that, although it is possible that stigma could discourage women from reporting physical violence (Raj and Silverman 2007; Raj et al. 2005; Sarkar 2010) within a face-to-face interview, the fact that nearly one in five women readily report physical violence highlights that it is, unfortunately, a rather normative marital experience within our study setting. Furthermore, our exhaustive effort to ensure that our survey findings are valid—including performing ethnographic research (e.g., unstructured interviews and interviewer observation in the community) to corroborate the data from the face-to-face surveys—lends support to the validity of these estimates.

3.3. Measures of education

We operationalize women's exposure to education with five distinct measures: childhood community educational context, parents' and parent-in-laws' educational experience, women's own education, and her husband's education. Because the CVFS collected full interviews from both women and their husbands, we have separate measures of childhood community educational context, parents' education, and individual schooling for women and their husbands.

3.3.1. Childhood community educational context—Women and men were individually asked, "Was there a school within a one-hour walk from your home at any time before you were 12 years old?" A positive response was coded as "1" and "0" if otherwise. As shown in Table 1, 82% of wives and 81% of husbands had a school within a one-hour walk from their childhood residence.

3.3.2. Parents' and parent-in-laws' education—We measure parents' (and parent-in-laws') education in terms of whether or not women's own mother and father and their husband's mother and father ever went to school. In the individual interviews, women and

their husbands were individually asked “Did your mother ever go to school?” If the response to this question was yes, the mother’s schooling was coded as “1” and “0” if otherwise. The same question was repeated for father’s education. We summed women’s responses to create a measure of their own parents’ education, and summed their husband’s responses to create an identical measure of parent-in-laws’ education. A value of “0” indicates that neither parent (or parent-in-law) went to school, “1” indicates that either the mother or father (or mother-in-law or father-in-law) went to school, and “2” indicates that both parents (or parent-in-laws) went to school. We take a simple summative approach and do not differentiate between which parent attended school because in the vast majority of cases (96%) in which one parent attended school it was the father. A mean of .31 for women’s own parents’ education and .19 for parent-in-laws’ education (Table 1) reflects the low levels of school attendance in the parental generation.

3.3.3. Education—We use data on the total number of years spent in formal school to create a categorical variable indicating: 0 years (no education), 1-5 years (primary), 6-11 years (high school), and 12 and more years (college). Because the CVFS collected a complete history of respondents’ educational experiences using the life history calendar technique, we have data on the timing of completion for each level of schooling. A very small proportion of women in our study (N=23; 1.28%) continued education after getting married. Because we do not know when the domestic violence occurred, and because we do not want to attribute education that occurred after the physical violence as a determinant, in these few instances, we categorize women according to their educational level prior to marriage. In all analyses, women who have “no education” are the reference group. As shown in Table 1, among the cohort of married women in our study, there were sizeable gender inequalities in education: whereas less than half (43%) of women have been to school, more than two-thirds (69%) of husbands have been to school.

3.4. Other Factors Associated with Women’s Experience with Domestic Violence

Apart from education, recent evidence indicates that a number of women’s and their husbands’ background characteristics may influence women’s likelihood of experiencing domestic violence (Koenig et al. 2003; Yount 2005; Yount and Carrera 2006).

3.4.1. Age and birth cohort—Research suggests significant differences between birth cohorts both in terms of exposure to education and the nature of marital relational processes (Hoelter et al. 2004). Compared to their older peers, younger women have significantly higher levels of education and less exposure to domestic violence. Thus, we control for birth cohort in order to account for this heterogeneity across the study population. Respondent’s birth cohort was coded in four categories: cohorts born between 1972-81, 1962-71, 1952-61, and 1936-51. We treated the youngest cohort—born between 1972-81—as the reference group. Our expectation is that the introduction of measures of spread of mass education into the analysis will explain much of the difference in experience with domestic violence between birth cohorts.

3.4.2. Ethnicity—Nepali society consists of many ethnic groups (Bista 1972; Macfarlane 1976; Thapa 1997) that are likely to have significance differences in both educational

experiences and marital relationships. Following suit of prior research on this study population, we categorize ethnicities into five major groups for analytical purposes: Brahmin/Chhetri (high caste Hindus), Dalit (low caste Hindus), Newar, Hill Janajati (Hill indigenous), and Terai Janjati (Terai indigenous) (Axinn and Yabiku 2001). We coded individuals as “1” if they are members of a specific category and “0” if not, and treated Brahmin/Chhetri as the reference group.

