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ORIGINAL ARTICLE

Exploring risk factors associated with intimate partner violence in Vietnam: results from a cross-sectional national survey

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Abstract
Objectives Empirical evidence documents that some risk factors for intimate partner violence (IPV) are similar across contexts, while others differ considerably. In Vietnam, there was a need to investigate risk factors for IPV to support evidence-based policy and programming.
Methods Using the dataset gathered in the 2010 National Study on Domestic Violence against Women, forty variables were explored in logistic regression analysis, including socio-demographic characteristics of women and their husbands, other experiences with violence, husband's behaviours, family support, and context-specific variables such as the sex of their children.
Results Fifteen independent factors remained strongly associated with IPV. Significant risk was associated with husbands' behaviour that supports male power (extra-marital relationships; fighting with other men) and alcohol use. Violence experienced in childhood increased the likelihood of women experiencing and of men perpetrating IPV. Notable was further the association with women's higher financial contribution to the household and lack of association with not having sons.
Conclusions The findings support theories describing how underlying gender and power imbalance are fundamental causes of IPV and indicate the need for context-specific interventions.

Keywords Vietnam · Ecological framework · Intimate partner violence · Logistic regression · Risk factors · Survey

Introduction

Studies around the world show that violence against women (VAW) is a global human rights and public health concern. VAW is most often perpetrated by male intimate partners: current or previous husbands; cohabiting or dating partners (Garcia-Moreno et al. 2006; Heise et al. 2002). Understanding risk factors for intimate partner violence (IPV) is essential for designing effective and context-specific interventions. An ecological framework, consisting of concentric circles representing individual, relational, community and society levels, has been used as explanatory model to conceptualize the interplay between factors at each level in the aetiology of IPV (Heise 1998, 2011) and highlights the broad scope of interventions needed to prevent or reduce women's violence experience.

Vietnam (with a population 85.79 million in 2009) is one of the first countries in the South-East Asia region to have collected national prevalence data on IPV (GSO

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2010). Earlier subnational studies in the South-East Asia region showed that prevalence rates of lifetime experience of physical or sexual IPV varied enormously from 15 % (urban Japan) to 62 % (rural Bangladesh) (Garcia-Moreno et al. 2005). In Vietnam, the corresponding rate (34 %) from the 2010 National Study is lower than the South-East Asia Region average (38 %) and higher than the world's (30 %) average (WHO 2013). This previously unimagined high level of IPV led to intense government and public attention to the topic.

Vietnamese culture is deeply influenced by Confucianism, characterized by patriarchy, male privilege and hierarchical relationships. The women's role is traditionally to maintain 'family harmony' and 'family values' (Ghuman 2005), conveying to women the idea that violence in the family is due to her own failure to maintain a happy family (Kwiatkowski 2016). Economically, Vietnam is a fast-growing country because of economic reforms in the late 1980s, known as Doi Moi (Renovation).

The data generated from the 2010 Vietnam study provided a unique opportunity to explore risk factors for IPV. To guide our risk factor analysis, we reviewed other studies that explored risk factors for VAW, focusing on those that were part of the WHO multi-country study on women's health and domestic violence against women (Garcia-Moreno et al. 2005) or that replicated the same 'WHO methodology' (for details see "Methods"). These studies are particularly relevant to the current investigation because the WHO methodology was designed for cross-cultural measurement of VAW and to identify risk factors. The ten reviewed studies, even though they had the same variables available, showed considerable variations in terms of which factors were included in the analysis, which women were considered as having experienced violence or not, and the approach of the statistical modelling (Abramsky et al. 2011; Djikanovic et al. 2010; Hayati et al. 2011; Kiss et al. 2012; Ma'a Fafine Mo e Famili Inc 2012; Naved and Persson 2005; SPC 2009, 2010; Vanuatu Women's Centre 2011; Yuksel-Kaptanoglu et al. 2012). Analytical approaches and findings of these studies are summarized in Online Resource 1.

Regarding the reference period for IPV, three studies looked at violence in the past 12 months ('current IPV'), four looked at lifetime ('ever') IPV and three considered both current and lifetime violence. Regarding type of IPV, eight studies looked at physical or sexual violence, one at physical violence only and one at physical violence and sexual violence separately. Regarding the subsample for analysis, among the six studies that looked at violence in the past 12 months only one study compared the group that experienced current physical and/or sexual partner violence with the group that had never experienced such violence, while five studies used current partner violence vs. no current violence. The non-violence group in the latter studies included women who had experienced violence in the past, potentially weakening the effect of the risk factor. It can be argued that comparing women with physical and/or sexual IPV in the past 12 months with women who have never experienced such violence can be considered the 'purest' groups for risk factor analysis, enabling findings directly relevant to programs that provide services for women seeking help for ongoing violence. In terms of choice of independent variables (potential risk factors), all studies included characteristics of the woman; seven included woman's attitudes (one study explored attitudes separately from the other risk factors). Only five included partner characteristics, two included relationship characteristics, and just one included family support.

