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**Socioeconomic and geographic correlates of intimate partner violence in Sri Lanka:  
Analysis of the 2016 Demographic and Health Survey****Abstract**

Intimate partner violence (IPV) is a serious public health issue and violation of human rights. The prevalence of IPV in South Asia is especially pronounced. We examined the associations between socioeconomic position (SEP), geographical factors and IPV in Sri Lanka using nationally representative data. Data collected from Sri Lanka's 2016 Demographic and Health Survey were analysed using multilevel logistic regression techniques. A total 16,390 eligible ever-partnered women aged 15-49 years were included in the analysis. Analyses were also stratified by ethnicity, type of violence, neighbourhood poverty and post-conflict residential status for selected variables. No schooling/primary educational attainment among women (OR 2.46 95% CI 1.83-3.30) and their partners (OR 2.87 95% CI 2.06-4.00), financial insecurity (OR 2.17 95% CI 1.92-2.45) and poor household wealth (OR 2.64 95% CI 2.22-3.13) were the socioeconomic factors that showed the strongest association with any IPV, after adjusting for age and religion. These associations predominately related to physical and/or sexual violence, with weak associations for psychological violence. Women living in a post-conflict environment had a higher risk (OR 2.96 95% CI 2.51-3.49) of IPV compared to other areas. Ethnic minority women (Tamil and Moor) were more likely to reside in post-conflict areas and experience poverty more acutely compared to the majority Sinhala women, which may explain the stronger associations for low SEP, post-conflict residence and IPV found among Tamil and Moor women. Policies and programs to alleviate poverty, as well as community mobilisation and school-based education programs addressing harmful gender norms may be beneficial. Trauma informed approaches are needed in post-conflict settings. Further exploratory studies investigating the complex interplay of individual, household and contextual factors occurring in this setting is required.

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*Keywords:* intimate partner violence, domestic violence, Sri Lanka, socioeconomic position, poverty, post-conflict, multi-level modelling

**Socioeconomic and geographic correlates of intimate partner violence in Sri Lanka:  
Analysis of the 2016 Demographic and Health Survey**

Intimate partner violence (IPV) represents a violation of human rights and is a universal public health problem that results in the loss of many lives and many more non-fatal physical and mental health consequences (García-Moreno, Jansen, Ellsberg, Heise, & Watts, 2005). IPV, as defined by the World Health Organization (WHO), refers to any act of violence within an intimate relationship that results in physical, sexual, psychological, or economic harm and suffering (WHO, 2013). According to estimates by the WHO, 27% of ever-partnered women worldwide have experienced physical and/or sexual violence by an intimate partner at some point in their lifetime (WHO, 2021). The burden of lifetime physical and/or sexual violence among ever-partnered women is higher in low and middle-income countries (LMIC), and particularly acute in South Asia where 35% of ever-partnered women have experienced IPV, compared to 20% in Western Europe and 21% in high-income Asia Pacific (WHO, 2021).

Social and economic conditions determine levels of material wealth, psychosocial support, and behavioural choices, often resulting in a social gradient in health, where lower socioeconomic position (SEP) is associated with worse health (CSDH, 2008). Studies from Asia have reported a 3-fold increased risk of IPV among women with lower socioeconomic backgrounds, measured using a range of socioeconomic indicators (Ackerson & Subramanian, 2008; Dalal & Lindqvist, 2012; Jewkes et al., 2017; Ram et al., 2019).

Evidence from India has shown that poor individual and partner educational attainment (i.e., no schooling or primary school level attainment) increased the likelihood of IPV (Ackerson, Kawachi, Barbeau, & Subramanian, 2008; Vyas & Watts, 2009). Conversely, some studies have also shown women with a higher tertiary education. and women who are more educated and earn more than their spouse are more at risk of IPV (Abramsky et al.,

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2011). Authors have suggested that a woman's increased educational attainment and financial independence may challenge power structures and gender norms, and violence may be used by men as a means to reassert power and control (Ackerson & Subramanian, 2008; Jewkes et al., 2017). While Sri Lanka shares similar characteristics with Asian countries, it ranks highest in Asia with respect to tertiary education of women, with women outnumbering men in bachelor degree enrolment (Chapman & Chien, 2014). Furthermore, as an emerging economy, Sri Lanka is undergoing a period of increasing urbanisation and transition in social and gender norms, highlighting the need for the investigation of the role of education, employment and IPV in Sri Lanka.

At the household-level, there is increasing evidence from LMIC to suggest that IPV is more likely to occur in the context of poverty (Jewkes et al., 2017; Vyas & Watts, 2009). It has been argued that material deprivation including food insecurity are key contributors to psychological distress and interpersonal conflict, compounded among men who may feel they are not fulfilling traditional gender roles as economic providers (Gibbs et al., 2020). This may in turn lead to an increase in proximal risk factors such as alcohol misuse to cope with elevated stress. At the community level, areas of socioeconomic disadvantage may facilitate more collective and individual alcohol consumption, which in turn increases IPV risk (Fulu, Jewkes, Roselli, & Garcia-Moreno, 2013; Jayasuriya, Wijewardena, & Axemo, 2011). Some scholars have suggested neighbourhood poverty limits employment and other opportunities, exacerbating residential instability, weakening social ties, and elevating stress. This in turn results in conditions in which social disorder and violent behaviour is more accepted and normalised (Beyer, Wallis, & Hamberger, 2015).

Sri Lanka has experienced a history of violent insurrections and is still recovering from the social, economic and public health impacts of a protracted civil war. Exposure to political violence has been previously shown to be associated with an increased likelihood of

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perpetration of IPV and victimisation in Sri Lanka and other LMIC settings (Fisher, 2010; Fonseka, Minnis, & Gomez, 2015; Fulu et al., 2017). A scoping literature review of war and domestic violence noted exposure to political violence may result in mental health trauma (e.g., depression, PTSD, and alcohol abuse) which may in turn manifest as aggressive behaviours (Istratii, 2021). Researchers also contend violence is more normalised for both men and women in post-conflict settings (Gutierrez & Gallegos, 2016). In addition, the socioeconomic implications of war in terms of disability and subsequent limited employment, increased poverty, and the associated breakdown of traditional gender roles and social norms, places additional stress on the household which may translate to violence (Istratii, 2021; Newhouse & Silwal, 2018). A larger proportion of ethnic minority communities reside in post-conflict Sri Lanka and experience poverty more acutely (Mahadevan & Jayasinghe, 2019), thus, SEP and exposure to political violence are likely to differentially affect marginalised groups. Understanding the influence of contextual factors such as conflict exposure and poverty on the association between SEP and IPV, and the moderating effect of ethnicity, will be crucial in informing IPV prevention efforts in the Sri Lankan context. Furthermore, the relationship between different socioeconomic factors and experience of different types of abuse, particularly psychological abuse, has not been extensively examined and requires further investigation. In 2016, the Sri Lanka Demographic and Health Survey (SLDHS) introduced, for the first time, questions on experience of physical, sexual, and psychological IPV in the previous 12-months among ever-partnered women aged 15-49 years (DCS, 2016). Using the SLDHS we aimed to examine the following:

- 1) IPV prevalence and geographical variation by district;
- 2) If individual and partner-level indicators of SEP and household-level poverty are associated with IPV;

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- 3) If contextual and geographic factors (i.e., neighbourhood poverty, post-conflict residence, residential sector, and province) are associated with IPV;
- 4) If ethnicity modifies the associations between SEP, post-conflict residence and IPV;
- 5) If post-conflict residence modifies the associations between SEP and IPV;
- 6) If neighbourhood poverty modifies the associations between individual and partner education and IPV; and
- 7) SEP and post-conflict associations with IPV separately for physical/sexual abuse and psychological abuse;

**Methods*****Study setting***

Sri Lanka is an island nation situated in the Indian ocean. Sri Lanka has a dense population of approximately 20 million. The majority of Sri Lankans identify as Sinhalese (75%), followed by Tamil (11%) and Moor (9%). Most Sinhalese people identify as Buddhist, most Tamils as Hindu, and Moors as Muslim. The majority of the country resides in rural areas (77%), 18% in urban areas and 4% in the estate sector (DCS, 2012). The estate sector is characterised by agricultural plantations (mostly tea, followed by rubber and coconut) and is largely comprised of Indian Tamil plantation workers and their families, who experience worse health and social outcomes than the wider population (DCS, 2012; Mahadevan & Jayasinghe, 2019). Between 1983-2009, government forces and Tamil separatists engaged in a protracted civil war with the conflict largely concentrated in the Northern (94% Tamil population) and Eastern (40% Tamil and 37% Moor population) provinces (DCS, 2012).

***Data***

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This study used data from the 2016 SLDHS conducted between May to November 2016. Detailed data collection methods and questionnaire design are described in the 2016 SLDHS Report (DCS, 2017). In brief, the survey used a two-stage stratified cluster sampling technique to select study participants. At the first stage, 2500 census blocks (clusters) were stratified by district and then by sector (urban, rural and estate). In stage two, 12 households from each cluster (10 households per cluster in Western province) were selected by equal probability systematic sampling. In total, 18,302 ever-partnered women aged 15-49 years were interviewed. In accordance with the WHO guidelines for the ethical collection of information on IPV, only one eligible ever-partnered woman (i.e., married, living with a partner, or separated/divorced/widowed) per household was selected for the IPV questionnaire resulting in a sample of 16,390 women. Women who were separated, divorced, or widowed were invited to participate regardless of the time of separation. The questionnaire was implemented in private and additional consent was obtained, informing the participant of the sensitivity of the questions and that responses would remain confidential (DCS, 2016).