3.4.3. Marital experience—Marriage timing (age at first marriage) may significantly influence both individuals’ educational attainment and their likelihood of experiencing domestic violence. In a setting like Nepal where the vast majority of women marry at younger ages, older age at first marriage is associated with both greater autonomy and better spousal relationships (Allendorf and Ghimire 2013), which are likely inversely associated with women’s experience with domestic violence. Using information from the LHC, we created a series of categorical variables including married at age 15 and younger, married between ages 16 and 20, and married after age 20; we treat married at age 15 and younger as the reference group. As shown in Table 1, men and women in Nepal have significantly different marital experiences. Although 41% of women were married by age 15 or younger, only 10% of men were married at those ages. The mean age at first marriage is 16.25 years for women, and 20.65 years for husbands (4.40 years difference).

In an arranged marriage society like Nepal, another marital experience likely to affect women’s risk of domestic violence is participation in spouse selection. In general, higher participation in spouse selection is found to be associated with a higher-quality relationship, and thus may be associated with lower risk of domestic violence (Allendorf and Ghimire 2013; Hoelter et al. 2004; Link 2011). The CVFS measured participation in spouse selection using responses to a question that asks, “People marry in different ways. Sometimes our parents or relatives decide whom we should marry, and sometimes we decide ourselves. In your case, who selected your (first) spouse? Your parents or relatives, yourself, or both?” With this data, we created a dichotomous variable: “1” if the individual had any say in spouse selection and “0” if not.

3.5. Analytical Strategy

Our analytical strategy estimated the independent and interrelated relationships between the spread of mass education and women’s experience with domestic violence. Guided by the life course perspective, we begin our models by introducing measures of the educational context in women’s and their husband’s childhood communities, followed by parents’ and parent-in-laws’ educational experiences, and finally women’s own, and their husband’s, educational experiences. We estimated multivariate models using standard logistic regression procedures. Logistic regression is an appropriate statistical technique for handling our dichotomous dependent variable (Kmenta 1986). When reporting results, we present odds ratios: exponentiated log-odds of raw coefficients, which can be interpreted as the multiplicative effect of a one-unit change in the independent variable on the odds of women having experienced domestic violence.

4. Results

4.1. Childhood Community Educational Context

Table 2 presents our estimates of the association between women's own childhood community educational context, that of their husbands, and their likelihood of having experienced physical violence.

The results show that women's childhood community educational context has a strong negative and statistically significant relationship with the odds of women's experience with domestic violence. In fact, as shown in Model 1, women who lived within a one-hour walk from a school in childhood experience a 25 percent lower likelihood of experiencing domestic violence in marriage compared to their peers who lived further from a school in childhood. As shown in Model 2, women whose husbands also lived within a one-hour walk of a school during childhood also experience a significantly lower likelihood of domestic violence. In fact, the protective nature of living near a school is even larger in the instance of their husbands: women whose husband lived within a one-hour walk of a school during childhood experience a 28 percent lower likelihood of experiencing domestic violence.

In terms of controls, the results show that, as anticipated, both women's ethnicity and birth cohort are strongly associated with their likelihood of domestic violence. In general, compared to high caste Brahmin/Chhetri women, women from other ethnic backgrounds have higher odds of reporting domestic violence, however, the difference is non-significant for Hill Janjati women. As expected, age is positively associated with domestic violence: compared to women from the youngest birth cohort (born between 1972-81), older women have higher odds of having experienced domestic violence.

4.2. Parents' education

In Table 3, we include indicators of parents' and parent-in-laws' education to assess whether they independently influence women's experience with domestic violence and/or help to explain the protective effect of the educational context in women's and their husband's childhood community.

Being a woman whose mother or father attended school is associated with a 32 percent reduction in the odds of experiencing domestic violence. This means that women whose mother and father both attended school are roughly 60% less likely to experience domestic violence compared to her peers whose mother or father did not attend school. Interestingly, although women's parent-in-laws' education is also negatively associated with the odds of domestic violence against wives, the association is not statistically significant.