Despite differences in analytical approaches, in particular in choice of variables, there are consistent learnings from the results of these investigations. In particular, for the studies that included partner factors the results consistently show that these factors (in particular history of abuse in partner's childhood; alcohol use; controlling behaviours; fighting with other men and extramarital relationships) are among the strongest predictors of women's violence experience. In societies where women do not commonly choose their own husbands and where bride price is important, these factors were also consistently related to IPV. Interestingly, woman's education, age and earnings showed inconsistent associations with IPV. An important gap for most studies is that they did not explore relationship factors, social capital and children.

In the present analysis, we use data from the Vietnam National Study to explore a comprehensive set of potential risk factors allowed by the data, including those thus far not often explored (relationship factors, social capital and children) but that are relevant to advance knowledge for interventions since they can be tied to the ecological framework. For the Vietnam cultural context, we were also interested in exploring sex of children. It was hypothesized that this would have an effect on IPV, because many families prefer sons to daughters (UNFPA 2011).

Methods

This first ever National Study on Domestic Violence against Women in Vietnam replicated the methodology developed for the WHO Multi-country Study on women's health and domestic violence (Garcia-Moreno et al. 2005). The WHO methodology includes a standard validated survey questionnaire to measure in a cross culturally comparable way the prevalence of different types of VAW, associations between IPV and health, risk factors for IPV, and women's coping strategies. In Vietnam, small

deviations from the original WHO methodology consisted in the use of a larger, national sample and the use of a different age range for the female respondents: 18–60 years (instead of 15–49). The WHO questionnaire was translated, adapted and field tested for Vietnam (GSO 2010).

The study adhered to ethical and safety recommendations formulated by WHO for research on VAW (WHO 2001). For the WHO methodology, ethical permission was obtained from the WHO Secretariat Committee for Research in Human Subjects. In Vietnam the ethical and scientific standards were overseen by the Study Steering Committee, members of which included representatives of relevant line ministries and the General Statistics Office (GSO). Informed consent was obtained from all participants in the study.

Sample

For the survey, a sample of 6183 households, representing all 63 provinces in the six economic-geographical regions of Vietnam, was selected in a multistage cluster sampling strategy in 460 Enumeration Areas (EAs), from a 15 % listing of the 2009 census EAs. Twelve households were systematically selected in each EA. One woman per household was randomly selected among the 18–60 years old female household members and officially invited to be interviewed in community centres by specially trained female interviewers, and in full privacy (Jansen et al. 2004). Interviews took place between December 2009 and February 2010. The response rate was 78.2 %; 19.0 % was not available; 1.6 % refused (GSO 2010).

IPV outcome

The outcome variable is physical and/or sexual partner violence in the past 12 months, measured using validated sets of questions asking about behavioural acts. A woman has experienced such violence if in the 12 months preceding the interview her partner had done any of the following: slapped or threw something at her that could hurt; pushed, shoved her or pulled her hair; hit her with a fist or something else that could hurt; kicked, dragged or beat her up; choked or burned her on purpose; threatened to use or actually used a gun, knife or other weapon against her; physically forced her to have sexual intercourse when she did not want to; had sexual intercourse with her when she did not want to because she was afraid of what her partner might do; or forced her to do something sexual that she found degrading or humiliating.

Potential risk factors

The forty potential risk factors considered are listed in Table 1. Most risk factors ('independent variables') were chosen based on theory (across the ecological framework) and published findings on risk factors, as well as factors that were hypothesized to be related to IPV in Vietnam's context. Without listing all, we highlight the following factors:

Attitudes towards physical partner violence: Despite the methodological challenges with measuring attitudes in surveys (Jansen 2012; Schuler et al. 2012; Yount et al. 2013), we included one summary measure of the respondents' attitudes concerning men's use of violence against his wife, dichotomized into 'none' and 'any' justification for men beating their wife. The six justifications were: she does not complete her household work to his satisfaction; she disobeys him; she refuses to have sexual relations with him; she asks him whether he has other girlfriends; he suspects that she is unfaithful; and he finds out that she has been unfaithful (Cronbach alpha coefficient for the 6 items: 0.85).

Four relationship characteristic variables were included (as listed in Table 1) as proxies for power balance in relationships. Sex of children was included as it seemed relevant for the Vietnam context. Social capital is about the value of social networks, bringing similar people together and bridging between diversity, with norms of reciprocity (Dekker and Uslaner 2001). While this aspect has often been ignored as potential risk factor in other studies, it is hypothesized that if a woman has a tighter support network, she may be better protected, sooner able to stop violence or to break out of a violent relationship. We explored eight variables representing social capital.

Subsample for the statistical modelling

For the logistic regression analysis, a subsample of the initial sample of 4535 ever-partnered women is used, consisting of the 433 ever-partnered women whose current or most recent partner had been physically or sexually violent in the last 12 months (violence group) and 2994 ever-partnered women who did not report any partner violence (no violence group). These are cells 8 and 4 in Fig. 1.

