Spousal Violence in 5 Transitional Countries: A Population-Based Multilevel Analysis of Individual and Contextual Factors

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Understanding factors that contribute to intimate partner violence (IPV) is essential to reducing it and minimizing its deleterious effect on women's functioning and health. Most evidence comes from studies conducted in western industrialized countries or in the developing countries of Africa, Latin America, and Asia[1–5]; there is scarce knowledge available on IPV in the transitional countries of the former Soviet Union (fSU) region,[6] which represents different geopolitical, socioeconomic, and cultural environments.[7] Studies from other countries often demonstrate mixed findings regarding key risk factors for spousal violence, which suggests that their effects are context specific.[8–11] An examination of cross-country similarities and differences within the fSU region may contribute to the understanding of risk factors for spousal violence in a different sociocultural context.

As a part of the Soviet Union for approximately 70 years until its collapse in 1991, the fSU countries shared similar sociopolitical contexts,[12] with a legacy of well-established public services, stable jobs, and high levels of education dating back to the Soviet era.[13] The political turmoil and economic crisis of the 1990s following the collapse of the Soviet Union and the transition from a socialist to a market economy resulted in high unemployment, deterioration of public services, and growth in poverty and social inequalities, which increased family stress.[14]

My study focused on 5 countries of the fSU that included an additional Domestic Violence (DV) module in the Demographic and Health Survey (DHS), which presented the first opportunity for cross-country comparison in this region using recent nationally representative data. The DHS survey was conducted in 2 Eastern European countries of the fSU (Moldova and Ukraine) and 2 countries located in the

Objectives. I examined the individual- and community-level factors associated with spousal violence in post-Soviet countries.

Methods. I used population-based data from the Demographic and Health Survey conducted between 2005 and 2012. My sample included currently married women of reproductive age (n = 3932 in Azerbaijan, n = 4053 in Moldova, n = 1932 in Ukraine, n = 4361 in Kyrgyzstan, and n = 4093 in Tajikistan). I selected respondents using stratified multistage cluster sampling. Because of the nested structure of the data, multilevel logistic regressions for survey data were fitted to examine factors associated with spousal violence in the last 12 months.

Results. Partner's problem drinking was the strongest risk factor associated with spousal violence in all 5 countries. In Moldova, Ukraine, and Kyrgyzstan, women with greater financial power than their spouses were more likely to experience violence. Effects of community economic deprivation and of empowerment status of women in the community on spousal violence differed across countries. Women living in communities with a high tolerance of violence faced a higher risk of spousal violence in Moldova and Ukraine. In more traditional countries (Azerbaijan, Kyrgyzstan, and Tajikistan), spousal violence was lower in conservative communities with patriarchal gender beliefs or higher financial dependency on husbands.

Conclusions. My findings underscore the importance of examining individual risk factors in the context of community-level factors and developing individual- and community-level interventions. (*Am J Public Health.* 2015;105:e12–e22. doi: 10.2105/AJPH.2015.302779)

Central Asian region (Kyrgyz Republic and Tajikistan); the Caucasus region was represented by Azerbaijan. Previous DHS and other nationally representative studies from the fSU region included only individual-level predictors of violence without examining the role of contextual factors and focused predominantly on Eastern European countries of the fSU.[8,15–17]

Despite shared Soviet background, the 5 countries differ in terms of gender norms and current socioeconomic situations (Table 1).[7] Eastern European countries (Ukraine and Moldova) share relatively more egalitarian gender norms, whereas Azerbaijan, Tajikistan and Kyrgyzstan, which are secular Muslim nations, have more traditional values and conservative norms. Women in Kyrgyzstan fall in the middle because of a historically large Russian-speaking population.[18–21] Nevertheless,

Azerbaijan, Kyrgyzstan, and Tajikistan—where the female literacy rate is close to 100% and polygamous marriages are illegal[22]—differ from many countries with a traditional Muslim culture because of a history of socialistic ideology, suppression of religion, and universal public education. Although Azerbaijan and Ukraine have exhibited significant economic growth because of rich energy resources, Moldova remains one of the poorest countries in Eastern Europe,[23] and Tajikistan maintains the status of the poorest republic in the entire fSU region.

Several theories explain IPV through single factors: poverty-induced stress,[24] weakened impulse control because of substance use,[25,26] or learned aggressive or victimized behavior from the family of origin.[27,28] Feminist theorists, however, have argued that poverty, stress, and alcohol abuse do not explain why violence

TABLE 1—Selected Country-Level Indicators for 5 Former Soviet Union Countries: 2005–2012

Country-Level Indicators	Eastern Europe		Caucasus	Central Asia	
	Moldova	Ukraine	Azerbaijan	Kyrgyzstan	Tajikistan
Population (in millions)	3.6	45.5	9.5	5.9	8.2
Official language(s)	Romanian	Ukrainian	Azerbaijani	Kyrgyz, Russian	Tajik
Area, km²	33 846	603 500	86 600	199 951	142 550
Country's income category	Lower middle	Lower middle	Upper middle	Lower middle	Low
GNI per capita, Atlas method, US$	2 470	3 960	7 350	1 210	990
Human development index	0.663 (medium)	0.734 (high)	0.747 (high)	0.628 (medium)	0.607 (medium)
Female adult literacy, %	99	100	100	99	100

Note. GNI = gross national income; USD = United States dollars.
Source: World Development Indicators, World Bank, 2013.

disproportionally occurs against women. Instead, feminist theories suggest that IPV results from historical power differentials by gender, which have been reinforced through male superiority, authority, and socialization.[29-32] However, feminist theory alone does not explain why people act differently, even if they grew up in the same social environment and were exposed to similar gender norms.[33] Thus, Heise's ecological model of IPV,[33] adopted by the World Health Organization (WHO) as a guiding framework, and modified by Koenig et al.,[4] combines individual theories explaining IPV and emphasizes the importance of contextual-level factors.