4.3. Women's and Husbands' Educational Experiences

Model 1 through Model 3 of Table 4 present estimates of women's own education, and that of their husbands. As shown, women's educational attainment is negatively associated with their odds of domestic violence: compared to women with no education, women with 12 or more years of education are more than 67% less likely to experience domestic violence.

Similarly, we found that husband's education is also strongly, negatively associated with women's likelihood of experiencing domestic violence. Among those women whose husbands have 12 or more years of education, which is roughly equivalent to a college education in Nepal, they experience a 73% lower likelihood of domestic violence compared to their peers married to men with no formal education. In Model 3, Table 4, we include both women's own education and their husband's education, and find that doing so greatly reduces the association between women's education and the likelihood of domestic violence in size and significance (0.33 to 0.63). Conversely, the association between husband's education and the likelihood of domestic violence remains large and significant: women married to men with 12 or more years of education experience a 67 percent lower likelihood of domestic violence compared those married to men with no education. In light of the extensive literature on assortative marriage (Mare 1991), and the fact that arranged marriage exacerbates marital sorting in Nepal (Ghimire et al. 2006), these results confirm that more highly-educated women experience distinctly less-violent marriages largely due to the fact that they marry more-highly educated men who are less prone to engage in violent behavior. It is also important to recognize that the strong association between husband's education and women's likelihood of domestic violence is robust to a stringent set of marital experiences.

5. Discussion

Numerous theories of social change predict that the spread of education in a society significantly alters families, including marital relationships (Caldwell 1982; Goode 1970; Thornton and Lin 1994; Thornton 2005). Empirical evidence from rural Nepal is consistent with this idea (Axinn and Yabiku 2001; Ghimire and Axinn 2010): the spread of mass education has led to delays in marriage (Yabiku 2005), a transition away from arranged marriage toward individual choice of spouse (Ghimire et al. 2006), and an increase in positive relations between spouses (Hoelter et al. 2004; Allendorf and Ghimire 2013). Moreover, research has repeatedly demonstrated that exposure to formal education and Western European-style curricula are among the most powerful forces affecting family formation and relationships (Caldwell et al. 1988; Hoelter et al. 2004; Lin 1994).

In light of these findings, we hypothesize that multiple dimensions of mass education may also influence domestic violence, which remains common in many parts of the world, including South Asia. The spread of schools throughout communities affect the chances women—and their future husbands—attend school, which will alter attitudes and expectations about what constitutes appropriate behavior. Women's parents' education, as well as their parent-in-laws', also has the potential to reduce the likelihood of domestic violence by both increasing their own and their husbands' education, and altering their expectations for their daughter's exposure to violence and the acceptability of their son's to perpetrate such behavior. Moreover, women's own and their husband's education may further alter their expectations of the marital relationship, and in turn, marital dynamics. Together, each of these mechanisms may connect the spread of mass education to a reduced likelihood that women experience physical violence.

Our investigation of these possibilities in the context of rural Nepal is consistent with this possibility, confirming that multiple dimensions of mass education reduce women's

likelihood of domestic violence. That is, separate models confirm that women who live near schools during childhood, have more highly-educated parents, and are themselves more educated are significantly less likely to experience domestic violence during marriage. However, once we consider husbands' education, the results highlight that husband's education is a principal way that women's neighborhood, parental, and individual exposure to education reduces her likelihood of experiencing domestic violence. In other words, women's education appears to protect them against a violent marriage by increasing the likelihood that they marry a more highly-educated man who is less likely to perpetrate such behavior.

Although our study offers a comprehensive investigation of mass education and domestic violence, it leaves much for future research. Understanding the extent to which education reduces domestic violence in the Nepalese case is of great importance, given the country's high levels of marital violence. However, the findings shown here could be unique to Nepal, and not representative of South Asia as a whole. Moreover, our data come from one region in Nepal, highlighting the need for future research on the association between mass education and women's experiences with domestic violence in other countries and regions. With that said, extensive evidence from diverse settings has shown that Western-oriented education influences several aspects of family and marital relationships (Allendorf and Ghimire 2013; Caldwell et al. 1988; Holter et al. 2004), leading us to expect that mass education will have a similarly protective effect against domestic violence in other settings. Future research confirming whether this is the case remains a high scientific priority.