The DHS survey was undertaken by the Sri Lankan Department of Census and Statistics with financial support from the Ministry of Health, Nutrition and Indigenous Medicine in collaboration with the World Bank. Technical assistance was provided by the Inner City Fund International (Inc.), USA.

***Outcome variables***

The primary outcome measure was defined as exposure to any type of IPV by husband or partner in the last 12 months preceding the survey (versus no exposure to IPV in the previous year). Binary outcome variables were also created specifically for physical/sexual violence and for psychological violence. Physical violence was defined as being 'slapped', 'pushed', 'beaten with an object', 'strangled' or 'burned' in the past year. Sexual violence was defined as 'forced sex'. Due to the limited number of sexual violence



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cases occurring without any other form of abuse (2% of IPV cases) and the majority of sexual violence cases coinciding with physical violence (74%), a composite physical/sexual violence variable was also created, comparing women who have reported having experienced any act of physical and/or sexual violence with or without psychological violence in the past year versus women who did not report any IPV. Psychological violence was categorised as being prevented from leaving home, or experiencing belittlement or serious offence, without physical and/or sexual violence in the past year.

***Explanatory variables***

A detailed explanation of variables is provided in our pre-registered analysis plan (Bandara, Knipe, & Page, 2020). In brief, demographic factors, including respondent age, marital status, religion, and ethnicity were examined. Factors that have been previously identified as markers of SEP in the literature and associated with IPV were also included in this analysis (Abramsky et al., 2011; Guruge, Jayasuriya-Illesinghe, Gunawardena, & Perera, 2015; Jewkes et al., 2017). SEP was defined in this study as the level of material deprivation at the individual, household and community level. At the individual level, SEP measures included educational attainment and occupational status of the woman and partner, and financial insecurity – an income-related measure based on the question ‘do you have enough money for the daily expenses of your house?’ Partner related questions were only administered to women currently married or living with a partner, and financial insecurity question limited to women unemployed. Household wealth was also examined using the wealth index quintile, a composite variable that uses a combination of household ownership of durable goods and housing characteristics (DCS, 2016).

In Sri Lanka, areas of poverty are associated with poorer social outcomes including lower educational attainment (Abayasekara & Arunatilake, 2018; DCS, 2016). Therefore, we decided to use neighbourhood poverty as a proxy for SEP at the community level. A binary

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neighbourhood poverty variable was generated using the wealth index quintile to represent neighbourhoods with a high proportion (above the median) of women living in households in the poorest two quintiles versus a low proportion of women living in poorest quintiles, as reported elsewhere (Tiruye, Harris, Chojenta, Holliday, & Loxton, 2020). Although there is no universally accepted definition or time period for what constitutes an area as ‘post-conflict’, it is typically described as an environment in which open warfare has terminated, but real peace remains precarious and communities socially and economically vulnerable (Brown, Langer, & Stewart, 2011; Cunningham, 2017). Post-conflict residence was defined as women living in provinces where prolonged open warfare was conducted (i.e., the Northern and Eastern provinces), consistent with a previous report (Newhouse & Silwal, 2018). Other geographical correlates were defined at the sector (urban, rural, and estate) and provincial level (nine provinces).

### ***Statistical analysis***

#### *Non-respondent and missing data*

As stated in our pre-registered analysis plan, characteristics of those who did not respond to the IPV questionnaire were compared with respondents using weighted frequency cross-tabulations, and chi square tests conducted to assess heterogeneity and potential selection bias. The level of missing data was examined for all study variables and statistical evidence of a difference in the level of missing data between women who reported IPV versus no IPV was assessed using a chi square test. Analyses were conducted on all available data. Sensitivity analysis were conducted using information from individuals with complete data to assess robustness of the models.

#### *IPV prevalence and geographical variation*

Weighted column frequency and percentages of IPV by study factors were estimated for overall and stratified analyses. District-level weighted prevalence of IPV using the total

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number of respondents for each district as the denominator, was calculated and transposed to a choropleth map. IPV prevalence intervals for the map were defined equally into five classes. The middle interval defined in this study is consistent with reports of IPV in Sri Lanka, ranging between 25% to 35% (Guruge et al., 2015). District-level proportion of ethnic minority respondents, household poverty (lowest two wealth quintiles), and lower educational attainment (no schooling or primary education) were also transposed to choropleth maps to provide additional context. The administrative boundary layer package was used to generate the map (GADM, 2015).

*Multilevel logistic regression models*

Given the hierarchical structure of the data and potential variance across clusters, the association between study factors and IPV were examined using a series of weighted two-level logistic regression models. We used a sample of 16,390 women nested in 2,484 clusters, with an average of seven women in each cluster. Models adjusted for age and religion, previously identified as correlates in this context (Guruge et al., 2015; Jayasuriya et al., 2011). Due to collinearity between SEP variables, only minimally adjusted models were presented. An empty (no covariates) random intercept model was generated to estimate the proportion of unadjusted total variance in IPV attributable to community-level variance (variance partition coefficient [VPC]) using the latent variable method described by Merlo et al. (2006).

*Stratified analyses*

Associations specifically for socioeconomic factors and post-conflict residence with any IPV were then stratified by major ethnic groups (Sinhala, Tamil, and Moor), given ethnic minority communities (Moor and Tamil) experience higher rates of poverty and are more likely to reside in post-conflict areas than the Sinhala majority (Mahadevan & Jayasinghe, 2019). Interaction terms were added to the model to determine if potential associations

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statistically differed by ethnicity. Additionally, given the effect of exposure to civil conflict on both SEP and IPV (Guruge et al., 2017; Mahadevan & Jayasinghe, 2019), the overall sample was stratified by post conflict residence. Interaction terms were added to the model to determine if potential associations between SEP indicators, ethnicity and IPV, statistically differed by post-conflict residential status. Education is a relatively modifiable factor and strong associations between education and IPV have been previously shown in Asia (Jewkes et al., 2017). Therefore, we considered it important to examine the contextual effect of neighbourhood poverty on the association between individual and partner education and IPV. Associations for individual and partner education with IPV were stratified by the level of neighbourhood poverty (high versus low), and cross-level interaction terms added into unweighted models to test for statistical differences. Finally, due to the scarcity of evidence in distinguishing the effects of SEP on different forms of abuse and potentially important differences by abuse type, analyses using the overall sample were then stratified by physical/sexual abuse and psychological abuse.

*Post-hoc analysis*

Women's occupational status was collapsed into an additional binary (employed vs. unemployed) variable and the association with any IPV was analysed post-hoc to allow for comparisons with existing literature.

All analyses were conducted in Stata (version 15.1, Stata Corp, College Station, TX, USA). Weighted cross-tabulations were estimated using 'svy' for counts and percentages. The choropleth map was generated using the 'spmap' command. The 'melogit' command was used for multilevel regression analyses, and 'estat icc' command for intraclass correlation/VPC.

**Results***Non-respondents and missing data*

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Overall, 90% of eligible respondents completed the IPV questionnaire, 7% of were excluded on the basis of privacy issues and 2% declined to participate (DCS, 2016). Less than 1% of participants who chose not to reply to all IPV questions administered were excluded from the analysis. Characteristics of respondents versus non-respondents are summarised in Supplementary Table 1. Compared to respondents, those who did not respond were more likely to be under 35 years, come from a Moor background and identify as Islamic or Christian. A higher proportion of non-respondents (15%) were divorced, separated or widowed, compared to respondents (5%;  $p < 0.001$ ). No schooling or primary education of women and her partner, and financial insecurity was higher among those who did not respond compared to respondents. Respondents were more likely to have a partner employed in a professional occupation and reside in a post-conflict region compared to non-respondents. Those who responded from post-conflict areas were more likely to be Tamil or Moor, collectively constituting 83% of the post-conflict region. There was no statistical evidence of differences between respondents and non-respondents for individual occupational status, household wealth, neighbourhood poverty, and residential sector.

Most variables examined had no missing data except for partner education (11%) and partner occupational status (16%). The level of missing data (weighted  $N=2556$ , 16%) was higher among those without IPV (16%) than with IPV (14%;  $p=0.003$ ).

***IPV prevalence***

Exposure to any IPV in the previous 12 months was reported by 17% (95% CI 16% - 18%) of women overall. Among those who experienced IPV, the most common abuse (with or without any other form of abuse) was psychological (79% 95% CI 78% - 81%), followed by physical (55% 95% CI 52% - 57%) and sexual abuse (15% 95% CI 14% - 17%), and 10% (95% CI 9% - 11%) experienced all three forms of abuse. Psychological abuse without any physical/sexual violence comprised 42% (95% CI 39% - 44%) of all IPV cases. The highest

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prevalence of any IPV was found in the post-conflict districts of Kilinochchi (50% 95% CI 45% - 56%) and Batticaloa (50% 95% CI 45% - 55%), located in the Northern and Eastern provinces, respectively (Figure 1; Supplementary Table 2).