Empirical studies in the United States, Bangladesh, Colombia, and Nigeria demonstrated that certain communities—not just individuals or families—are affected by IPV more than others, positing that violence might be a function of community-level characteristics and attitudes, and not only individual beliefs and behaviors.[5,34-36] Community socioeconomic development, domestic violence norms, and community-level gender inequalities might shape individual women's experiences.[4,5] Inclusion of community-level variables might change the effects of individual factors, exemplifying the importance of conducting a 2-level analysis.[4,5,34,35]

Thus, I examined the role of individual-level factors (socioeconomic status, family risk factors, and women's empowerment status within the household) and contextual factors (community poverty and women's empowerment status at the community level) associated with current spousal violence in population-based samples in 5 fSU countries: Azerbaijan, Moldova, Ukraine, Kyrgyzstan, and Tajikistan. More specifically, I aimed to examine whether contextual factors had an effect on spousal violence, above and beyond women's individual-level characteristics, and whether effects remained significant while adjusting for individual and contextual factors simultaneously.

METHODS

The standard DHS questionnaire was conducted in 8 of 15 fSU countries. Only 5 fSU countries—Azerbaijan (2006), Moldova (2005), Ukraine (2007), Kyrgyzstan (2012), and Tajikistan (2012)—included the DHS DV module along with the standard DHS Questionnaire. The DHS questionnaire was administered by trained local interviewers following WHO safety guidelines for research on violence against women.[37]

DHS uses a stratified multistage sampling strategy with regional clusters (or primary sampling units [PSUs]) that are geographically stratified (by rural/urban residence and administrative regions) and randomly selected using a probability-proportionate-to-size sampling procedure. Regional clusters are randomly selected from the complete list of enumeration areas (or census sectors) used in the latest national census in each country. The enumeration area is a geographic area that corresponds to a city block in urban settings and "natural village" in

rural areas. Households are then randomly selected within each selected regional cluster (on average, 25–50 households per cluster). The DV module is administered to 1 randomly selected woman of reproductive age (15–49 years old) within each selected household. In Ukraine, women were not eligible for the DHS DV module in households in which men were administered the DV module (one half of all selected households). The detailed sampling methodology is described in the DHS sampling manual[38] and other sources.[15,22,39–41]

I limited the sample in this study to currently married (or cohabitating) women who completed the DV module (n = 3932 in Azerbaijan, n = 4053 in Moldova, n = 1932 in Ukraine, n = 4361 in Kyrgyzstan, and n = 4093 in Tajikistan). Hereafter, married or cohabitating (living with a partner) will be used interchangeably. Eligible women who were randomly selected but who did not complete the DV module (1%–2%), including those concerned about privacy, were not included in the analysis. I excluded formerly married women (18% of the DV sample in Ukraine and 5%–9% in other 4 countries) who demonstrated a higher prevalence of spousal violence,[15] but who had no data about current relationship dynamics.

Measures

Outcome variable. The DHS covers violence committed by husbands (or cohabitating partners) and does not include dating partners. To create a temporal sequence, I used the measure of current spousal violence (as opposed to lifetime violence, ever committed by a husband or partner), which was defined as having occurred if a woman reported any abusive acts in the last 12 months. I included 4 variables that measured different types of current spousal violence: physical (7 items: husband or partner punched you with his fist or with something that could hurt you; kicked, dragged, or beat you up; etc.), emotional (3 items: husband had said or done something to humiliate you in front of others, etc.), sexual (2 items: husband physically forced respondent to have sexual intercourse or forced respondent to perform any other sexual acts), and any type of violence (if woman reported physical, emotional, or sexual violence). The detailed description of the questionnaire is available in DHS country reports.[15,39–42]

Covariates. Control variables were the respondents' age in years and rural versus urban residence. I excluded other potential covariates—age at first marriage, age difference between partners, duration of marriage, household size, and number of living children—from the final regression models because of multicollinearity. I excluded current relationship status, having more than 1 union, and religion from the final regression models because of small percentages in some countries.

Socioeconomic status included measures of household wealth, and the respondents' and partners' education in years. The DHS's wealth index, based on ownership of goods and assets and frequently used in countries with irregular income data,[43,44] includes 5 wealth quintiles (from 1 [lowest] to 5 [highest]). To include a measure of poverty, the wealth index was dichotomized into 2 categories: the lowest wealth quintile (coded as 1 [poor]) and the remaining 4 quintiles (0 [not poor]).

Family risk factors. A history of violence in the family of origin was indicated if a woman witnessed or was aware of her father beating her mother. Partners' problem drinking was reported by women and was recoded as zero (if partner never drinks or never gets drunk) and 1 (if partner gets drunk sometimes or often).

Women's empowerment status in the family could be manifested through decision making power and financial autonomy.[2,45] Women's participation in 3 household decisions (respondent's health care, visiting friends and family, and household purchases) was recoded as "yes" if a woman participated by herself alone or jointly with the husband and "no" if the decision was made by husband alone or someone else. Scoring "yes" for all decisions was coded as having decision-making autonomy.

Woman's financial autonomy, which was defined as perceived control and access to financial resources, was measured by (1) women's earnings relative to husbands' earnings ("the same," "woman earns more or husband has no earnings," "less," and "woman has no earnings," which included unemployed or unpaid women who could be considered financially dependent); and (2) women's control over husbands' earnings (women make decisions how to spend family income—"jointly with her husband," "alone," or "has no control" [decisions are made by her husband or someone else]).

Two attitudinal scales measured women's beliefs about (1) wife-beating (5 items: husband is justified beating his wife if she argues, goes out without telling him, etc.) and (2) refusal of sex (3 items: woman cannot refuse sex if she is tired or not in the mood, etc.). Agreement with at least 1 of these statements indicated approval of patriarchal gender beliefs, namely, acceptance of wife beating and male entitlement for sex.