In addition to focusing on a single social context—the Chitwan Valley—our study also focuses on one discrete dimension of domestic violence: physical abuse. Increasingly researchers and practitioners are recognizing the importance of more comprehensive measures of domestic violence that account for emotional, physical, and sexual violence (Mathur 2004; Yount et al. 2011; Raj and Silverman 2007; Raj et al. 2005; Sarkar 2010; Silverman et al 2008). Future work that takes a multidimensional approach to study domestic violence and its relationship with education and other social factors will bolster the results shown here.

Our study also raises additional questions. Namely, what are the precise mechanisms linking education to lower domestic violence? While our study points to husband's education as a principal explanation linking both women's parents' and their own education to her lower likelihood of domestic violence, we are unable to directly test the pathways linking husband's education to lower violence. Other research on education and its influence on individuals and their marriages suggest that ideational factors are likely to be involved. That is, more highly-educated men may be less likely to perpetrate violence because they have greater respect and deference to their wife as an autonomous person with equal value and worth. However, other mechanisms could also be at play. For instance, more highly-educated men may have greater economic stability and face less financial hardship compared to their less-educated peers, and less stress could reduce marital conflict and ultimately violence.

Finally, while our paper has offered a comprehensive look by considering not only women's own education but also their parents' and husband's education, as well as the presence of schools in their childhood neighborhood, we have taken an individual-oriented, female-focused approach in the current study. Future work that takes a couples-oriented approach may uncover other ways that women's—and their husband's—education interact to influence the likelihood of domestic violence. Such research may find that educational inequality between spouse's is associated with a higher risk of domestic violence, and this could especially be the case in the instance that women are more highly-educated than their spouse. Unfortunately, the Nepalese context is not an ideal setting to explore these questions given that in almost all instances women are less-educated than their husbands.

Leaving much for future studies, this study constitutes an important advance in family theory and research on domestic violence. Just as in other domains of family change, our findings highlight the powerful influence that the spread of education has on marital dynamics and individual wellbeing.

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Highlights

- Women's childhood access to school reduces the likelihood of wife beatings.
- Women's own and their parents' education reduces beatings by their husbands.
- Husbands' education is a particularly powerful force reducing wife beatings.

Table 1

Descriptive statistics of measures used in the analyses among married women aged 15-59 in 1996 from the Western Chitwan Valley, Nepal (N=1,775).

	Label	Mean	S. Dev.	Min.	Max.
<u>Childhood community educational context</u>					
Had a school within one-hour walk	0=no, 1=yes	0.82	0.38	0	1
Husband had a school within one-hour walk	0=no, 1=yes	0.81	0.39	0	1
<u>Parents' education</u>					
Parents ever went to school	0=none, 1=either,	0.31	0.53	0	2
Parent-in-laws ever went to school	2=both	0.19	0.43	0	2
<u>Premarital education</u>					
Women's own Schooling	Years	3.11	4.50	0	20
No education	0=no, 1=yes	0.57	0.49	0	1
1-5 years of education	0=no, 1=yes	0.15	0.36	0	1
6-11 years of education	0=no, 1=yes	0.21	0.40	0	1
12 and more years of education	0=no, 1=yes	0.07	0.26	0	1
Husband's schooling	Years	5.94	5.41	0	22
No education	0=no, 1=yes	0.31	0.46	0	1
1-5 years of education	0=no, 1=yes	0.18	0.38	0	1
6-11 years of education	0=no, 1=yes	0.34	0.47	0	1
12 and more years of education	0=no, 1=yes	0.17	0.37	0	1
<u>Marital experiences</u>					
Women's age at first marriage	Years	16.25	3.23	5	36
Married at age 15 and younger	0=no, 1=yes	0.41	0.49	0	1
Married between 16 and 20	0=no, 1=yes	0.50	0.50	0	1
Married after 20	0=no, 1=yes	0.08	0.27	0	1
Participation in spouse choice	0=no, 1=yes	0.24	0.43	0	1
Husband's age at first marriage	Years	20.65	0.33	7	45
Married at age 15 and younger	0=no, 1=yes	0.10	0.30	0	1
Married between 16 and 20	0=no, 1=yes	0.41	0.49	0	1
Married after 20	0=no, 1=yes	0.49	0.50	0	1
Husband's participation in spouse choice	0=no, 1=yes	0.51	0.50	0	1
<u>Controls</u>					
Age in years	Years	33.59	10.88	15	59
Husbands' age in years	Years	39.24	12.45	17	80
<u>Birth Cohort</u>					
Born between 1972–81 (age 15-24, Cohort 0)	0=no, 1=yes	0.25	0.43	0	1
Born between 1962–71 (age 25-34, Cohort 1)	0=no, 1=yes	0.30	0.46	0	1
Born between 1952–61 (age 35-44, Cohort 2)	0=no, 1=yes	0.25	0.43	0	1
Born between 1936–51 (age 45-59, Cohort 3) ^a	0=no, 1=yes	0.20	0.39	0	1
<u>Ethnicity</u>					
Brahmin/Chhetri (high caste Hindus)	0=no, 1=yes	0.47	0.50	0	1