The 79 women who reported violence only by a previous partner were dropped (this is because the questionnaire did not collect characteristics from previous partners), as were 1029 women who reported that violence by the current or most recent partner occurred before the last 12 months only.

Table 1 Variables explored as potential risk factors for physical or sexual partner violence in the past 12 months

Variable	Categories
Woman's characteristics	
Demographic	
Age group	18–29/30–39/40–49/50–60
Education	Primary/secondary/higher/no education
Partnership status	Currently partnered/separated or divorced/widowed
Age of first marriage	≤19/20–29/30+/no marriage ceremony
Ethnic group	Kinh/other
Religion	No religion/other
Earning Cash	No/yes
Woman's past experience with violence	
Physical violence by others since age 15	No/yes
Sexual violence by others since age 15	No/yes
Childhood sexual abuse (<15 years)	No/yes
Age at first sex	≤17/18–21/22+
Nature of first sexual experience	Wanted to have sex/first sex coerced or forced
Woman's mother beaten by her partner	No/yes/don't know
Woman's attitudes	
Attitudes on wife beating	Does not agree with any justifications/agrees with at least one justification
Partner characteristics	
Demographic	
Age group	≤29/30–39/40–49/50+
Education	Primary/secondary/higher/no education
Employment status	Working/other
Partner's behaviour	
Alcohol use	Never or DK/daily/weekly/monthly/less than monthly
Drug use	Never/ever
Fighting with other men	No or don't know/yes
Extramarital relationships	No or don't know/yes or maybe
Partner's experience with violence	
Partner's mother abused	No/yes/don't know
Partner abused as child	No/yes/don't know
Characteristics of couple/relationship	
Relational characteristics	
Age difference	His age > her age 0–2 years/her age higher/his age > her age 3–8 years/his age > her age 9+ years
Educational level difference	No difference/his education higher/her education higher
Relative contribution to household	Less than partner/the same as partner/more than partner/woman not earning
Woman's role in partner choice	Respondent or both chose/other party chose/no wedding or registered marriage
Children of respondent	
Number of children born alive	1 child/2 children/3–4 children/5+ children/0 children
Sex of children	Only son(s)/only daughter(s)/son(s) and daughters/0 children
Socioeconomic status	
Household assets index	Low/middle/high
Social capital	
Proximity to woman's family	No/yes (close together)
Frequency contact with woman's family	At least once a week/less than once a week

Table 1 continued

Variable	Categories
Can count on support from family	Yes/no or don't know or no answer
Living with woman's family	No/yes
Living with partner's family	No/yes
Respondent grew up in same community	No/yes
Respondent is member of any group	Yes/no
Neighbours helping when illness in family	Yes/no
Geographical characteristics	
Regions	Northern Midlands and Mountains/Red River Delta/ North and South Central Coast/Central Highlands/ Southeast/Mekong River Delta
Urban/rural	Urban/rural

National Study on Domestic Violence against Women in Vietnam (2010)

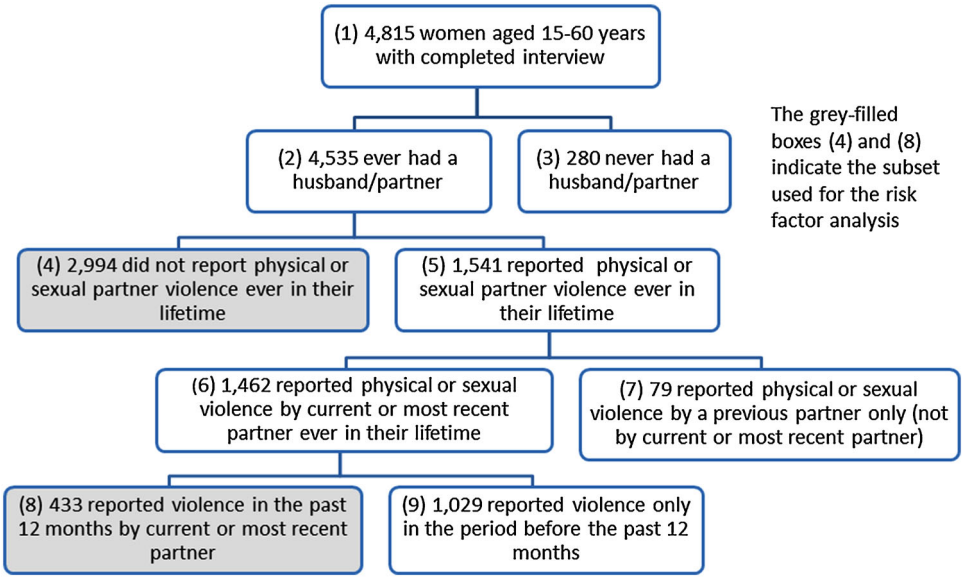

Fig. 1 Sample of women according to their partnership status and their experience of physical and/or sexual partner violence. National Study on Domestic Violence against Women in Vietnam (2010)

Analysis strategy

For the univariate logistic regression, resulting in crude odds ratios, a probability value (p value) of 0.10 or less was considered significant. The variables which were significantly associated with IPV in the univariate regression were subsequently included in an intermediate multivariate logistic regression model (not shown). Variables with a p value of 0.10 or less were considered significant to be included in the final model (Vittinghoff et al. 2012). For the final model, p values of 0.05 or less were considered significant to determine those factors independently associated with IPV. Results of the final model are expressed as adjusted odds ratios (AOR) and 95 % confidence intervals (CI). Age, region and urban/rural factors were included throughout to control for confounding effects.