Community-level variables. To include community-level characteristics, I aggregated corresponding individual variables at the sampling cluster level.[4,5,36,46,47] To minimize same-source bias, I calculated community-level variables based on responses from the entire sample of women who participated in the standard DHS Questionnaire (including all women who were not randomly selected for the additional DHS DV module and all formerly married women [n = 8,444 in Azerbaijan, n = 7440 in Moldova, n = 6841 in Ukraine, n = 8208 in Kyrgyzstan, and n = 9,656 in Tajikistan]) and not only currently married women interviewed for the DV module. The average number of households per cluster was 28 in Azerbaijan, 19 in Moldova, 15 in Ukraine, 28 in Kyrgyzstan and 31 in Tajikistan, which could be reasonably called a "community."

I measured community poverty, which was the concentration of poverty in each cluster, by the percentage of households in a sampling cluster from lowest wealth quintile (poorest 20%). Community measures of women's empowerment status included the percentage of women in a sampling cluster who justified wife beating in 1 or more circumstances (community acceptance or tolerance of wife beating) and had no earnings (community female financial dependency).

The outcome and predictor variables had less than 0.1% missing data. Missing data less than 1% did not pose any significant problems during the analysis.

Data Analysis

I performed the statistical analysis in Stata version 13 (StataCorp, College Station, TX) to handle complex surveys. I used the survey command (-svy-) to account for DHS's stratified multistage cluster sampling design and to obtain estimates that accounted for variability in country-level means and percentages across regional clusters and strata.

regional clusters and strata. Table 2 contains descriptive statistics and includes weighted percentages or means along with 95% confidence intervals (CIs), accounting for variability in country-level means and percentages across regional clusters and strata.

I calculated the intracluster correlation coefficient (ICC; $\rho = \tau_0^2/(\tau_0^2 + \sigma^2)$, where τ_0^2 is a variance at level 2 or between group and cluster variance, and σ^2 is a variance at level 1 or within cluster variance) using a constant ($\pi^2/3 = 3.29$) because the residual variance for logistic distribution could not be computed.[48,49] In each country, intercept-only models demonstrated statistically significant intercept variances and ICCs greater than 0.05 (Table 3), which suggested nonignorable variability in intercepts between regional clusters, which, therefore, justified the need for multilevel analysis.[48]

I performed multilevel logistic regression (or hierarchical generalized linear models) for survey data with a logit link function because it accounts for intracluster similarities of the nested data.[50] Level 1 included individual factors. Aggregated community measures were entered as level 2 variables. The intercept-as-outcome models included level 2 variables, in addition to individual level 1 predictors, to examine contextual factors that could explain intercept variance. Observations at level 1 were adjusted for individual sampling weights from the DV module and proportion-to-size sampling weights were used for PSUs at level 2. I conducted statistical analysis separately for each country. I performed grand-mean centering for level 1 continuous variables (age, years of education) to reduce multicollinearity.[51,52] The multilevel regression models are presented for any current spousal violence (Table 3). I performed a separate analysis for physical violence; the results were not included in the tables, but they are reported in the text when findings differed from any type of violence. Finally, I fitted models with cross-level interactions by letting the slopes of the associations between the individual and community measures vary at the cluster level. I checked all cross-level interactions between individual- and community-level poverty and women's empowerment measures, but reported only significant interaction effects. I also tested models

TABLE 2—Sample Characteristics and Prevalence of Spousal Violence Among 15- to 49-Year-Old, Currently Married (or Cohabitating) Women From 5 Former Soviet Union Countries: 2005–2012