***Individual and household-level socioeconomic correlates of IPV***

Women with no schooling or primary education were more likely to experience any IPV (OR 2.5 95% CI 1.83-3.30) than women with a higher education (Table 1). A similar pattern was found among women whose partner had no schooling or primary education (OR 2.87 95% CI 2.06-4.00), compared to those with a higher education. Women employed in manual labour were also more likely to report any IPV (OR 1.37 95% CI 1.10-1.72) compared to women in professional occupations, and this pattern was similar for women whose partner was employed in manual labour (OR 1.20 95% CI 1.03-1.41) or unemployed (OR 1.47 95% CI 1.05-2.07). Post-hoc analysis of employment vs. unemployment showed a protective effect for unemployment (OR 0.89 95% CI 0.81-0.99). Financial insecurity among unemployed women was similarly associated with a higher likelihood of any IPV (OR 2.17 95% CI 1.92-2.45). Women in the lowest wealth quintile experienced the highest odds (OR 2.39 95% CI 2.03-2.80) compared to those in the highest quintile (Table 1).

***Contextual and geographical correlates***

At a broader contextual level, a VPC of 20.1% was estimated indicating approximately a fifth of the total unadjusted variation in IPV was attributed to differences between communities, indicating the importance of contextual factors in influencing variations in the likelihood of IPV. Women residing in neighbourhoods with higher poverty were more likely to report any IPV (OR 1.31 95% CI 1.16-1.48) than women in less impoverished areas (Table 1). Women residing in post-conflict regions were more likely to report any IPV than those living outside post-conflict regions (OR 2.96 95% CI 2.51-3.49). Provinces with the highest likelihood of IPV relative to the capital Western province were the

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Eastern (OR 3.85 95% CI 3.10-4.78), Northern (OR 2.93 95% CI 2.29-3.74), and Central (OR 2.22 95% CI 1.83-2.70) provinces. Compared to urban areas, living in the estate sector was protective against IPV (OR 0.43 95% CI 0.32-0.59). There was no statistical evidence that living in the rural sector increased likelihood of IPV (OR 0.89 95% CI 0.76-1.04), compared to urban areas (Table 1).

***Stratified analyses***

*Ethnicity (Sinhala, Tamil, Moor)*

Stratified analysis by ethnicity showed evidence of statistical differences for associations with post-conflict residence ( $p < 0.001$ ) and most socioeconomic indicators, except household wealth and financial insecurity (Table 2). Point estimates were larger for Moor women whose partner had no schooling or primary education (OR 11.39 95% CI 3.47-37.35), compared to Sinhala (OR 2.97 95% CI 1.95-4.52) and Tamil women (OR 2.04 95% CI 1.11-3.19; interaction  $p$  value=0.003) (Table 2).

*Post-conflict residential status*

Analyses stratified by post-conflict residence showed statistical evidence that associations for women's and partner's occupational status, and neighbourhood poverty with IPV varied by post-conflict residence (Table 3). Point estimates for manual labour occupations (OR 2.14 95% CI 1.24-3.70) and unemployment (OR 1.95 95% CI 1.17-3.27) were magnified among women living in post-conflict areas, compared to women living in other regions. The inverse was found for partner occupation, with estimates attenuated for post-conflict regions compared to other regions (Table 3).

*Neighbourhood poverty and educational attainment*

Stratification by neighbourhood poverty level showed statistical evidence that the association between IPV and individual education were modified by neighbourhood poverty ( $p < 0.001$ ) but not for partner education ( $p = 0.23$ ) (Table 4).

*Socioeconomic and geographic correlates of IPV in Sri Lanka**Type of abuse (physical/sexual vs. psychological)*

Most measures of low SEP related to physical/sexual violence but not psychological violence. However, women employed in a professional occupation were more at risk of psychological abuse than women unemployed (Table 5). No marked differences in the magnitude of the association for post-conflict residence were found between psychological and physical/sexual violence (Table 5).

*Sensitivity analysis*

Sensitivity analysis of associations between all study variables and any IPV using complete case data were consistent with the findings from the main analysis (Supplementary Table 3). Associations for lower education, unemployment and manual labour occupations with IPV were magnified among Moor women, compared to the main analysis. Measures of association for wealth, neighbourhood poverty, and post-conflict residence with psychological abuse were slightly magnified in comparison to the main analysis.

**Discussion**

Indicators of socioeconomic disadvantage at the individual, household and community level were strongly associated with past-year IPV among ever-partnered women aged 15-49 years in Sri Lanka. Living in a post-conflict area was also strongly associated with IPV and post-conflict Northern and Eastern provinces showed the highest risk of IPV, compared to other provinces. Stronger associations for women unemployed or working in manual labour with IPV were found among women living in post-conflict regions, compared to other regions. Women with a secondary education were more at risk if they lived in an area of high poverty, indicating compounding forms of disadvantage. Magnified associations were found among Moor women. However, Moor women were less likely to respond to the IPV questionnaire, and those that did respond were more likely to live in poorer households and



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post-conflict areas compared to Sinhala respondents, which may explain this effect. SEP associations predominantly related to physical/sexual violence, with weak associations evident among women reporting psychological violence alone.

***IPV prevalence***

The national prevalence of any past-year IPV reported in this study (17% 95% CI 16% - 18%) is below national 12-month IPV estimates from neighbouring India (26% 95% CI 26%-27%) and Pakistan (25% 95% CI 23% - 26%) (International Institute for Population Sciences, 2017; National Institute of Population Studies & ICF, 2019). In Sri Lanka, unlike its South Asian neighbours, women outnumber men in higher educational attainment, and Sri Lanka ranks highest in the region on gender equality outcomes, with a gender inequality ranking of 86 worldwide, compared to 122 in India, 126 in Bangladesh, and 129 in Pakistan (UNDP, 2019). Advances in women's empowerment and gender equality may partly explain the comparatively lower estimates in Sri Lanka compared to the wider region.

***Educational attainment and IPV***

Women's lower education in particular, and men's education have been found to be associated with a higher risk of IPV, with risk estimates ranging between OR 1.7-2.1 and OR 1.8-3.9 for women's primary education and men's primary education respectively (Ackerson & Subramanian, 2008; Ali, Ali, Khuwaja, & Nanji, 2014; Vyas & Watts, 2009).

The protective effect of higher education has been attributed to a range of factors including delayed onset of marriage, an increase in the capability to effectively negotiate conflict and regulate emotions, and increased wealth via enhanced employment opportunities and subsequently a reduced risk of economic stress, a key source of interpersonal conflict (Jewkes et al., 2017; Vyas & Watts, 2009). While higher education is important, there is increasing evidence that integrating teachings at the secondary school level around mutual respect and interpersonal skills in school curricula through more comprehensive sexuality

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education (CSE) may be important strategies to promote sexual health and prevent violence (Rollston et al., 2020; Vanwesenbeeck, Westeneng, de Boer, Reinders, & van Zorge, 2016). Despite broadening the curriculum and incorporating life skills education into the syllabus (Clarke, 2010), adolescents in Sri Lanka continue to report limited sexual and reproductive health knowledge and teachers have reported a disproportionate focus on physiology in the syllabus (Jayasooriya & Mathangasinghe, 2019; Rajapaksa-Hewageegana, Piercy, Salway, & Samarage, 2015). Evidence is limited on effectiveness of CSE at the primary school level. However, given IPV risk was highest for primary school educational attainment, extending the delivery of CSE within primary schools and secondary schools, alongside appropriate training of teaching staff may be beneficial in Sri Lanka.

***Employment, financial security, household wealth and IPV***

A number of studies from LMIC have shown IPV is less likely to occur among unemployed women compared to employed women (Abramsky et al., 2011; Bhalotra, Kambhampati, Rawlings, & Siddique, 2020; Jewkes et al., 2017; Naved & Persson, 2005; Terrazas-Carrillo & McWhirter, 2015). This is supported by the present study which showed a protective effect for unemployment compared to employment. Empirical evidence distinguishing the effects of different types of occupations on IPV is limited. However, employment in manual labour has been linked with higher rates of IPV compared to professional occupations in India (Paul, 2016), consistent with results from the present study. For women employed in manual labour occupations, there is likely a complex interplay of sociocultural and socioeconomic factors including lower educational attainment and household economic stress.

Moreover, in a country undergoing a transition of social and gender norms, women's employment has complex implications for IPV. Studies from LMIC suggest women's increased financial independence may undermine culturally defined gender roles, and

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violence may be used as an additional means to maintain dominance, particularly in the context of poverty (Ackerson & Subramanian, 2008; Jewkes et al., 2017). Despite this, women's economic empowerment has important benefits in terms of wider economic growth, gender equality, individual autonomy, and wellbeing of offspring. Notably, in the present study, women experiencing financial insecurity were twice as likely to report IPV. While financial insecurity may be influenced by other factors outside of unemployment such as having a partner employed in a lower wage (e.g., manual labour) occupation or husbands/partners deliberately withholding their earnings as a means of control, women who are financially dependent on their partner may find it more difficult to leave an abusive relationship. This is particularly relevant in South Asian settings where access to divorce or separation is limited due to both cultural and legal factors (Bhalotra et al., 2020).