Data analysis was performed with STATA11. For logistic regression, a factor that accounted for the stratified and clustered nature of the sampling strategy (which also included sample weights) was included. Interaction terms were investigated for variables included in the final model including between age and number of children, age and household assets, age and marital status, and ethnicity and region, but none reached significance.

Results

4838 women completed the interview. Of these, 4562 were 'ever-partnered' (of which 99 % were ever-married and 1 % cohabiting or dating). Among ever-partnered women, 95 % reported one sexual partner in their life. Overall one in three (34 %) ever-partnered women experienced

physical or sexual violence by their partner at least once in their lifetime and 9 % experienced such violence in the 12 months preceding to the interview. The majority (85 %) of the latter group also reported violence in the period before the past 12 months, indicating that women experience IPV over prolonged periods.

Descriptive statistics for each risk factor in the entire sample of ever-partnered women, as well as the proportions of women who reported current IPV for each category for these variables, are presented in Online Resource 2. Current IPV was highest among women whose first sexual experience was coerced or forced (37.2 %); who had experienced sexual violence since age 15 (35.5 %); who had experienced sexual abuse before age 15 (27.0 %); and whose partner had fights with other men (28.9 %).

The results of the univariate risk factor analysis are also presented in Online Resource 2. The final model of the multivariate analysis is presented in Table 2.

Women's characteristics

While in the univariate analysis women's risk of IPV decreased with age, in the final model there was no association with age. Women with higher education were significantly less likely to report IPV compared to those with primary education in the final model (AOR 0.51, CI 0.30–0.87). For current partnership status, univariate analysis suggested that women who were separated or divorced were more likely to have experienced current IPV, supporting the notion that violence continues around and after the period of separation, while widowed women's risk of current violence was significantly lower because many of them lost their partners more than 12 months ago. However, in further modelling the relationship between partnership status and IPV did not remain significant. The univariate analysis for age of first marriage (categories: up to 19, 20–29 and 30+; 33 % of our sample was married before age 20) did not show a relationship between age of marriage and IPV.

For ethnicity, Kinh people (77 % in the sample) were compared with non-Kinh, a mixed group including many different ethnic groups. In the univariate analysis, there was no significant difference in risk of IPV between the two groups. More than 80 % of women stated they did not belong to any religion. In this analysis, no association between religion and IPV was found. Only 6 % of ever-partnered women did not have any source of income. Those who earned money were at higher risk of IPV at univariate level only.

Physical violence by perpetrators other than partners since age 15 was associated with IPV at univariate level only. Sexual violence by non-partners since age 15 and childhood sexual abuse (before the age of 15) were strongly related with IPV in the final model (AOR 5.46, CI 2.17–13.73 and AOR 2.77, CI 1.07–7.15, respectively). Age at first sex (categories: under 18, 18–21 and 22+) was not associated with IPV. Significant associations were found for women whose first sexual experience was forced or coerced (AOR 4.17, CI 1.47–11.82) and for women who reported that their mother had been beaten by their mother's partner (AOR 2.27, CI 1.61–3.22). The measure for women's attitudes on wife beating was significantly associated with IPV at univariate level only.

Partner's characteristics

Partner's age was associated with IPV in the final model: compared to women whose partners were aged under 30, women with partners over 30 were significantly less likely to experience current violence (for age group 30–39: AOR 0.47, CI 0.22–0.98; and for age group 40–49: AOR 0.37, CI 0.15–0.90). Partner's educational level and employment status were only associated with IPV at the univariate level. Partner's alcohol consumption was strongly associated with IPV, in particular daily use (AOR 7.06, CI 3.39–14.69). The risk was weaker with less frequent use, though still significant even when just once a month. Partner's drug use was associated with IPV, but the number of women with partners who had ever used drugs was too small to reach significance at the univariate level.

The following partner characteristics were all significantly associated with IPV in the final model: having physical fights with other men (AOR 5.27, CI 2.95–5.82), having extramarital relationships (AOR 3.37, CI 1.95–5.82), partner's mother abused (AOR 2.75, CI 1.71–4.42) and partner abused as a child (AOR 1.71, CI 1.02–2.86).

Characteristics of the couple/relationship

There was no evidence for an association between three of the four relationship factors and IPV. The exception was women's financial contribution to the household; women who contributed more than their partner were significantly more likely to report IPV than women who contributed less (AOR 2.40, CI 1.58–3.65). Women who contributed the same and women who were not earning did not differ significantly in their experience of IPV from women who contributed less than the partner.