Variables	Eastern Europe		Caucasus	Central Asia	
	Moldova (DHS-V, 2005)	Ukraine (DHS-V, 2007)	Azerbaijan (DHS-V, 2006)	Kyrgyzstan (DHS-VI, 2012)	Tajikistan (DHS-VI, 2012)
Sociodemographic characteristics, % (95% confidence interval)					
Age, y, mean	35.03 (34.69, 35.38)	35.68 (35.21, 36.15)	34.62 (34.18, 35.06)	33.05 (32.63, 33.47)	32.39 (31.99, 32.79)
Household size, mean (95% CI)	3.98 (3.93, 4.04)	3.84 (3.75, 3.93)	5.01 (4.91, 5.12)	5.44 (5.33, 5.54)	7.73 (7.52, 7.93)
No. of children, mean (95% CI)	1.81 (1.75, 1.86)	1.49 (1.44, 1.54)	2.14 (2.08, 2.19)	2.52 (2.45, 2.59)	2.81 (2.72, 2.91)
Area of residence, % (95% CI)					
Urban	38.89 (37.06, 40.74)	67.75 (65.48, 69.95)	55.33 (52.01, 58.60)	32.28 (29.61, 35.07)	24.03 (22.56, 25.57)
Rural	61.11 (59.26, 62.94)	32.25 (30.05, 34.52)	44.67 (41.4, 47.99)	67.72 (64.93, 70.39)	75.97 (74.43, 77.44)
Religion, % (95% CI)					
Christian (Orthodox, Catholic, Protestant)	97.91 (95.97, 99.97)	88.00 (83.64, 92.69)	0.40 (0.19, 0.84)	NA	NA
Muslim	. . .	0.88 (0.49, 1.57)	99.47 (99.02, 99.72)		
Other (Judaism, other religion, no religion)	2.09 (0.03, 4.03)	11.12 (8.97,13.88)	0.12 (0.03, 0.57)		
Language of the interview, % (95% CI)					
Country's local language	76.05 (72.21, 79.57)	56.31 (53.47, 59.11)	99.85 (99.63, 99.94)	63.65 (60.6, 66.59)	92.78 (90.72, 94.42)
Russian	23.95 (20.5, 27.79)	43.66 (40.85, 46.73)	0.14 (0.05, 0.36)	35.67 (32.72, 38.72)	3.19 (2.54, 4.00)
Other language (e.g., Uzbek)	. . .	. . .	0.01 (0.01, 0.11)	0.68 (0.37, 1.25)	4.03 (2.67, 6.02)
Relationship characteristics					
Relationship status, % (95% CI)					
Legally married	93.06 (92.02, 93.97)	92.48 (90.67, 93.97)	99.73 (99.47, 99.87)	99.52 (99.12, 99.74)	99.51 (99.03, 99.76)
Living together	6.94 (6.03, 7.98)	7.52 (6.03, 9.33)	0.27 (0.13, 0.53)	0.48 (0.26, 0.88)	0.49 (0.24, 0.97)
Age at first marriage, mean (95% CI)	20.00 (19.88, 20.12)	20.34 (20.15, 20.52)	21.05 (20.09, 21.22)	20.20 (20.06, 20.34)	19.87 (19.73, 20.01)
Age difference between partners, mean (95% CI)	2.97 (2.84, 3.11)	2.81 (2.63, 2.99)	4.43 (4.21, 4.64)	3.83 (3.66, 3.99)	3.82 (3.63, 4.01)
Years married/cohabitating, mean (95% CI)	14.53 (14.18, 14.87)	14.94 (14.46, 15.42)	13.12 (12.73, 13.52)	12.41 (11.99, 12.82)	12.02 (11.61, 12.43)
>1 marriage/union, % (95% CI)	10.47 (9.37, 11.69)	13.19 (11.28, 15.38)	1.23 (0.81, 1.88)	5.06 (4.32, 5.91)	3.93 (3.30, 4.67)
Socioeconomic status					
Woman's education, y, mean (95% CI)	11.47 (11.35, 11.58)	13.86 (13.68, 14.03)	10.81 (10.68, 10.94)	12.04 (11.89, 12.18)	9.82 (9.65, 10.00)
Partner's education, y, mean (95% CI)	11.33 (11.23, 11.44)	13.55 (13.37, 13.72)	11.30 (11.16, 11.44)	11.74 (11.6, 11.88)	11.38 (11.20, 11.57)
Household wealth status, % (95% CI)					
Middle or high	82.28 (79.83, 84.49)	86.86 (84.7, 88.75)	81.69 (79.41, 83.77)	80.49 (77.39, 83.39)	80.98 (78.06, 83.59)
Poor (lowest wealth quintile)	17.72 (15.51, 20.17)	13.14 (11.25, 15.30)	18.31 (16.23, 20.59)	19.51 (16.75, 22.61)	19.02 (16.41, 21.94)
Personal environment risk factors					
History of family violence, % (95% CI)					
No, father did not abuse mother	67.10 (65.14, 69.00)	85.29 (83.20, 87.15)	84.57 (83.02, 86.00)	86.33 (84.55, 87.93)	87.02 (84.98, 88.81)
Yes, father abused mother	32.90 (31.00, 34.86)	14.71 (12.90, 16.78)	15.43 (14.00, 16.98)	13.67 (12.07, 15.45)	12.98 (11.19, 15.02)

Continued

TABLE 2—Continued

Partner's alcohol use, % (95% CI)					
Does not drink or never gets drunk	33.59 (31.58, 35.66)	44.91 (41.79, 48.07)	44.87 (42.6, 47.16)	64.64 (62.27, 66.94)	81.72 (79.56, 83.69)
Gets drunk sometimes	58.22 (56.02, 60.39)	50.99 (47.92, 54.06)	49.90 (47.6, 52.21)	31.68 (29.49, 33.95)	16.39 (14.63, 18.31)
Gets drunk often	8.19 (7.16, 9.35)	4.10 (3.20, 5.25)	5.23 (4.19, 6.50)	3.68 (2.99, 4.53)	1.90 (1.33, 2.70)
Women's empowerment					
Decision-making autonomy					
No, % (95% CI)	6.88 (5.86, 7.76)	9.72 (7.96, 11.78)	55.26 (52.45, 57.84)	20.94 (18.63, 23.45)	57.28 (54.43, 60.08)
Yes (participates in all 3 household decisions), % (95% CI)	93.32 (92.24, 94.14)	90.38 (88.22, 92.04)	44.84 (42.16, 47.55)	79.06 (76.55, 81.37)	42.72 (39.92, 45.57)
Score on a 0–3 scale, mean (95% CI)	2.91 (2.89, 2.92)	2.93 (2.82, 2.29)	1.97 (1.86, 1.98)	2.59 (2.54, 2.65)	1.65 (1.58, 1.73)
Gender norms: accepts attitudes justifying wife-beating					
No, % (95% CI)	73.54 (71.59, 75.39)	91.78 (90.08, 93.21)	42.50 (39.58, 45.47)	54.14 (51.27, 56.98)	28.14 (25.67, 30.76)
Yes (in ≥1 circumstance), % (95% CI)	26.46 (24.61, 28.41)	8.22 (6.79, 9.92)	57.50 (54.53, 60.42)	45.86 (43.02, 48.73)	71.86 (69.24, 74.33)
Score on a 0–5 scale, mean (95% CI)	0.59 (0.53, 0.65)	0.15 (0.12, 0.18)	1.69 (1.59, 1.80)	1.17 (1.08, 1.26)	2.48 (2.35, 2.61)
Gender norms: believes woman cannot refuse sex to husband					
No, % (95% CI)	72.98 (71.11, 74.78)	82.82 (80.39, 84.99)	71.13 (68.42, 73.70)	90.21 (88.59, 91.61)	70.02 (67.0, 72.33)
Yes (in ≥1 circumstance), % (95% CI)	27.02 (25.22, 28.89)	17.18 (15.01, 19.61)	28.87 (26.3, 31.58)	9.79 (8.39, 11.41)	29.98 (27.67, 32.40)
Score on a 0–3 scale, mean (95% CI)	0.41 (0.38, 0.45)	0.23 (0.20, 0.26)	0.52 (0.47, 0.57)	NA[a]	NA[a]
Financial autonomy: woman's earnings relative to husband's earnings, % (95% CI)					
Earns about the same	11.98 (10.87, 13.18)	17.60 (15.58, 19.82)	3.54 (2.77, 4.52)	11.65 (10.41, 13.01)	2.74 (2.05, 3.66)
Woman earns more/husband doesn't earn	13.00 (11.79, 14.32)	7.55 (6.24, 9.09)	3.88 (3.07, 4.90)	3.02 (2.44, 3.73)	2.46 (1.91, 3.16)
Woman earns less	31.52 (29.58, 33.53)	52.59 (49.9, 55.27)	11.10 (9.66, 12.71)	14.23 (12.81, 15.78)	19.05 (17.12, 21.13)
Woman does not earn (unemployed or unpaid)	43.49 (41.25, 45.77)	22.26 (19.93, 24.78)	81.48 (79.38, 83.41)	71.11 (68.93, 73.19)	75.75 (73.4, 77.96)
Financial autonomy: woman's perceived control over husband's earnings, % (95% CI)					
Woman and husband jointly	72.23 (70.37, 74.01)	78.96 (76.44, 81.28)	60.39 (58.25, 62.48)	70.87 (68.71, 72.95)	47.26 (44.59, 49.94)
Woman alone/husband has no earnings	22.31 (20.60, 24.11)	12.30 (10.48, 14.38)	12.54 (11.09, 14.14)	7.90 (6.77, 9.19)	9.46 (8.15, 10.96)
Woman has no control (husband alone or someone else)	5.46 (4.70, 6.34)	8.74 (7.28, 10.47)	27.07 (25.36, 28.86)	21.23 (19.16, 23.46)	43.28 (40.81, 45.78)
Community-level variables (continuous)					
Community poverty,[b] Median (Min-Max)	0.00 (0.00–89.47)	0.00 (0.00–100.00)	9.38 (0.00–100.00)	11.54 (0.00–85.71)	0.00 (0.00–100.00)
Community acceptance of wife-beating,[c] Median (Min-Max)	13.33 (0.00–83.33)	5.56 (0.00–57.14)	59.38 (0.00–100.00)	47.83 (0.00–97.06)	71.88 (0.00–100.00)
Community female financial dependency,[d] Median (Min-Max)	47.06 (6.67–100.00)	29.41 (0.00–90.00)	83.33 (31.57–100.00)	75.76 (25.00–100.00)	78.05 (26.32–100.00)
No. of observations (unweighted sample)	4053	1932	3932	4361	4093
Population size (weighted sample)	3804	1830	3452	3833	3812
No. of primary sampling units (PSUs)	400	498	318	316	356
No. of strata	2	53	17	18	9