	Label	Mean	S. Dev.	Min.	Max.
Dalit (low caste Hindus)	0=no, 1=yes	0.11	0.32	0	1
Newar	0=no, 1=yes	0.06	0.24	0	1
Hill Janjati (Hill indigenous)	0=no, 1=yes	0.17	0.38	0	1
Terai Janajati (Terai indigenous)	0=no, 1=yes	0.19	0.39	0	1
<u>Outcome</u>					
Ever beaten by husband	0=no, 1=yes	0.17	0.37	0	1

Source: Chitwan Valley Family Study (CVFS)

Note:

^aFor husband this cohort includes all ages 45 and above.

Table 2

Logistic regression estimates of association between childhood community educational context and domestic violence against wives among married women aged 15-59 in 1996 from the Western Chitwan Valley, Nepal (N=1,775).

Model	1	2
<u>Childhood community educational context</u>		
School within one-hour walk	0.75* (-1.66)	
Husband had a school within one-hour walk		0.72* (-1.96)
<u>Controls</u>		
Birth cohort^a		
Born between 1962–71 (age 25-34, Cohort 1)	1.16 (0.82)	0.91 (-0.50)
Born between 1952–61 (age 35-44, Cohort 2)	1.47* (2.01)	1.02 (0.10)
Born between 1936–51 (age 45-59, Cohort 3)	1.64** (2.38)	1.34 (1.56)
Ethnicity^b		
Dalit (low caste Hindus)	2.51** (4.72)	2.44** (4.64)
Newar	1.74* (2.14)	1.77* (2.17)
Hill Janjati (Hill indigenous)	1.25 (1.17)	1.18 (0.85)
Terai Janjati (Terai indigenous)	1.89** (3.66)	1.93** (3.83)
Intercept	0.14 (-8.27)	0.18 (-9.46)
- 2 Log L	1556	1560
Df	8	8
N	1775	1775

Source: Chitwan Valley Family Study (CVFS)

Note:

* $P < .05$,

** $P < .01$; all probabilities are one-tailed. Odds ratios are reported on the first line with Z statistics in parentheses on the second line. All models are estimated using multivariate logistic regression.

^a Born between 1972–81 (age 15-24, Cohort 0) as reference group.

^b Brahmin/Chhetri (high caste Hindus) as reference group.

Table 3

Logistic regression estimates of association between parents' education and domestic violence against wives among married women aged 15-59 in 1996 from the Western Chitwan Valley, Nepal (N=1,775).