Women whose partners were either unemployed or employed in manual labour, were also at a higher risk of IPV compared to women whose partners were employed in a professional occupation. Lower partner education, wages or unemployment, are by extension associated with poor household wealth in Sri Lanka, as families are predominantly reliant on male income. In the present study, a strong wealth gradient was found for IPV, where poorer household wealth corresponded to an increase in IPV risk. Social scientists have argued that economic stress, due to a lack of material resources including insufficient food, together with potentially reduced capability to regulate emotions (due to lower education) may increase the likelihood of psychological stress and interpersonal conflict (Gibbs et al., 2020). This stress may be compounded among men who feel they cannot fulfil social expectations as the economic provider, which may in turn increase the likelihood of proximal risk factors for the perpetration of violence such as alcohol and substance misuse (DCS, 2020; Jewkes et al., 2017).

*Neighbourhood poverty, educational attainment and IPV*

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Women living in neighbourhoods of high poverty were at a greater risk of IPV which is consistent with previous studies in LMIC settings (Ackerson & Subramanian, 2008; Naved & Persson, 2005; Vyas & Heise, 2016). Cross-level analysis showed women with a secondary education, relative to higher educated women, were more likely to report IPV if they lived in an area of high poverty compared to a wealthier area. Women in poorer areas with a secondary education were more likely to have a partner with no schooling or primary education and work in manual labour compared to women with a secondary education in wealthier areas (data not shown). Intersecting and compounding forms of disadvantage and harmful gender norms are likely contributors to increasing IPV risk. As previously discussed, financial insecurity, potentially reduced capability to regulate emotions (due to lower educational attainment), and threats to traditional gender roles, may increase the likelihood of psychological stress and conflict (Gibbs et al., 2020). This stress may be exacerbated among neighbourhoods that experience greater poverty where social order may be undermined and deviant behaviour is more accepted, increasing the likelihood of uptake of proximal risk factors of abuse including alcohol consumption.

Programs and policies designed to relieve poverty and increase economic empowerment of women should adopt a broader approach to support not only financial security but also the integration of education, for women and their partners, on interpersonal skills, and to challenge the perception and value of women as merely homemakers and men as economic providers. Community-based strategies addressing harmful gender norms in Sri Lanka have shown promise (Herath, Guruge, Fernando, Jayarathna, & Senarathna, 2018), and findings from a cluster randomised trial in Uganda showed a reduction in IPV after community mobilisation (Abramsky et al., 2016).

*Geographical correlates of IPV*

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There was no statistical evidence that women in rural areas were more likely to experience IPV compared to urban areas, consistent with evidence from Sri Lanka's Women's Wellbeing Survey (DCS, 2020). Contrary to multiple local studies (DCS, 2020; Infanti et al., 2015; Muzrif, Perera, Wijewardena, Schei, & Swahnberg, 2018), a protective effect was found for women living in the estate sector compared to urban areas. This result should be interpreted with caution as urban areas were more likely to be post-conflict which may explain this protective effect. When compared to the urban capital Western province, women living in the Central province (which includes major estate populations) and post-conflict provinces were at the highest risk of experiencing IPV. The high rates of IPV and strong association with IPV found in post-conflict areas in the present study is supported by reports conducted in the region and studies conducted in post-war and post-natural disaster settings (Catani, Schauer, & Neuner, 2008; Fisher, 2010; Guruge et al., 2017; Kottegoda, Samuel, & Emmanuel, 2008). It has been argued that prolonged exposure to collective violence may contribute to the normalisation of violence as an acceptable method of conflict resolution (Guruge et al., 2017; Jewkes et al., 2017). Moreover, the impact of war on men's capability to work and traditional livelihoods (e.g. fishing) has resulted in women becoming more economically active (Guruge et al., 2017). The present study found that women employed in manual labour or unemployed compared to professional occupations had a higher risk of IPV if they lived in a post-conflict region. As previously discussed, in the context of changing gender roles, men may use violence to reassert power. These results highlight the importance of prioritising post-conflict provinces in IPV prevention efforts, and developing tailored trauma informed approaches in this region.

***Physical/sexual abuse versus psychological abuse***

Associations between low SEP and IPV predominantly related to physical/sexual violence. Notably, women employed in professional occupations, compared to manual labour

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occupations were more at risk of psychological violence than physical/sexual violence. In Sri Lanka, conservative attitudes towards gender appear to transgress social boundaries. In a study conducted with 476 medical students, the majority of whom identified as middle-class or upper middle class, 63% agreed that women bear a proportionately larger responsibility for the violence perpetrated against them and a third of students agreed that “wife beating” was justified (Haj-Yahia & de Zoysa, 2007). The persistence of these attitudes across social strata suggest that while higher education and professional employment may protect women from physical violence, this effect does not extend to more covert, psychological forms of violence such as coercive and controlling behaviours, humiliation and belittlement. Conversely, it is also possible that women with a low SEP may be less likely to recognise more covert forms of abuse as IPV compared to higher educated, wealthier women. Despite this, psychological violence (with or without any other form of violence) had the highest prevalence among all forms of violence reported and has been linked to a range of adverse health consequences, including suicidal behaviours in Sri Lanka and other LMIC settings, (P Bandara et al., 2020; Devries et al., 2013; Richardson, Nandi, Jaswal, & Harper, 2020). Further investigation of risk factors for psychological violence is urgently needed to inform prevention.

***Strengths and limitations***

This is the first study in Sri Lanka to comprehensively examine various indicators of SEP, post-conflict residence and IPV using a nationally representative population-based dataset that provides a sufficient sample size and statistical power. All analyses adhered to a pre-registered protocol. Weighted multilevel analyses were conducted to account for the cluster survey design. A sensitivity analysis using complete case data was also included to assess robustness of the models. An additional strength of this study is that it applied a standard questionnaire which may have minimised the effect of measurement bias.

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Furthermore, psychological abuse, a neglected area of research in LMIC, was also investigated.

Nevertheless, there are limitations to this study that should be considered. Firstly, the cross-sectional nature of the data does not allow clear temporal relationships between selected exposures and IPV to be established. Underreporting may have occurred due to fear and stigma surrounding IPV. The questionnaire was also limited to ever-married women and women living with a partner, potentially excluding a number of unmarried women who have been or are currently in an abusive relationship. A higher proportion of women who were previously married or partnered were found among non-respondents of the IPV questionnaire than respondents. This may have biased the estimates towards the null as the reason for separation may have been IPV. The time of separation, divorce, or spousal death was not recorded as part of the SLDHS and should be considered in future iterations. Furthermore, the financial insecurity question was only administered to women who were unemployed. It is possible that women who are employed also experience financial insecurity due to partner unemployment, low wages, economic abuse, and alcohol misuse by men. Future iterations of the SLDHS should also consider administering this question to all eligible participants, regardless of employment status. Finally, compared to non-respondents, respondents of the IPV questionnaire were more likely to live in post-conflict regions and were more likely to be higher educated and have a partner employed in a professional occupation, potentially biasing estimates away from the null.

**Conclusions**

While IPV is more likely to occur in the context of socioeconomic disadvantage and post-conflict environments, the complex interplay of poverty, exposure to violence, and more proximal household and clinical factors requires further investigation. Future exploratory

studies examining these relationships is needed, particularly in the absence of an association between SEP and psychological abuse.