Note. DHS = Demographic and Health Survey; NA = not applicable; PSU = primary sampling unit. Ellipses indicate that category was not available.
[a]The scale in Kyrgyzstan and Tajikistan included only 1 item.
[b]% of women in PSU in the lowest wealth quintile.
[c]% of women in PSU who justify wife-beating in ≥1 circumstance.
[d]% of women in PSU who have no earnings: unemployed or unpaid.

for specification errors, and I demonstrated good model fit.

RESULTS

As presented in Table 2, compared with Eastern European countries (Moldova and Ukraine), women in Azerbaijan and the 2 Central Asian states (Kyrgyzstan and Tajikistan) had more children, lived in larger households, were legally married (more than 99.5%), and had been married only once (>95%). Except for Tajikistan, on average, women completed high school education (10–11 years), which was universal and free in the post-Soviet countries. The level of education and other indicators of women's empowerment were highest among respondents from Ukraine and lowest among women in Tajikistan. The majority of married women in Azerbaijan and the 2 Central Asian countries had limited financial autonomy, and more than 70% reported having no earnings. In Moldova, more women had unemployed husbands or earned more than their spouses, had spouses with drinking problems, and twice as many witnessed violence in the family of origin compared with women in the 4 other countries.

Within each country, the poverty and status of women differed substantially across communities. The percentage of poor households within regional clusters ranged from zero up to 100% in some countries. In Tajikistan, on average, 72% of women within any given regional cluster justified wife beating in 1 or more circumstances, compared with 13% in Moldova and 6% in Ukraine.

Although Moldova, Kyrgyzstan, and Tajikistan demonstrated a comparable prevalence of current spousal violence (e.g., 13%–17% reported experiencing physical IPV in the last 12 months), Azerbaijan and Ukraine had a prevalence that was twice as low (Figure 1).

Intercept-Only Model

In each country, intercept-only models demonstrated statistically significant intercept variances, suggesting nonignorable variability in current spousal violence across regional clusters or communities (Table 2). The ICC ranged from $\rho = 0.19$ in Tajikistan to $\rho = 0.08$ in Moldova and Kyrgyzstan (the 2 smallest nations), which indicated that in Tajikistan approximately 19% of the variance in spousal
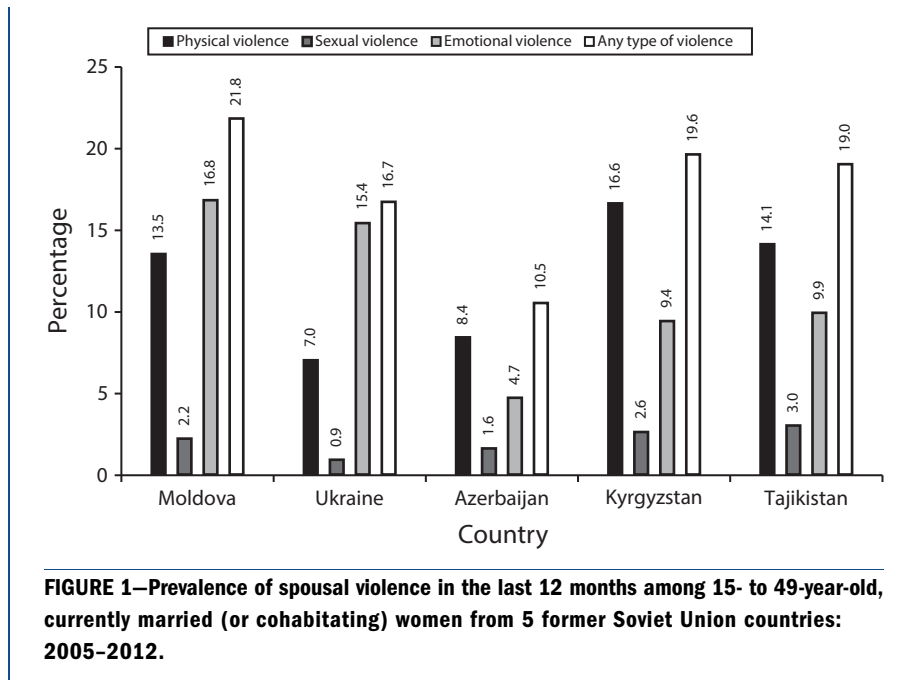