For number of children born alive, women with 0, 2, 3–4, 5+ or no children were compared with women with one child. While final model showed no association between number of children and IPV, women without children were less likely to experience current IPV compared to women with one child (AOR 0.39, CI 0.17–0.89). Remarkably, there was also no evidence for an association with the sex of the children.

Table 2 Final model of multivariate analysis to identify risk factors for physical or sexual partner violence in the past 12 months, among ever-partnered women

	Final model			
	Adjusted odds ratio	95 % Confidence interval		*p* value*
Woman's characteristics				
Demographic				
Age group				
18–29	1.00			
30–39	1.36	0.70	2.63	0.359
40–49	1.37	0.59	3.17	0.461
50–60	0.56	0.20	1.55	0.267
Education				
Primary education	1.00			
Secondary education	0.89	0.59	1.34	0.574
Higher education	0.51	0.30	0.87	**0.014**
Not attend school	0.68	0.40	1.15	0.148
Woman's past experience with violence				
Sexual violence by others since age 15				
No	1.00			
Yes	5.46	2.17	13.73	**0.000**
Childhood sexual abuse (<15 years)				
No	1.00			
Yes	2.77	1.07	7.15	**0.036**
Nature of first sexual experience				
Wanted to have sex	1.00			
First sex coerced/forced	4.17	1.47	11.82	**0.007**
Woman's mother beaten by her partner				
No	1.00			
Yes	2.27	1.61	3.22	**0.000**
Don't know	1.76	0.85	3.63	0.127
Partner's characteristics				
Demographic				
Age group				
≤29	1.00			
30–39	0.47	0.22	0.98	**0.044**
40–49	0.37	0.15	0.90	**0.028**
50+	0.41	0.15	1.11	0.079
Partner's behaviour				
Alcohol use				
Never/DK	1.00			
Daily	7.06	3.39	14.69	**0.000**
Weekly	3.32	1.59	6.94	**0.001**
Monthly	2.97	1.48	5.98	**0.002**
Less than monthly	1.77	0.79	3.98	0.167
Fighting with other men				
No/don't know	1.00			
Yes	5.27	2.95	9.39	**0.000**
Extramarital relationships				
No/don't know	1.00			
Yes/maybe	3.37	1.95	5.82	**0.000**

Table 2 continued

	Final model			
	Adjusted odds ratio	95 % Confidence interval		*p* value*
Partner's experience with violence				
Partner's mother abused				
No	1.00			
Yes	2.75	1.71	4.42	**0.000**
Don't know	0.90	0.56	1.45	0.652
Partner abused as child				
No	1.00			
Yes	1.71	1.02	2.86	**0.043**
Don't know	1.40	0.77	2.53	0.269
Characteristics of couple/relationship				
Relational characteristics				
Relative contribution to household				
Less than partner	1.00			
Contributing the same as partner	1.27	0.85	1.89	0.251
Contributing more than partner	2.40	1.58	3.65	**0.000**
Woman not earning	0.69	0.39	1.23	0.212
Children of respondent				
Number of children born alive				
1 child	1.00			
2 children	0.70	0.46	1.08	0.110
3–4 children	0.98	0.58	1.65	0.925
5+ children	0.64	0.33	1.26	0.198
0 children	0.39	0.17	0.89	**0.026**
Socioeconomic status				
Household assets index				
Low	1.00			
Middle	0.92	0.59	1.43	0.695
High	0.55	0.30	0.99	**0.047**
Geographical characteristics				
Regions				
Northern Midlands and Mountains	1.00			
Red River Delta	2.03	1.05	3.93	**0.035**
North and South Central Coast	1.68	0.92	3.05	0.089
Central Highlands	2.17	1.23	3.83	**0.008**
Southeast	2.00	1.10	3.65	**0.023**
Mekong River Delta	1.21	0.68	2.17	0.518
Urban/rural				
Urban	1.00			
Rural	1.04	0.71	1.52	0.856

National Study on Domestic Violence against Women in Vietnam (2010)

* Values in bold indicate p value < 0.05

A household assets index (categories low, middle and high) was calculated as a proxy for socio-economic status (Vyas and Kumaranayake 2006). Women with the highest household assets index were less likely to experience IPV compared to women who score lowest (AOR 0.55, CI 0.30–0.99).

Social capital

For the eight variables that explored social capital and a woman's support network only group membership was associated with IPV at univariate level only but none in the final model.

Geographical characteristics

In the final model, there remained an independent association between region and IPV experience, with the data suggesting that differences between regions are more pronounced than the differences between urban and rural for all regions combined.

Discussion

This paper examined factors that were associated with an increased or reduced likelihood of experiencing IPV in the past 12 months using data from the 2010 National Study on Domestic Violence against Women. The study advances knowledge of risk factors for IPV by exploring more factors than commonly explored across the ecological framework. Specifically for the Vietnam context, we also explored the association with sex of the children. The logistic regression modelling exploring 40 factors shows that a limited set of 15 factors remained independently associated with IPV. These factors are included in the visual presentation of the ecological framework (Fig. 2).