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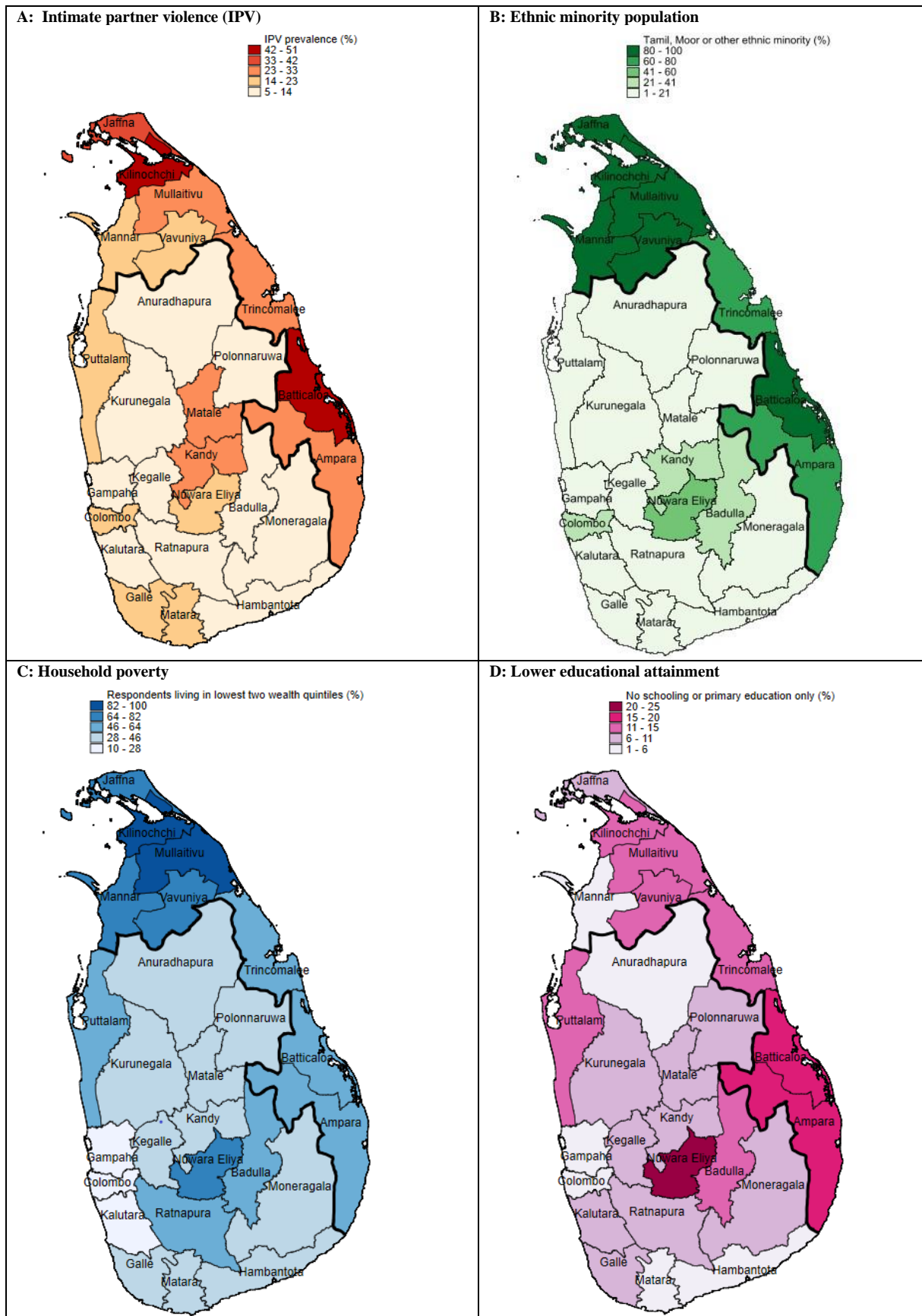
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**Figure 1.** District-level proportion of ever-partnered women aged 15-49 years with: (A) Intimate partner violence (IPV) in the previous 12-months (B) Ethnic minority background (Tamil, Moor, other) (C) Poor household wealth (lowest two quintiles) (D) No schooling or primary educational attainment. Districts above the bold line are post-conflict areas (Northern and Eastern provinces). Data: 2016 Sri Lanka Demographic and Health Survey respondents to the IPV questionnaire (N=16,390).

**Supplementary Table 1. Characteristics of respondents versus non-respondents of intimate partner violence questionnaire of Sri Lanka Demographic and Health Survey 2016.**

	Respondents N (%)	Non-respondents N (%)	P value <sup>‡</sup>
<b>Individual and household factors</b>			
<b>Age</b>			
15-34	6916 (42.2)	960 (50.3)	<0.001
35-49	9477 (57.8)	949 (49.7)	
<b>Religion</b>			
Buddhist	11731 (71.6)	1272 (66.7)	<0.001
Hindu	1856 (11.3)	222 (11.6)	
Islam	1529 (9.3)	243 (12.7)	
Christian/Other	1277 (7.8)	172 (9.0)	
<b>Ethnicity</b>			
Sinhala	12537 (76.5)	1391 (72.8)	<0.001
Tamil	2376 (14.5)	278 (14.5)	
Moore	1422 (8.7)	238 (12.5)	
Other	58 (0.4)	3 (0.1)	
<b>Marital status</b>			
Married	14979 (91.4)	1566 (82.1)	<0.001
Living with a man	662 (4.0)	50 (2.6)	
Divorced/Separated/Husband died	753 (4.6)	293 (15.3)	
<b>Educational attainment</b>			
Higher education	780 (4.8)	76 (4.0)	<0.001
Secondary education	14283 (87.1)	1621 (84.9)	
No education/primary	1330 (8.1)	211 (11.1)	
<b>Partner's educational attainment<sup>a</sup></b>			
Higher education	547 (4.0)	41 (3.1)	0.03
Secondary education	11703 (84.6)	1101 (83.0)	
No education/primary	1583 (11.4)	185 (13.9)	
<b>Occupational status</b>			
Professional	1204 (7.3)	124 (6.5)	0.13
Service	1550 (9.5)	192 (10.1)	
Manual labour	2608 (15.9)	339 (17.8)	
Unemployed	11032 (67.3)	1254 (65.7)	
<b>Partner's occupational status<sup>a</sup></b>			
Professional	2429 (18.6)	164 (13.2)	<0.001
Service	3611 (27.6)	405 (32.5)	
Manual labour	6648 (50.8)	606 (48.6)	
Unemployed	396 (3.0)	71 (5.7)	
<b>Enough income for daily living expenses<sup>b</sup></b>			
Yes or employed	8484 (76.9)	912 (72.7)	0.002
No	2548 (23.1)	342 (27.3)	
<b>Household wealth index</b>			
1 - Richest	3214 (19.6)	348 (18.2)	0.30
2	3436 (21.0)	380 (19.9)	
3	3439 (21.0)	399 (20.9)	
4	3301 (20.1)	394 (20.7)	
5 - Poorest	3003 (18.3)	387 (20.3)	
<b>Contextual and geographical factors</b>			
<b>Neighbourhood poverty</b>			
Low	9103 (55.5)	1060 (55.5)	1.00
High	7290 (44.5)	849 (44.5)	
<b>Post-conflict residence</b>			
No	14113 (86.1)	1702 (89.2)	<0.001
Yes	2281 (13.9)	207 (10.8)	
<b>Sector</b>			
Urban	2562 (15.6)	297 (15.6)	0.71
Rural	13204 (80.5)	1529 (80.1)	
Estate	627 (3.8)	82 (4.3)	

<sup>‡</sup> Chi-square test of independence was employed to derive p-values.

<sup>a</sup> Women divorced, separated, or widowed were not asked this question.

<sup>b</sup> Women working in a job or business were not asked this question.

**Supplementary Table 2. Weighted prevalence of intimate partner violence (IPV) in the past year among ever-partnered women aged 15-49 years, by province and district in Sri Lanka**

<b>Name</b>	<b>Area</b>	<b>Total N</b>	<b>% IPV (95% CI)</b>
<b>Western</b>	<b>Province</b>	<b>4134</b>	<b>12.4 (11.2-13.7)</b>
Colombo	District	1614	14.4 (12.2-16.9)
Gampaha	District	1559	12.8 (11.0-14.9)
Kalutara	District	961	8.4 (6.7-10.5)
<b>Central</b>	<b>Province</b>	<b>2069</b>	<b>23.7 (21.4-26.2)</b>
Kandy	District	1100	25.0 (21.8-28.6)
Matale	District	431	30.1 (25.9-34.8)
Nuwara Eliya	District	538	15.9 (11.8-21.0)
<b>Southern</b>	<b>Province</b>	<b>1997</b>	<b>16.2 (14.3-18.4)</b>
Galle	District	803	21.4 (18.1-25.2)
Hambantota	District	515	5.8 (4.0-8.3)
Matara	District	679	17.9 (14.9-21.5)
<b>Northern</b>	<b>Province</b>	<b>792</b>	<b>34.9 (31.6-38.3)</b>
Jaffna	District	433	39.8 (34.5-45.3)
Kilinochchi	District	87	50.4 (45.1-55.7)
Mannar	District	76	21.1 (16.3-26.8)
Mullaitivu	District	74	29.3 (24.5-34.6)
Vavuniya	District	122	18.5 (14.5-23.2)
<b>Eastern</b>	<b>Province</b>	<b>1488</b>	<b>35.2 (32.0-38.4)</b>
Ampara	District	666	27.1 (23.2-31.4)
Batticaloa	District	490	49.9 (44.6-55.1)
Trincomalee	District	332	29.5 (24.0-35.7)
<b>North-Western</b>	<b>Province</b>	<b>2057</b>	<b>12.1 (10.6-13.8)</b>
Kurunegala	District	1447	10.3 (8.7-12.2)
Puttalam	District	610	16.5 (13.5-19.9)
<b>North-Central</b>	<b>Province</b>	<b>1242</b>	<b>8.3 (6.7-10.4)</b>
Anuradhapura	District	867	7.7 (5.7-10.4)
Polonnaruwa	District	375	9.8 (7.2-13.0)
<b>Uva</b>	<b>Province</b>	<b>1080</b>	<b>9.2 (7.5-11.3)</b>
Badulla	District	649	10.4 (8.1-13.1)
Moneragala	District	431	7.5 (5.2-10.8)
<b>Sabaragamuwa</b>	<b>Province</b>	<b>1534</b>	<b>11.9 (10.2-14.0)</b>
Kegalle	District	538	9.0 (6.4-12.7)
Ratnapura	District	996	13.5 (11.3-16.1)
<b>Total</b>	<b>National</b>	<b>16,393</b>	<b>16.9 (16.1-17.6)</b>

CI=Confidence Interval.