FIGURE 1—Prevalence of spousal violence in the last 12 months among 15- to 49-year-old, currently married (or cohabiting) women from 5 former Soviet Union countries: 2005–2012.

violence was between regional clusters, with the remainder of spousal violence variability occurring within clusters.

Individual Factors and Current Spousal Violence

Socioeconomic status. As shown in Table 3, women's education reduced exposure to any type of spousal violence in Moldova (odds ratio [OR] = 0.92) and Tajikistan (OR = 0.96). Poor households were at elevated risk for spousal violence (OR = 1.81) only in Moldova, and husbands' higher level of education was associated with a reduced risk of violence (OR = 0.91) only in Moldova.

Family risk factors. Across all 5 countries, women were more likely to experience spousal violence in the last 12 months if their partners drank to the point of intoxication (ORs ranged from 2.22 in Azerbaijan to 3.60 in Kyrgyzstan) and if women reported violence in the family of origin (ORs ranged from 2.02 in Moldova to 3.04 in Kyrgyzstan; Table 3).

Women's empowerment and financial autonomy. In all 5 countries, women who currently experienced violence also approved more of patriarchic gender norms that justified wife beating (from OR = 1.39 in Moldova to OR = 2.69 in Kyrgyzstan; Table 3). In Eastern European countries (Moldova and Ukraine)

and Azerbaijan, women with greater decision-making autonomy in the family reported lower odds of experiencing violence (from OR = 0.49 in Ukraine to OR = 0.66 in Azerbaijan). However, decision-making power was not associated with spousal violence in the more traditional countries of Central Asia.

In Kyrgyzstan, women with higher financial power than their spouses (earning more than their husbands or having husbands with no earnings) showed increased exposure to any spousal violence (OR = 1.82; Table 3) compared with having the same earnings as their husbands. In Ukraine, a similar relationship was observed for physical violence; the odds of experiencing physical abuse were twice as high for wives who earned more than their husbands (OR = 2.83; 95% CI = 1.22, 6.58; data not shown). Along the same line, in Moldova, women with lower financial autonomy (having no earnings or earning less than their husbands) demonstrated reduced exposure to any spousal violence (OR = 0.70 and OR = 0.60, respectively). Similarly, women who controlled family income alone or had husbands with no earnings reported higher risks of any spousal violence in Moldova (OR = 1.23) and Ukraine (OR = 1.89) compared with women who had joint control over family income.

TABLE 3—Multilevel Logistic Regression Models for Any Type of Spousal Violence in the Last 12 Months Among Currently Married Women in 5 Former Soviet Union Countries: 2005–2012