Firstly, for Vietnam our study did not provide evidence for an association between IPV and physical violence by non-partners since age 15, women's attitudes to wife beating, age differences between partners, and educational differences between partners. While these factors have been found in some other studies elsewhere, they cannot be considered universal. The analysis also did not support the hypothesis that in Vietnam women with daughters were more at risk of IPV than women with sons.

Importantly, the results for Vietnam show that no single risk factor, but rather a set of different factors at multiple levels, was associated with IPV. Factors related to male behaviour that can be considered harmful forms of expressing manhood and power, such as alcohol use, fighting and extramarital relationships, are most strongly associated with IPV. This is consistent with other studies in Asia and globally (e.g. Jewkes 2002; Vung et al. 2008; Vyas and Watts 2009). These findings indicate that it is his behaviours and attitudes to the relationship that need to be changed to reduce the likelihood of violence occurring which has direct relevance to the design of interventions.

Further, as in other studies globally (e.g. Abramsky et al. 2011; Djikanovic et al. 2010; Van Wijk and De Bruijn 2012), we found strong associations with childhood victimization of the woman, her partner or their respective mothers. These findings suggest how violence is learned across generations; having experienced violence in the childhood home makes women more likely to be abused by husbands, and men more likely to become wife abusers. Women's own past experiences associated with an increased likelihood of IPV included her experience of sexual violence by other perpetrators, her experience of sexual abuse as a child and whether her first sexual experience was forced or coerced. Our dataset showed that for most women the perpetrator for the latter was not her (future) partner because more than half of the women

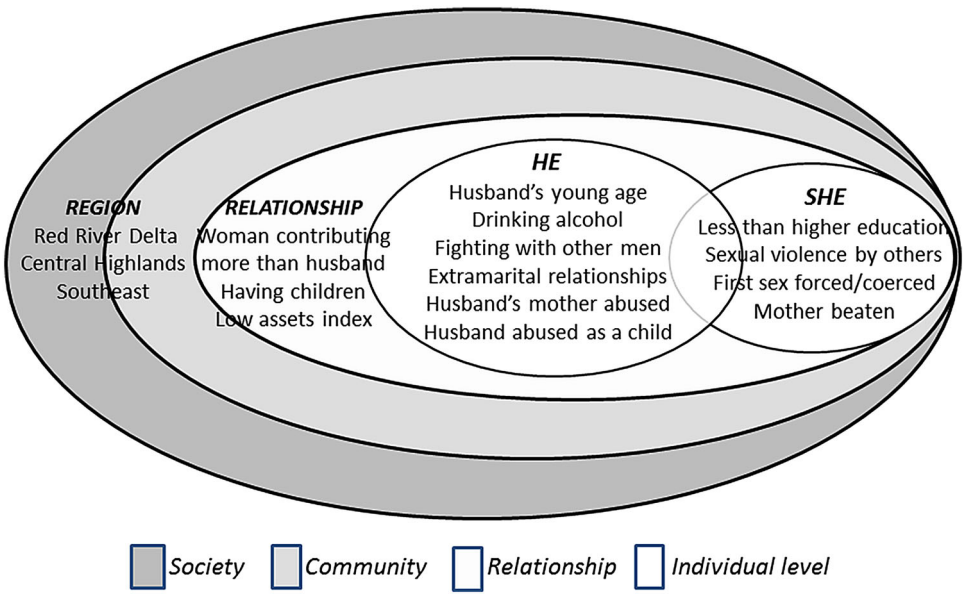

Fig. 2 Ecological model showing risk factors identified for physical and/or sexual violence by a husband in past 12 months. National Study on Domestic Violence against Women in Vietnam (2010)

whose first sex was forced had more than one sexual partner in their lifetime (compared to 5 % of ever-partnered women) and most women who reported sexual abuse since age 15 reported that the perpetrator was a stranger.

The negative association with women's financial empowerment (measured as contributing more to the household than her spouse) may be linked to traditional views of women's roles, which is to maintain a happy family. In Bangladesh, increased exposure to violence was found when women go out to work especially where they have low financial resources to start (Heath 2013) and in India when her husband is not able to find work (Krishnan et al. 2010). It may be that these countries share similar background characteristics with Vietnam, with strong traditional gender roles yet a growing economy enhancing the likelihood that women can find paid employment. In contrast, a study in the Philippines found that employment status and relative earnings do not predict IPV (Hindin and Adair 2002). Globally, evidence from 41 other sites about women's involvement in income generation and experience of past year violence was mixed (Vyas and Watts 2009).

Interestingly, we found that while neither the woman's age nor the age difference remained significant in the final model, the partner's age remained associated with IPV. The latter is, however, not a universal risk factor, e.g. Jewkes et al. (2002) did not find a relationship with partners' age in South Africa.