**Supplementary Table 3. Any intimate-partner violence in the past year among ever-partnered women aged 15-49 years, Sri Lanka: sensitivity analysis using complete data (N=13,837).**

	IPV (N=2388) N (%)	No IPV (N=11,450) N (%)	OR (95% CI)
<b>Individual and household factors</b>			
<b>Age</b>			
15-34	920 (38.5)	4691 (41)	1.00
35-49	1467 (61.5)	6759 (59)	1.22 (1.11-1.37)
<b>Ethnicity</b>			
Sinhala	1453 (60.9)	9067 (79.2)	1.00
Tamil	681 (28.5)	1386 (12.1)	3.16 (2.28-4.40)
Moor	248 (10.4)	952 (8.3)	3.58 (1.96-6.54)
Other	6 (0.2)	44 (0.4)	1.23 (0.42-3.60)
<b>Religion</b>			
Buddhist	1364 (57.1)	8451 (73.8)	1.00
Hindu	540 (22.6)	1088 (9.5)	3.09 (2.65-3.61)
Islam	259 (10.8)	1024 (8.9)	1.52 (1.23-1.88)
Christian/Other	225 (9.4)	886 (7.7)	1.52 (1.25-1.86)
<b>Marital status</b>			
Married	2117 (88.7)	10383 (90.7)	1.00
Living with a man	75 (3.2)	510 (4.5)	0.81 (0.60-1.11)
Divorced/Separated/Husband died	195 (8.2)	557 (4.9)	1.56 (1.27-1.92)
<b>Educational attainment</b>			
Higher education	85 (3.6)	589 (5.1)	1.00
Secondary education	1952 (81.8)	10011 (87.4)	1.37 (1.04-1.80)
No education/primary	350 (14.7)	850 (7.4)	2.39 (1.74-3.27)
<b>Partner's educational attainment<sup>a</sup></b>			
Higher education	66 (3)	475 (4.4)	1.00
Secondary education	1665 (76)	9318 (85.6)	1.37 (1.01-1.87)
No education/primary	461 (21)	1098 (10.1)	2.88 (2.06-4.03)
<b>Occupational status</b>			
Professional	145 (6.1)	898 (7.8)	1.00
Service	221 (9.3)	1105 (9.6)	1.22 (0.94-1.60)
Manual labour	473 (19.8)	1822 (15.9)	1.49 (1.16-1.90)
Unemployed	1548 (64.8)	7625 (66.6)	1.19 (0.95-1.48)
<b>Partner's occupational status<sup>a</sup></b>			
Professional	350 (15.9)	2080 (19.1)	1.00
Service	519 (23.7)	3092 (28.4)	0.97 (0.81-1.16)
Manual labour	1241 (56.6)	5407 (49.6)	1.20 (1.03-1.41)
Unemployed	83 (3.8)	314 (2.9)	1.47 (1.05-2.07)
<b>Enough income for daily living expenses<sup>b</sup></b>			
Yes	991 (64.0)	5907 (77.5)	1.00
No	557 (36.0)	1719 (22.5)	2.17 (1.89-2.50)
<b>Household wealth index</b>			
1 - Richest	313 (13.1)	2398 (20.9)	1.00
2	385 (16.1)	2441 (21.3)	1.23 (1.01-1.48)
3	409 (17.1)	2425 (21.2)	1.34 (1.10-1.63)
4	514 (21.5)	2287 (20.0)	1.77 (1.47-2.15)
5 - Poorest	767 (32.1)	1898 (16.6)	2.73 (2.26-3.29)
<b>Contextual and geographical factors</b>			
<b>Neighbourhood poverty</b>			
Low	1102 (46.2)	6591 (57.6)	1.00
High	1285 (53.8)	4858 (42.4)	1.34 (1.18-1.53)
<b>Post-conflict residence</b>			
No	1682 (70.4)	10233 (89.4)	1.00
Yes	706 (29.6)	1217 (10.6)	3.14 (2.64-3.74)
<b>Sector</b>			
Urban	444 (18.6)	1798 (15.7)	1.00
Rural	1847 (77.4)	9212 (80.5)	0.93 (0.79-1.11)
Estate	96 (4.0)	439 (3.8)	0.44 (0.31-0.62)

<b>Province</b>			
Western	460 (19.3)	3223 (28.1)	1.00
Central	420 (17.6)	1254 (10.9)	2.38 (1.93-2.95)
Southern	271 (11.4)	1401 (12.2)	1.45 (1.17-1.82)
Northern	260 (10.9)	466 (4.1)	3.09 (2.39-4.01)
Eastern	445 (18.6)	751 (6.6)	4.21 (3.35-5.30)
North-Western	219 (9.2)	1539 (13.4)	1.01 (0.81-1.25)
North-Central	59 (2.5)	849 (7.4)	0.51 (0.36-0.72)
Uva	86 (3.6)	790 (6.9)	0.76 (0.57-1.00)
Sabaragamuwa	168 (7.0)	1177 (10.3)	1.01 (0.79-1.28)

OR = Odds Ratio adjusted for age and religion; CI = Confidence Interval.

<sup>a</sup> Women divorced, separated, or widowed were not asked this question.

<sup>b</sup> Women working in a job or business were not asked this question.



**Table 1. Intimate partner violence (IPV) in the past year among ever-partnered women aged 15-49 years, Sri Lanka: weighted distribution with all study factors.**

	IPV (%)	No IPV (%)	OR (95% CI)
<i>Individual and household level factors</i>			
<b>Age</b>			
15-34	1102 (39.9)	5815 (42.7)	1.00
35-49	1660 (60.1)	7817 (57.3)	1.22 (1.11-1.35)
<b>Ethnicity</b>			
Sinhala	1708 (61.9)	10829 (79.4)	1.00
Tamil	767 (27.8)	1609 (11.8)	2.96 (2.18-4.03)
Moor	280 (10.1)	1141 (8.4)	2.97 (1.73-5.10)
Other	6 (0.2)	52 (0.4)	1.07 (0.42-2.75)
<b>Religion</b>			
Buddhist	1600 (57.9)	10130 (74.3)	1.00
Hindu	600 (21.7)	1255 (9.2)	2.96 (2.57-3.43)
Islam	296 (10.7)	1233 (9.0)	1.45 (1.18-1.77)
Christian/Other	265 (9.6)	1012 (7.4)	1.62 (1.35-1.95)
<b>Marital status</b>			
Married	2476 (89.7)	12502 (91.7)	1.00
Living with a man	91 (3.3)	571 (4.2)	0.90 (0.68-1.19)
Divorced/Separated/Husband died	195 (7.1)	557 (4.1)	1.60 (1.31-1.96)
<b>Educational attainment</b>			
Higher education	99 (3.6)	681 (5.0)	1.00
Secondary education	2268 (82.1)	12015 (88.1)	1.33 (1.03-1.72)
No education/primary	395 (14.3)	935 (6.9)	2.46 (1.83-3.30)
<b>Partner's educational attainment<sup>a</sup></b>			
Higher education	66 (2.9)	481 (4.2)	1.00
Secondary education	1763 (76.8)	9940 (86.1)	1.38 (1.02-1.88)
No education/primary	466 (20.3)	1117 (9.7)	2.87 (2.06-4.00)
<b>Occupational status</b>			
Professional	174 (6.3)	1030 (7.6)	1.00
Service	249 (9.0)	1301 (9.5)	1.10 (0.86-1.42)
Manual labour	530 (19.2)	2078 (15.2)	1.37 (1.10-1.72)
Unemployed	1810 (65.5)	9222 (67.7)	1.08 (0.89-1.32)
<b>Partner's occupational status<sup>a</sup></b>			
Professional	350 (15.9)	2080 (19.1)	1.00
Service	519 (23.7)	3092 (28.4)	0.97 (0.81-1.16)
Manual labour	1241 (56.6)	5407 (49.6)	1.20 (1.03-1.41)
Unemployed	83 (3.8)	314 (2.9)	1.47 (1.05-2.07)
<b>Enough income for daily living expenses<sup>b</sup></b>			
Yes	1177 (65.1)	7307 (79.2)	1.00
No	632 (34.9)	1916 (20.8)	2.17 (1.92-2.45)
<b>Household wealth index</b>			
1 - Richest	385 (13.9)	2829 (20.8)	1.00
2	443 (16.0)	2993 (22.0)	1.12 (0.94-1.33)
3	480 (17.4)	2959 (21.7)	1.25 (1.05-1.50)
4	595 (21.5)	2706 (19.8)	1.67 (1.40-1.99)
5 - Poorest	859 (31.1)	2144 (15.7)	2.64 (2.22-3.13)
<i>Contextual and geographical factors</i>			
<b>Neighbourhood poverty</b>			
Low	1286 (46.6)	7817 (57.3)	1.00
High	1476 (53.4)	5814 (42.7)	1.31 (1.16-1.48)
<b>Post-conflict residence</b>			
No	1962 (71.1)	12150 (89.1)	1.00
Yes	799 (28.9)	1481 (10.9)	2.96 (2.51-3.49)
<b>Sector</b>			
Urban	513 (18.6)	2049 (15.0)	1.00
Rural	2139 (77.5)	11064 (81.2)	0.89 (0.76-1.04)
Estate	110 (4.0)	518 (3.8)	0.43 (0.32-0.59)
<b>Province</b>			

Western	513 (18.6)	3621 (26.6)	1.00
Central	490 (17.8)	1579 (11.6)	2.22 (1.83-2.70)
Southern	324 (11.7)	1673 (12.3)	1.46 (1.19-1.79)
Northern	276 (10.0)	516 (3.8)	2.93 (2.29-3.74)
Eastern	523 (18.9)	965 (7.1)	3.85 (3.10-4.78)
North-Western	249 (9.0)	1808 (13.3)	0.99 (0.81-1.21)
North-Central	103 (3.7)	1139 (8.4)	0.68 (0.52-0.91)
Uva	100 (3.6)	980 (7.2)	0.73 (0.56-0.94)
Sabaragamuwa	183 (6.6)	1351 (9.9)	0.98 (0.78-1.23)

OR = Odds Ratio adjusted for age and religion; CI = Confidence Interval.