Variables	Eastern Europe		Caucasus	Central Asia		
	Moldova, OR (95% CI)	Ukraine, OR (95% CI)	Azerbaijan, OR (95% CI)	Kyrgyzstan, OR (95% CI)	Tajikistan, OR (95% CI)	Tajikistan (With Interactions), OR (95% CI)
Constant	0.08*** (0.04, 0.13)	0.08*** (0.04, 0.16)	0.03*** (0.01, 0.08)	0.04*** (0.02, 0.08)	0.04*** (0.01, 0.10)	0.07*** (0.02, 0.23)
Sociodemographics						
Woman's education	0.92* (0.88, 0.96)	0.96 (0.91, 1.01)	0.97 (0.93, 1.02)	1.03 (0.99, 1.08)	0.96* (0.92, 0.99)	0.96* (0.92, 0.99)
Partner's education	0.91*** (0.88, 0.95)	0.95 (0.90, 1.00)	0.97 (0.93, 1.01)	0.98 (0.94, 1.01)	0.99 (0.96, 1.03)	0.99 (0.96, 1.03)
Poor household wealth	1.81*** (1.37, 2.40)	1.04 (0.65, 1.66)	0.78 (0.57, 1.05)	0.89 (0.71, 1.11)	0.92 (0.67, 1.26)	0.92 (0.67, 1.26)
Family risk factors						
Father beating mother	2.02*** (1.70, 2.40)	2.70*** (1.93, 3.78)	2.10*** (1.67, 2.65)	3.02*** (2.45, 3.71)	2.26*** (1.76, 2.91)	2.26*** (1.76, 2.91)
Partner's drinking problem (Ref: no)	3.36*** (2.71, 4.16)	3.11*** (2.23, 4.34)	2.22*** (1.77, 2.79)	3.60*** (3.03, 4.28)	3.26*** (2.63, 4.05)	3.26*** (2.62, 4.05)
Women's empowerment						
Has decision-making autonomy (Ref: no)	0.58*** (0.44, 0.77)	0.49** (0.31, 0.78)	0.66*** (0.51, 0.85)	0.91 (0.71, 1.17)	1.02 (0.82, 1.29)	1.03 (0.82, 1.29)
Accepts attitudes justifying wife-beating (Ref: no)	1.39*** (1.14, 1.70)	1.79*** (1.15, 2.79)	2.41*** (1.85, 3.15)	2.69*** (2.22, 3.25)	1.50*** (1.20, 1.89)	3.12*** (1.47, 6.60)
Believes woman cannot refuse sex (Ref: no)	0.89 (0.74, 1.08)	1.67** (1.19, 2.33)	1.27* (1.02, 1.59)	0.82 (0.62, 1.08)	1.06 (0.86, 1.31)	1.06 (0.86, 1.31)
Woman's earning relative to husband (Ref: about the same)						
Woman earns more or husband doesn't earn	0.92 (0.67, 1.26)	1.31 (0.73, 2.34)	1.22 (0.56, 2.69)	1.82* (1.10, 3.02)	2.10 (0.89, 4.99)	2.09 (0.88, 5.01)
Woman earns less	0.70* (0.54, 0.92)	1.00 (0.67, 1.51)	1.03 (0.53, 2.03)	1.39 (0.98, 1.98)	2.19* (1.08, 4.47)	2.24* (1.09, 4.61)
Woman doesn't earn	0.60*** (0.46, 0.79)	0.78 (0.48, 1.27)	0.93 (0.51, 1.72)	1.32 (0.97, 1.81)	2.12* (1.05, 4.27)	2.16* (1.06, 4.38)
Perceived control over husband's earnings (Ref: jointly)						
Woman alone or husband has no earnings	1.23* (1.00, 1.50)	1.89** (1.28, 2.80)	1.12 (0.81, 1.55)	0.81 (0.57, 1.17)	1.00 (0.73, 1.36)	1.00 (0.73, 1.36)
Woman has no control	2.02*** (1.47, 2.79)	2.00* (1.20, 3.34)	1.46** (1.14, 1.88)	1.02 (0.79, 1.32)	1.21 (0.96, 1.53)	1.20 (0.95, 1.52)
Community-level factors						
Community poverty	0.33** (0.16, 0.66)	1.62 (0.66, 3.98)	2.71** (1.42, 5.19)	1.57 (0.87, 2.82)	0.66 (0.34, 1.28)	0.64 (0.33, 1.25)
Community acceptance of wife-beating	2.33* (1.12, 4.88)	1.34 (0.94, 1.90)	1.11 (0.48, 2.56)	1.40 (0.71, 2.78)	0.52 (0.26, 1.01)	1.03 (0.40, 2.65)
Community female financial dependency	1.26 (0.61, 2.59)	0.47 (0.16, 1.39)	0.46 (0.15, 1.47)	0.31* (0.14, 0.72)	1.23 (0.52, 2.90)	0.41 (0.12, 1.47)
Interactions						
Community acceptance of wife-beating × woman's tolerance of wife-beating						0.32* (0.10, 0.98)
Community female financial dependency × rural						6.52* (1.30, 32.74)
Random effects						
Intercept only (empty) model Intraclass correlation	0.08	0.15	0.13	0.08	0.19	0.19
Community-level variance (SE)	0.28*** (0.07)	0.57*** (0.18)	0.49*** (0.11)	0.28*** (0.06)	0.77*** (0.13)	0.77*** (0.13)

Continued

TABLE 3—Continued

Intercept as outcome model					
Intraclass correlation					
0.04	0.13	0.03	0.04	0.09	0.10
Community-level variance (SE)					
0.15** (0.06)	0.49*** (0.19)	0.10 (0.07)	0.13*** (0.05)	0.33*** (0.09)	0.35*** (0.09)
No. of observations					
4053	1932	3932	4361	4093	4093
No. of clusters					
400	485	318	316	355	355

Note. CI = confidence interval; OR = odds ratio. All models are adjusted for age, rural/urban residence and country's geographic regions. Measures of woman's and partner's education are centered around the grand mean.
*P < .05; **P < .01; ***P < .001.

However, having limited financial autonomy was also associated with an increased risk of violence in all 5 countries. In Moldova, Ukraine, and Azerbaijan, IPV was manifested through lack of control over family income; women who had no control over their spouses' earnings reported higher odds of experiencing violence (from OR = 1.46 in Azerbaijan to OR = 2.02 in Moldova; Table 3). In the Central Asian countries, women with no earnings and who earned less than their spouses demonstrated a higher likelihood of any violence in Tajikistan (OR = 2.19 and OR = 2.12, respectively) and physical violence in Kyrgyzstan OR = 1.52; 95% CI = 1.05, 2.19 and OR = 1.40; 95% CI = 1.01, 1.94, respectively; data not shown) compared with women who earned about the same as their husbands.

Community-level factors. After controlling for individual-level factors, including household poverty status, concentration of poverty aggregated at the cluster level seemed to explain between-cluster variation in spousal violence. In Azerbaijan, the likelihood of any spousal violence increased with higher community poverty (OR = 2.71), whereas in Moldova, community poverty was associated with a lower prevalence of spousal violence (OR = 0.33; Table 3).

Living in communities with higher approval of wife beating significantly increased the likelihood of any violence in Moldova (OR = 2.33; Table 3) and physical violence in Ukraine (OR = 1.77; 95% CI = 1.05, 3.0; data not shown). Subsequent analysis demonstrated a statistically significant, cross-level interaction effect between community acceptance of wife beating and women's individual beliefs about violence (OR = 0.32; 95% CI = 0.10, 0.98). Women who justified domestic violence while living in communities with higher approval of wife beating demonstrated a lower risk of spousal violence (OR = 0.33; 95% CI = 0.14, 0.75) compared with women who lived in these communities but who rejected these patriarchic gender beliefs (OR = 1.03; 95% CI = 0.40, 2.65).

Living in communities' where many women were financially dependent on their husbands reduced the risk of any spousal violence in Kyrgyzstan (OR = 0.31; 95% CI = 0.14, 0.72) and physical violence in Azerbaijan (OR = 0.28; 95% CI = 0.08, 0.97; data not shown).