Model	1	2
Parents' education		
Wife's parents ever went to school	0.68** (-2.56)	
Husband's parents ever went to school		0.79 (-1.35)
Controls		
Birth cohort^a		
Born between 1962–71 (age 25-34, Cohort 1)	1.10 (0.50)	0.80 (-1.22)
Born between 1952–61 (age 35-44, Cohort 2)	1.36 (1.58)	0.91 (-0.51)
Born between 1936–51 (age 45-59, Cohort 3)	1.63** (2.46)	1.27 (1.27)
Ethnicity^b		
Dalit (low caste Hindus)	2.39** (4.43)	2.36** (4.45)
Newar	1.75* (2.16)	1.80* (2.22)
Hill Janjati (Hill indigenous)	1.23 (1.08)	1.21 (1.00)
Terai Janjati (Terai indigenous)	1.79** (3.32)	1.89** (3.70)
Intercept	0.13 (-11.06)	0.16 (-11.71)
- 2 Log L	1551	1562
Df	8	8
N	1775	1775

Source: Chitwan Valley Family Study (CVFS)

Note:

* $P < .05$,

** $P < .01$; all probabilities are one-tailed. Odds ratios are reported on the first line with Z statistics in parentheses on the second line. All models are estimated using multivariate logistic regression.

^a Born between 1972–81 (age 15-24, Cohort 0) as reference group.

^b Brahmin/Chhetri (high caste Hindus) as reference group.

Table 4

Logistic regression estimates of association between wives' and husbands' education and domestic violence against wives among married women aged 15-59 in 1996 from the Western Chitwan Valley, Nepal (N=1,775).

Model	1	2	3
<u>Individual-education</u>			
Women's education ^a			
With 1-5 years of education	1.04 (0.20)		1.17 (0.78)
With 6-11 years of education	0.68* (-1.72)		0.93 (-0.29)
With 12 and more years of education	0.33** (-2.38)		0.63 (-0.93)
Husband's education ^a			
With 1-5 years of education		1.01 (0.07)	1.04 (0.21)
With 6-11 years of education		0.65* (-2.28)	0.67* (-2.01)
With 12 and more years of education		0.27** (-4.21)	0.33** (-3.33)
<u>Parents' education</u>			
Own parents ever went to school	0.76* (-1.77)		0.80 (-1.40)
Parent-in-laws ever went to school		1.04 (0.20)	1.05 (0.28)
<u>Childhood community educational context</u>			
Had a school within one-hour walk	0.80 (-1.31)		0.84 (-0.98)
Husband had a school within one-hour walk		0.86 (-0.78)	0.93 (-0.37)
<u>Marital experience</u>			
Wife's age at first marriage ^b			
Married between age 16 and 20	1.16 (1.02)		1.29** (1.78)
Married after age 20	0.90 (-0.38)		1.04 (0.16)
Husband's age at first marriage ^b			
Married between age 16 and 20		0.73 (-1.60)	0.71* (-1.70)
Married after age 20		0.54** (-3.00)	0.54** (-2.97)
Wife participation in husband selection	1.15 (0.89)		1.10 (0.59)
Husband participation in wife selection		0.95 (-0.37)	0.94 (-0.46)
<u>Controls</u>			
Birth cohort^c			

Model	1	2	3
Born between 1962–71 (age 25–34, Cohort 1)	1.00 (0.01)	1.17 (0.79)	0.96 (0.22)
Born between 1952–61 (age 35–44, Cohort 2)	1.14 (0.62)	1.04 (0.20)	1.00 (0.02)
Born between 1936–51 (age 45–59, Cohort 3)	1.29 (1.06)	1.23 (1.08)	1.01 (0.03)
Ethnicity^d			
Dalit (low caste Hindus)	2.04** (3.50)	1.81** (2.95)	1.76** (2.72)
Newar	1.70* (1.99)	1.93** (2.45)	1.86* (2.30)
Hill Janjati (Hill indigenous)	1.08 (0.36)	1.10 (0.47)	1.06 (0.30)
Terai Janajati (Terai indigenous)	1.48* (2.08)	1.37* (1.72)	1.25 (1.15)
Intercept	0.19 (–5.94)	0.34 (–4.51)	0.38 (–2.61)
– 2 Log L	1538	1519	1509
Df	15	15	23
N	1775	1775	1775

Source: Chitwan Valley Family Study (CVFS)

Note:

* $P < .05$,

** $P < .01$; all probabilities are one-tailed. Odds ratios are reported on the first line with Z statistics in parentheses on the second line. All models are estimated using multivariate logistic regression.

^a No education as reference group.

^b Married at age 15 and younger as reference group.

^c Born between 1972–81 (age 15–24, Cohort 0) as reference group.

^d Brahmin/Chhetri (high caste Hindus) as reference group.