<sup>b</sup> Women divorced/separated/widowed were not asked this question.

<sup>c</sup> Women working in a job or business were not asked this question.

**Table 2. Intimate partner violence (IPV) in the past year among ever-partnered women aged 15-49 years, Sri Lanka: weighted prevalence and adjusted associations with socioeconomic factors and post-conflict residence, stratified by major ethnic groups.**

	Sinhala			Tamil			Moor			P value interaction
	IPV (%)	No IPV (%)	OR (95% CI)	IPV (%)	No IPV (%)	OR (95% CI)	IPV (%)	No IPV (%)	OR (95% CI)	
<i>Individual and household factors</i>										
<b>Educational attainment</b>										
Higher education	68 (4.0)	563 (5.2)	1.00	24 (3.1)	71 (4.4)	1.00	4 (1.6)	44 (3.8)	1.00	<0.001
Secondary education	1473 (86.2)	9765 (90.2)	1.26 (0.93-1.70)	570 (74.4)	1208 (75.1)	1.51 (0.89-2.54)	220 (78.5)	995 (87.2)	2.03 (0.76-5.47)	
No schooling/primary education	167 (9.8)	501 (4.6)	2.79 (1.93-3.99)	172 (22.5)	330 (20.5)	1.85 (1.04-3.29)	56 (19.9)	103 (9.0)	4.80 (1.74-13.24)	
<b>Partner's educational attainment</b>										
Higher education	41 (2.8)	373 (4.0)	1.00	21 (3.4)	58 (4.6)	1.00	3 (1.2)	47 (5.1)	1.00	0.003
Secondary education	1160 (80.9)	8194 (88.1)	1.30 (0.89-1.92)	427 (68.4)	937 (73.5)	1.37 (0.77-2.43)	171 (74.6)	775 (84.3)	4.05 (1.31-12.53)	
No schooling/primary education	234 (16.3)	737 (7.9)	2.97 (1.95-4.52)	176 (28.2)	280 (21.9)	2.04 (1.11-3.19)	55 (24.1)	97 (10.6)	11.39 (3.47-37.35)	
<b>Occupational status</b>										
Professional	145 (8.5)	906 (8.4)	1.00	25 (3.3)	77 (4.8)	1.00	3 (1.0)	39 (3.4)	1.00	<0.001
Service	177 (10.4)	1091 (10.1)	1.06 (0.80-1.40)	55 (7.1)	157 (9.7)	1.10 (0.65-1.87)	17 (5.9)	45 (3.9)	4.82 (1.16-19.91)	
Manual labour	348 (20.4)	1639 (15.1)	1.33 (1.03-1.70)	141 (18.4)	348 (21.6)	1.33 (0.80-2.20)	40 (14.3)	85 (7.4)	6.08 (1.63-22.70)	
Unemployed	1038 (60.8)	7192 (66.4)	0.94 (0.76-1.17)	546 (71.2)	1027 (63.8)	1.64 (1.03-2.62)	221 (78.8)	972 (85.2)	3.18 (0.88-11.48)	
<b>Partner's occupational status<sup>a</sup></b>										
Professional	251 (18.7)	1767 (20.3)	1.00	89 (14.3)	156 (12.4)	1.00	8 (3.6)	147 (16.2)	1.00	<0.001
Service	360 (26.8)	2494 (28.7)	1.00 (0.81-1.23)	98 (15.7)	285 (22.6)	0.64 (0.43-0.96)	59 (26.6)	300 (33.0)	3.84 (1.49-9.92)	
Manual labour	670 (49.9)	4173 (48)	1.11 (0.92-1.34)	421 (67.7)	778 (61.6)	0.95 (0.69-1.33)	148 (66.9)	442 (48.7)	6.30 (2.66-14.87)	
Unemployed	62 (4.6)	251 (2.9)	1.62 (1.10-2.39)	14 (2.3)	43 (3.4)	0.60 (0.30-1.23)	6 (2.8)	20 (2.2)	7.96 (1.94-32.71)	
<b>Enough income for daily living expenses<sup>b</sup></b>										
Yes	641 (61.7)	5692 (79.1)	1.00	376 (68.8)	819 (79.7)	1.00	158 (71.6)	769 (79.1)	1.00	0.13
No	397 (38.3)	1501 (20.9)	2.37 (2.03-2.77)	170 (31.2)	208 (20.3)	2.00 (1.61-2.51)	63 (28.4)	203 (20.9)	1.79 (1.22-2.64)	
<b>Household wealth index</b>										
1 - Richest	319 (18.7)	2405 (22.2)	1.00	29 (3.8)	139 (8.6)	1.00	34 (12.1)	259 (22.7)	1.00	0.11
2	328 (19.2)	2518 (23.3)	1.02 (0.84-1.24)	61 (8.0)	181 (11.2)	1.64 (0.99-2.71)	54 (19.1)	286 (25.0)	1.51 (0.84-2.70)	
3	344 (20.1)	2526 (23.3)	1.09 (0.9-1.33)	74 (9.6)	195 (12.1)	1.76 (1.07-2.92)	62 (22.1)	234 (20.5)	2.34 (1.31-4.16)	
4	366 (21.4)	2145 (19.8)	1.42 (1.16-1.74)	164 (21.4)	336 (20.9)	2.50 (1.59-3.94)	63 (22.5)	219 (19.2)	2.40 (1.38-4.17)	
5 - Poorest	352 (20.6)	1235 (11.4)	2.41 (1.97-2.96)	439 (57.2)	758 (47.1)	3.20 (2.08-4.94)	68 (24.2)	143 (12.5)	4.07 (2.39-6.92)	
<i>Contextual and geographical factors</i>										
<b>Neighbourhood poverty</b>										
Low	1025 (60.0)	6692 (61.8)	1.00	122 (15.9)	366 (22.7)	1.00	134 (47.7)	720 (63.1)	1.00	<0.001
High	683 (40.0)	4137 (38.2)	1.09 (0.95-1.26)	645 (84.1)	1243 (77.3)	1.59 (1.17-2.15)	147 (52.3)	421 (36.9)	2.31 (1.48-3.60)	
<b>Post-conflict residence</b>										

		10497								
No	1655 (96.9)	(96.9)	1.00	194 (25.2)	765 (47.5)	1.00	110 (39.4)	840 (73.6)	1.00	<0.001
Yes	54 (3.1)	332 (3.1)	1.07 (0.80-1.43)	573 (74.8)	844 (52.5)	3.03 (2.38-3.87)	170 (60.6)	301 (26.4)	4.97 (3.33-7.41)	

OR = Odds Ratio adjusted for age and religion; CI = Confidence Interval. P value for interaction relates to differences by ethnicity.

<sup>a</sup> Women divorced, separated, or widowed were not asked this question.

<sup>b</sup> Women working in a job or business were not asked this question.

**Table 3. Any intimate-partner violence in the past year among ever-partnered women aged 15-49 years, Sri Lanka: adjusted associations with socioeconomic factors and ethnicity, stratified by post-conflict residence.**