Limitations to drawing conclusions can be found in the cross-sectional nature of the study implying that the direction of associations cannot be established. However, our focus on current rather than lifetime violence enables better studying temporal relationships, especially in the case of childhood experiences because these risk factors have occurred in the past, pre-dating partner violence. Considering 'current violence' as outcome variable has more relevance for interventions for victims, but risks overlooking factors related to the initiation of violence, because women who experienced violence in the past and no longer in the last 12 months are not studied in the analysis. Finally, since we have used methodology that is used for international comparison the study may have missed collecting data on certain context-specific factors.

In terms of strengths of this study, the data were collected with a well-tested methodology and study design that has shown to facilitate respondents' disclosure of sensitive information. Further, the WHO study methodology was specifically designed to enable in-depth understanding of risk factors (Garcia-Moreno et al. 2005), a particularly relevant aspect given the importance of context-specific policy and interventions to prevent and respond to violence against women.

In conclusion, the findings corroborate existing theories of how underlying gender inequalities and power imbalance between women and men are fundamental causes of VAW, and further that they occur across the spectrum of the ecological model. Of particular relevance for policy and interventions is the overwhelming evidence for the link between the male behaviour and IPV and early life experiences of abuse of boys and girls and IPV later in life, as confirmed in other recent research in Vietnam (Yount et al. 2014) and elsewhere (e.g. Ehrensaft 2003; Gomez 2011; Martin et al. 2002; Naved and Persson 2005). Significantly, these factors are malleable as well as relatively highly prevalent in the Vietnam population implying that their reduction potentially has a large impact. For the Vietnam context, educational prevention activities for both men and women should focus on generating new conceptualizations of gender and family, including making men equally responsible for creating and maintaining happy families.

From a global perspective, the findings from Vietnam contribute to the evidence base on universal and context-specific risk factors for IPV, essential for smart policy development. This is particularly pertinent in the context of Goal 5, Target 5.2 of the 2030 Agenda for Sustainable Development, adopted in September 2015, calling for the elimination all forms of violence against women and girls by 2030.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

References

Abramsky T, Watts CH, Garcia-Moreno C, Devries K, Kiss L, Ellsberg M, Jansen HAFM, Heise L (2011) What factors are associated with recent intimate partner violence? Findings from the WHO multi-country study on women's health and domestic violence. BMC Public Health 11:109

Dekker P, Uslaner EM (2001) Introduction. In: Uslaner EM (ed) Social capital and participation in everyday life. Routledge, London, pp 1–8

Djikanovic B, Jansen HAFM, Otasevic S (2010) Factors associated with intimate partner violence against women in Serbia: a cross-sectional study. J Epidemiol Community Health 64:728–735

Ehrensaft M (2003) Intergenerational transmission of partner violence: a 20-year prospective study. J Consult Clin Psychol 71:741–753

Garcia-Moreno C, Jansen HA, Ellsberg M, Heise L, Watts CH (2006) Prevalence of intimate partner violence: findings from the WHO multi-country study on women's health and domestic violence. Lancet 368:1260–1269

Garcia-Moreno C, Jansen HAFM, Heise L, Watts C (2005) WHO multi-country study on women's health and domestic violence against women. Initial results on prevalence, health outcomes and women's response. World Health Organization, Geneva

General Statistics Office (2010) 'Keeping silence is dying': results from the National Study on domestic violence against women in Viet Nam. Hanoi, Viet Nam: GSO. http://www.gso.gov.vn/default_en.aspx?tabid=487&ItemID=10693. Accessed 22 Jan 2015

Ghuman S (2005) Attitudes about sex and marital sexual behavior in Hai Duong Province, Vietnam. Stud Fam Plan 36:95–106

Gomez AM (2011) Testing the cycle of violence hypothesis: child abuse and adolescent dating violence as predictors of intimate partner violence in young adulthood. Youth Soc 43:171–192

Hayati EN, Hogberg U, Hakimi M, Ellsberg MC, Emmelin M (2011) Behind the silence of harmony: risk factors for physical and sexual violence among women in rural Indonesia. BMC Women's Health 11:52

Heath R (2013) Women's access to labour market opportunities, control of household resources, and domestic violence: evidence from Bangladesh. World Dev 57:32–46

Heise L (1998) Violence against women: an integrated, ecological framework. Violence Against Women 4:262–290

Heise L (2011) What works to prevent partner violence. An evidence overview. STRIVE Research Consortium, London School of Hygiene and Tropical Medicine, London

Heise L, Ellsberg M, Gottemoeller M (2002) A global overview of gender-based violence. Int J Gynecol Obstet 78:S5–S14

Hindin MJ, Adair LS (2002) Who's at risk? Factors associated with intimate partner violence in the Philippines. Soc Sci Med 55:1385–1399