The models with contextual variables contributed to a significant reduction in intercept variance in all 5 countries. Although in Ukraine, the ICC decreased to 0.13, and in Tajikistan, it reduced to 0.09, it remained above the nonignorable cutoff score of 0.05, which indicated that a significant portion of intercept variance remained unexplained in these 2 countries.

DISCUSSION

My findings suggest the importance of simultaneously examining individual and contextual factors associated with spousal violence in fSU countries. Although poor families were often vulnerable for abuse, as documented in the United States, Australia, Mexico, and Bangladesh,[53–56] I found that the effect of household poverty on IPV was significant only in Moldova. My findings suggest that woman's access to income and family resources was more predictive of her exposure to spousal violence than the household's overall wealth. In the more traditional context of Azerbaijan and the 2 Central Asian fSU countries, where the majority of married women were unemployed, women's low financial power was linked to spousal abuse. Financially dependent women might be more likely to stay in an abusive relationship.[57,58] Nonetheless, in 2 Eastern European fSU countries and Kyrgyzstan, women who had greater financial power than their spouses were at higher risk for spousal violence. Women's access to financial resources, especially in the context of high unemployment among men, was found to increase spousal abuse in Bangladesh, India, and Peru, which suggested context-specific and nonlinear relationships with income.[4,9,11,59,60] This finding is particularly important because economic empowerment programs for women are gaining popularity in developing countries,[61–63] and program developers should be aware of the potential risks of spousal violence associated with women's changing financial status. Female financial power in the context of high male unemployment and other indicators of husbands' low socioeconomic status have not been captured well by previous theoretical models of spousal violence and should be investigated further.

Gender beliefs potentially mediate the relationship between IPV and education.[3,24] After adjusting for other measures of women's

empowerment status, women's education remained significant mainly in Tajikistan, which is a finding similar to other countries with a wide gender gap in education, such as Bangladesh[47] and India.[4] By contrast, partners' education remained a significant factor in Moldova, highlighting the importance of examining partner-level predictors in the future.

Partners' problem drinking remained the strongest factor associated with current IPV in all 5 countries, followed by violence in the family of origin. Eastern European countries have a high level of alcohol consumption,[64] with 26.5% of the adult male population in Ukraine diagnosed with an alcohol-related disorder.[65] Studies in other countries suggest that the relationship between partners' problem drinking and IPV is not spurious,[9,10,54,66–69] and therefore, programs addressing substance use could potentially reduce spousal violence in the fSU region. Intergenerational abuse is predictive of future IPV among men as "perpetrators."[11,16,28,70] Pathways linking parental violence witnessed by women and current violent marital relationship are unclear and should be explored further.[9,28,67,71,72]

Similar to other DHS studies,[10,36,73] women with a history of violence in all 5 countries demonstrated higher attitudinal acceptance of IPV. However, in a couples study in Moldova, after controlling for partners' attitudes to wife beating, a woman's tolerance for IPV did not affect her chances of ever being abused.[17] Previous studies in India and Nigeria have shown that spousal violence is greater in communities with a high tolerance of abuse.[5,36] A similar effect has been confirmed for Moldova and Ukraine, the 2 countries where wife beating attitudes were not very prevalent (5%–13%). In traditional Muslim countries (Azerbaijan, Kyrgyzstan, and Tajikistan), reports of spousal IPV were lower in more conservative communities with strong patriarchal gender beliefs or higher financial dependency on husbands. I further identified that endorsing publically held wife beating beliefs showed a protective effect. This finding might suggest underreporting of violence in more conservative communities. Alternatively, the results might indicate that violence remains low when societal expectations were met, whereas a shift in traditional gender norms and role reversal—when men are unable to meet breadwinning

responsibilities and women are increasingly assuming financial duties and challenging gender norms—might change family power dynamics and put a strain on marital relations.

Finally, previous literature has documented that family violence is higher in economically deprived neighborhoods.[35,74,75] Women exhibited an elevated risk of spousal violence in poor communities in Azerbaijan, an oil-rich country that experienced rapid economic growth that exacerbated inequalities. However, an opposite or protective effect of community poverty was observed in Moldova, one of the most impoverished countries in the region. This might support an argument that widening economic disparities and not just poverty contributed to violence, and therefore, prevention efforts should not exclusively target poor households or poor communities.

Limitations

The cross-sectional nature of the data precluded from making causal inferences. Interviewer-administered surveys could minimize disclosure of violence. Community measures were drawn from individual responses, but these could be improved by collecting direct information about community characteristics. The proxy measure of male unemployment ("women's earnings relative to husbands' income") underestimated unemployment among men compared with reports from the DHS Male Questionnaire (e.g., 19% in Ukraine, 29% in Azerbaijan, and 34% in Moldova).[22,39,40] Regional clusters as units of regional analysis might not necessarily represent cohesive neighborhood structure and might be merely technical geographic divisions, similar to zip codes in the United States, which might affect measures of shared community characteristics. Future studies should identify mediating mechanisms linking key risk factors with IPV, incorporate male responses, and examine violence in the context of marital dyads.

Conclusions

These findings lay ground for future research on risk and protective factors in fSU that could inform local violence prevention programs and contribute to an efficient use of limited financial and human resources to combat IPV in transitional countries. A substance abuse component should be incorporated into

the interventions aimed at reducing IPV. Changing attitudes of individual women who live in abusive relationships could be challenging, particularly in more traditional societies of the Caucasus and Central Asia, where women are often financially dependent on the abuser and where divorce is not accepted by the society. IPV prevention programs should target the entire family unit and community members (neighbors, friends, and other family members) instead of accentuating family conflicts and creating tensions by exclusively focusing on women at risk for abuse. ∎

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Human Participant Protection

No human participant protection was required because the study utilized secondary, de-identified data.

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