	Post-conflict residence			Other residence			P value for interaction
	IPV N (%)	No IPV N (%)	OR (95% CI)	IPV N (%)	No IPV N (%)	OR (95% CI)	
<b>Educational attainment</b>							
Higher education	27 (3.4)	80 (5.4)	1.00	72 (3.6)	601 (4.9)	1.00	0.47
Secondary education	616 (77)	1230 (83.1)	1.68 (1.05-2.67)	1652 (84.2)	10785 (88.8)	1.31 (0.97-1.76)	
No schooling/primary education	157 (19.6)	171 (11.6)	3.00 (1.79-5.01)	239 (12.2)	764 (6.3)	2.54 (1.79-3.60)	
<b>Partner's educational attainment</b>							
Higher education	24 (3.6)	68 (5.8)	1.00	43 (2.6)	413 (4)	1.00	0.84
Secondary education	458 (70.9)	945 (81.1)	1.69 (1.03-2.75)	1305 (79.2)	8995 (86.7)	1.42 (0.97-2.07)	
No schooling/primary education	165 (25.5)	152 (13.1)	3.65 (2.13-6.28)	301 (18.3)	965 (9.3)	2.98 (1.99-4.48)	
<b>Occupational status</b>							
Professional	15 (1.9)	52 (3.5)	1.00	158 (8.1)	978 (8)	1.00	0.003
Service	51 (6.4)	107 (7.2)	1.52 (0.89-2.60)	198 (10.1)	1194 (9.8)	1.06 (0.81-1.38)	
Manual labour	117 (14.6)	188 (12.7)	2.14 (1.24-3.70)	413 (21.1)	1890 (15.6)	1.32 (1.04-1.68)	
Unemployed	617 (77.1)	1135 (76.6)	1.95 (1.17-3.27)	1193 (60.8)	8088 (66.6)	0.95 (0.77-1.16)	
<b>Partner's occupational status<sup>a</sup></b>							
Professional	76 (12)	125 (11.3)	1.00	273 (17.6)	1955 (20)	1.00	0.009
Service	75 (11.9)	191 (17.3)	0.67 (0.45-1.00)	444 (28.5)	2901 (29.6)	1.07 (0.88-1.30)	
Manual labour	467 (73.4)	754 (68.1)	1.11 (0.79-1.55)	774 (49.7)	4653 (47.6)	1.14 (0.95-1.36)	
Unemployed	17 (2.7)	37 (3.4)	1.05 (0.53-2.05)	65 (4.2)	276 (2.8)	1.57 (1.07-2.30)	
<b>Enough income for daily living expenses<sup>b</sup></b>							
Yes	440 (71.4)	959 (84.5)	1.00	737 (61.8)	6348 (78.5)	1.00	0.64
No	176 (28.6)	176 (15.5)	2.66 (2.09-3.38)	456 (38.2)	1740 (21.5)	2.36 (2.03-2.74)	
<b>Household wealth index</b>							
1 - Richest	40 (5)	136 (9.2)	1.00	345 (17.6)	2694 (22.2)	1.00	0.87
2	82 (10.3)	257 (17.4)	1.08 (0.69-1.69)	361 (18.4)	2736 (22.5)	1.07 (0.89-1.29)	
3	103 (12.9)	269 (18.2)	1.28 (0.81-2.00)	376 (19.2)	2690 (22.1)	1.17 (0.97-1.42)	
4	179 (22.4)	335 (22.6)	1.66 (1.10-2.50)	416 (21.2)	2371 (19.5)	1.52 (1.25-1.84)	
5 - Poorest	394 (49.3)	484 (32.7)	2.33 (1.60-3.40)	465 (23.7)	1659 (13.7)	2.40 (1.98-2.91)	
<b>Neighbourhood poverty</b>							
Low	165 (20.7)	466 (31.5)	1.00	1120 (57.1)	7351 (60.5)	1.00	0.04
High	634 (79.3)	1015 (68.5)	1.38 (1.09-1.75)	842 (42.9)	4799 (39.5)	1.12 (0.98-1.29)	
<b>Ethnicity<sup>c</sup></b>							
Sinhala	54 (6.7)	332 (22.5)	1.00	1655 (84.5)	10497 (86.7)	1.00	<0.001
Tamil	573 (71.9)	845 (57.2)	1.39 (0.10-19.50)	194 (9.9)	765 (6.3)	1.63 (1.06-2.50)	
Moor	170 (21.3)	301 (20.4)	3.62 (0.24-53.47)	110 (5.6)	840 (6.9)	0.78 (0.27-2.25)	

OR = Odds Ratio adjusted for age and religion; CI = Confidence Interval.

<sup>a</sup> Women divorced, separated, or widowed were not asked this question.

<sup>b</sup> Women working in a job or business were not asked this question.

<sup>c</sup> Ethnicity excludes 'other' minority ethnic groups (N=58).

**Table 4. Any intimate-partner violence (IPV) in the past year among ever-partnered women aged 15-49 years, Sri Lanka: adjusted associations with individual and partner education, stratified by neighbourhood poverty.**

	Poorer neighbourhood			Wealthier neighbourhood			Interaction P value
	IPV N (%)	No IPV N (%)	OR (95% CI)	IPV N (%)	No IPV N (%)	OR (95% CI)	
<b>Educational attainment</b>							
Higher education	21 (1.4)	146 (2.5)	1.00	78 (6.1)	535 (6.9)	1.00	<0.001
Secondary education	1166 (79.0)	4996 (85.9)	1.90 (1.17-3.07)	1103 (85.7)	7020 (89.8)	1.13 (0.84-1.52)	
No schooling/primary education	290 (19.6)	673 (11.6)	2.88 (1.71-4.84)	105 (8.2)	262 (3.4)	2.87 (1.93-4.25)	
<b>Partner's educational attainment</b>							
Higher education	19 (1.5)	76 (1.6)	1.00	47 (4.4)	405 (6.0)	1.00	0.23
Secondary education	856 (70.3)	3982 (82.5)	1.07 (0.62-1.87)	907 (84.2)	5958 (88.7)	1.40 (0.97-2.02)	
No schooling/primary education	343 (28.2)	766 (15.9)	2.05 (1.15-3.65)	123 (11.4)	351 (5.2)	3.22 (2.08-4.99)	

OR=Odds ratio adjusted for age and religion; CI=Confidence Interval.

**Table 5. Physical/sexual violence and psychological violence in the past year among ever-partnered women aged 15-49 years, Sri Lanka: adjusted associations with socioeconomic factors and post-conflict residence.**

	Physical/sexual violence			Psychological violence		
	Yes N (%)	No N (%)	OR (95% CI)	Yes N (%)	No N (%)	OR (95% CI)
<b>Educational attainment</b>						
Higher education	30 (1.8)	681 (5.0)	1.00	69 (6)	681 (5)	1.00
Secondary education	1299 (80.4)	12015 (88.1)	2.47 (1.63-3.75)	969 (84.6)	12015 (88.1)	0.83 (0.61-1.13)
No schooling/primary education	287 (17.8)	935 (6.9)	5.42 (3.48-8.45)	108 (9.4)	935 (6.9)	1.06 (0.62-1.76)
<b>Partner's educational attainment</b>						
Higher education	20 (1.6)	481 (4.2)	1.00	46 (4.6)	481 (4.2)	1.00
Secondary education	961 (73.2)	9940 (86.1)	2.39 (1.46-3.92)	802 (81.6)	9940 (86.1)	0.92 (0.63-1.34)
No schooling/primary education	331 (25.2)	1117 (9.7)	6.37 (3.81-10.64)	135 (13.7)	1117 (9.7)	1.20 (0.78-1.85)
<b>Occupational status</b>						
Professional	65 (4.0)	1030 (7.6)	1.00	109 (9.5)	1030 (7.6)	1.00
Service	143 (8.9)	1301 (9.5)	1.71 (1.21-2.43)	105 (9.2)	1301 (9.5)	0.72 (0.52-1.00)
Manual labour	341 (21.1)	2078 (15.2)	2.36 (1.72-3.24)	189 (16.5)	2078 (15.2)	0.76 (0.57-1.02)
Unemployed	1067 (66.1)	9222 (67.7)	1.70 (1.26-2.27)	742 (64.8)	9222 (67.7)	0.72 (0.56-0.92)
<b>Partner's occupational status<sup>a</sup></b>						
Professional	160 (12.7)	2080 (19.1)	1.00	190 (20.3)	2080 (19.1)	1.00
Service	257 (20.4)	3092 (28.4)	1.00 (0.80-1.28)	262 (28.1)	3092 (28.4)	0.92 (0.72-1.18)
Manual labour	792 (63.0)	5407 (49.6)	1.66 (1.36-2.03)	449 (48)	5407 (49.6)	0.80 (0.64-1.00)
Unemployed	49 (3.9)	314 (2.9)	1.94 (1.27-2.96)	33 (3.6)	314 (2.9)	1.03 (0.64-1.65)
<b>Enough income for daily living expenses<sup>b</sup></b>						
Yes	649 (60.9)	7307 (79.2)	1.00	932 (81.3)	11716 (85.9)	1.00
No	418 (39.1)	1916 (20.8)	2.69 (2.31-3.13)	215 (18.7)	1916 (14.1)	1.76 (1.43-2.17)
<b>Household wealth index</b>						
1 - Richest	155 (9.6)	2829 (20.8)	1.00	230 (20.1)	2829 (20.8)	1.00
2	220 (13.6)	2993 (22.0)	1.38 (1.08-1.77)	223 (19.5)	2993 (22)	0.92 (0.74-1.15)
3	268 (16.6)	2959 (21.7)	1.71 (1.35-2.18)	212 (18.5)	2959 (21.7)	0.94 (0.74-1.19)
4	375 (23.2)	2706 (19.8)	2.59 (2.07-3.25)	220 (19.2)	2706 (19.8)	1.00 (0.78-1.28)
5 - Poorest	598 (37)	2144 (15.7)	4.49 (3.60-5.60)	261 (22.8)	2144 (15.7)	1.29 (1.00-1.65)
<b>Community-level poverty</b>						
Low	675 (41.8)	7817 (57.3)	1.00	611 (53.3)	7817 (57.3)	1.00
High	941 (58.2)	5814 (42.7)	1.58 (1.37-1.82)	535 (46.7)	5814 (42.7)	1.00 (0.83-1.21)
<b>Post-conflict residence</b>						
No	1115 (69.0)	12150 (89.1)	1.00	848 (70.1)	12150 (89.1)	1.00
Yes	501 (31.0)	1481 (10.9)	2.90 (2.41-3.50)	299 (29.9)	1481 (10.9)	3.01 (2.37-3.83)

OR=Odds ratio adjusted for age and religion; CI=Confidence Interval.

<sup>a</sup> Women divorced/separated/husband died were not asked this question.

<sup>b</sup> Women working in a job or business were not asked this question.