Jansen HAFM (2012) Prevalence surveys on violence against women—challenges around indicators, data collection and use. Expert paper prepared for Expert Group Meeting Prevention of Violence against Women and Girls, Bangkok, Thailand Sept 2012, pp 12. http://www.unwomen.org/~/media/headquarters/attachments/sections/csw/57/egm/egm-paper-henriette-jansen%20pdf.pdf. Accessed 22 Jan 2015

Jansen H, Watts C, Ellsberg M, Heise L, Garcia-Moreno C (2004) Interviewer training in the WHO multi-country study on women's health and domestic violence. Violence Against Women 10:831–849

Jewkes R (2002) Intimate partner violence: causes and prevention. The Lancet 359:1423–1429

Jewkes R, Levin J, Penn-Kekana L (2002) Risk factors for domestic violence: findings from a South African cross-sectional study. Soc Sci Med 55:1603–1617

Kiss L, Schraiber LB, Heise L, Zimmerman C, Gouveia N, Watts C (2012) Gender-based violence and socioeconomic inequalities: does living in more deprived neighbourhoods increase women's risk of intimate partner violence? Soc Sci Med 74:1172–1179

Krishnan S, Rocca CH, Hubbard AE, Subbiah K (2010) Do changes in spousal employment status lead to domestic violence? Insights from a prospective study in Bangalore, India. Soc Sci Med 70:136–143

Kwiatkowski L (2016) Marital sexual violence, structural vulnerability, and misplaced responsibility in Northern Viet Nam. In: Yllö K, Torres MG (eds) Marital rape, consent, marriage, and social change in global context. Oxford University Press, New York, pp 55–73

Ma'a Fafine Mo e Famili Inc (2012) National Study on domestic violence against women in Tonga 2009. Nofo 'A Kainga. http://www.pacificwomen.org/wp-content/uploads/tonga-vaw-report-final-20121.pdf. Accessed 23 Jan 2015

Martin SL, Moracco KE, Garro J, Tsui AO, Kupper LL, Chase JL, Campbell JC (2002) Domestic violence across generations: findings from northern India. Int J Epidemiol 31:560–572

Naved RT, Persson LA (2005) Factors associated with spousal physical violence against women in Bangladesh. Stud Fam Plan 36:289–300

Schuler SR, Yount KM, Lenzi R (2012) Justification of wife beating in rural Bangladesh. Violence Against Women 18:1177–1191

Secretariat of the Pacific Community (2010) Kiribati Family Health and Support Study. A Study on violence against women and children. http://www.spc.int/hdp/index.php?option=com_docman&task=cat_view&gid=89&Itemid=44. Accessed 23 Jan 2015

Secretariat or the Pacific Community (2009) Solomon Islands Family Health and Safety Study. A Study on violence against women and children. http://www.spc.int/hdp/index.php?option=com_docman&task=cat_view&gid=39&Itemid=44. Accessed 23 Jan 2015

UNFPA (2011) Son preference in Vietnam: ancient desires, advancing technologies. UNFPA, Hanoi

Van Wijk NPL, De Bruijn JGM (2012) Risk factors for domestic violence in Curacao. J Interpers Violence 27:3032–3053

Vanuatu Women's Centre (2011) Vanuatu National Survey on women's lives and family relationships. http://countryoffice.unfpa.org/filemanager/files/pacific/pacific_vaw/day1/vanuatu_womens_crisis_research_report_part_i.pdf. Accessed 22 Jan 2015

Vittinghoff E, Glidden DV, Shiboski SC, McCulloch CE (2012) Predictor selection. Regression methods in biostatistics. Linear, logistic, survival, and repeated measures models. Springer, USA, pp 395–429. doi:10.1007/978-1-4614-1353-0_10

Vung ND, Ostergren P, Krantz G (2008) Intimate partner violence against women in rural Vietnam—different socio-demographic factors are associated with different forms of violence: need for new intervention guidelines? BMC Public Health 8:55

Vyas S, Kumaranayake L (2006) How to do (or not to do)… Constructing socio-economic status indices: how to use principal components analysis. Health Policy Plan 21:459–468

Vyas S, Watts C (2009) How does economic empowerment affect women's risk if intimate partner violence in low and middle income countries? A systematic review of published evidence. J Int Dev 21:577–602

WHO (2001) Putting women first: ethical and safety recommendations for research on domestic violence against women. World Health Organization, Geneva

WHO (2013) Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence. World Health Organization, Geneva

Yount K, Halim N, Schuler S, Head S (2013) A survey experiment of women's attitudes about intimate partner violence against women in rural Bangladesh. Demography 50:333–357

Yount KM, Pham HT, Minh TH, Krause KE, Schuler SR, Anh HT, VanderEnde K, Krame MR (2014) Violence in childhood, attitudes about partner violence, and partner violence perpetration among men in Vietnam. Ann Epidemiol 24:333–339. doi:10.1016/j.annepidem.2014.02.004

Yuksel-Kaptanoglu I, Turkyilmaz AS, Heise L (2012) What puts women at risk of violence from their husbands? Findings from a large, nationally representative survey in Turkey. J Interpers Violence 27:2743–2769