

# Quantifying the Ripple Effects of Civil War: How Armed Conflict Is Associated with More Severe Violence in the Home

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## Abstract

Both the fields of public health and that of human rights seek to improve human well-being, including through reducing and preventing all forms of violence, to help individuals attain the highest quality of life. In both fields, mathematical methods can help “visibilize” the hidden architecture of violence, bringing new methods to bear to understand the scope and nuance of how violence affects populations. An increasing number of studies have examined how residing in a conflict-affected place may impact one of the most pervasive forms of violence—intimate partner violence (IPV)—during and after conflict. This paper contributes to this effort by examining whether severe forms of IPV are associated with previous experience of political violence in one conflict-affected country: Liberia. Our findings indicate that living in a district with conflict fatalities increased the risk of IPV among women by roughly 60%. Additionally, living in a district with conflict fatalities increased the risk of a past-year injury from IPV by 50%. This analysis brings to light links between two of the most pervasive forms of violence—political violence and violence against women. The findings suggest that women residing in a district that is more highly affected by conflict, not only people experiencing direct trauma during conflict, may be at risk of increased violence long after peace is declared. These findings point to the need for targeted programs that address IPV postconflict.

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Competing interests: None declared.

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## Introduction

Violence, including political conflict and interpersonal violence, accounts for a significant burden of injury and death worldwide.<sup>1</sup> For the purposes of this paper, political violence is defined as “the use of force by a group with a political purpose or motivation.”<sup>2</sup> Interpersonal violence is defined as “the intentional use of physical force or power, threatened or actual, against another person, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation.”<sup>3</sup>

Both the fields of public health and that of human rights seek to improve human well-being, including through reducing and preventing all forms of violence, to help individuals attain the highest quality of life. The right to health and the right to live a life free from violence are enshrined in human rights law and promoted by the World Health Organization (WHO).<sup>4</sup> While addressing violence is core to both human rights and public health, each field leverages distinct approaches to understand the abuses that threaten human well-being.

One of the ways that human rights efforts have historically sought to mobilize action is through advocacy. In many cases, the images associated with atrocities—in media portrayals and through victim narratives—have played a key role in engaging global attention and action. Yet, feminist and post-colonial scholars have interrogated how “atrocities aesthetics” can distort our understanding, privileging certain forms of victimization while dismissing others.<sup>5</sup> As noted by Randle DeFalco, “dominant socially shared understandings of what constitutes an atrocity are grounded in an aesthetic model of large-scale harm causation that is comprised of two key elements: spectacle and familiarity.”<sup>6</sup> Media accounts can both amplify and distort human rights advocacy, narrating and re-narrating stories that play into comfortable understandings of what atrocities look like—a practice that can occlude an accurate understanding of how and where abuses occur.<sup>7</sup>

To address this challenge, a number of human rights organizations have sought to ground

advocacy narratives in systematic analyses of data, a practice that has become increasingly common in recent decades.<sup>8</sup> The field of public health is founded on a strong tradition of conducting large-scale systematic efforts to quantify morbidity and mortality through population-based surveys, clinical records, rapid needs assessments, and other approaches. As each field grapples with the ability to collect and analyze ever larger data sets with increasingly sophisticated analytical techniques, they can learn from and complement each other.

Mathematical methods in particular can help “visibilize” the hidden architecture of violence, bringing new methods to bear to understand the scope and nuance of how violence affects populations. By helping lay bare patterns of abuse that may not conform to our understanding of “typical” atrocities, these approaches can represent a powerful tool to advance the twin pursuits of public health and human rights to recognize and address grave harms. Perhaps nowhere is this leveraging of empirical methods more important than for a form of violence that is notoriously hidden—gender-based violence (GBV).

GBV refers to any harmful act that is perpetrated against a person’s will and that is based on socially ascribed gender differences between males and females; it is one of the most prevalent forms of interpersonal violence and has been called one of the most pervasive forms of human rights violations worldwide.<sup>9</sup> Globally, it is among the top 10 causes of disability-adjusted life years lost and disproportionately affects women.<sup>10</sup> GBV not only carries severe physical, psychological, and social consequences but also keeps women from fully engaging in political and economic systems.<sup>11</sup>

The past four decades have witnessed a belated recognition that addressing GBV is fundamental to protecting human rights. A succession of meetings and international commitments in the 1990s recognized the vital importance of violence prevention as a public health and human rights imperative.<sup>12</sup> One of the most common forms of GBV is intimate partner violence (IPV). WHO defines IPV as “behavior by an intimate partner or ex-partner that causes physical, sexual or psycho-

logical harm, including physical aggression, sexual coercion, psychological abuse and controlling behaviours.” As governments turned their attention the prevention of GBV, including IPV, there was a call for rigorous, population-based research that could provide an empirical foundation for action.<sup>13</sup> This call mirrored a wider trajectory in the field of human rights to draw on epidemiological methods and population-based data to examine some of the most hidden forms of violence, particularly in conflict and crisis. Oskar Thoms and James Ron trace the influence of methods used to quantify the cost of conflict, noting that “epidemiologists are gradually demonstrating that most existing studies grievously underestimate war’s overall human cost by failing to capture its indirect and long-term impacts.”<sup>14</sup>

An increasing number of studies have begun examining how residing in a conflict-affected place may impact IPV during and after conflict.<sup>15</sup> This paper aims to contribute to this continued effort by examining whether severe forms of IPV are associated with previous experience of political violence in one conflict-affected country: Liberia. The conclusion will explore the long-term repercussions of conflict for individuals and communities, and the implications for public health and human rights.

### *Beyond battle deaths: Quantifying the ripple effects of war*

Increasingly, studies have documented the detrimental impacts of conflict, looking not only at excess mortality but also at a range of other health outcomes, including injury, trauma, and disease.<sup>16</sup> A central conundrum, however, is that the chaotic nature of war has made the systematic examination of its human impact difficult or impossible. Christopher Murray et al. discuss how examining the health impact of conflict has fallen into a limbo between the fields of public health and political science and receives inadequate attention from both.<sup>17</sup> However, new techniques to measure physical and mental health are changing existing understandings of the impact of war. A number of efforts have taken the first steps to estimate the direct and indirect effects of political instability in new ways.

Population-based surveys that draw on family health history and verbal autopsy have proven effective in documenting the impact of conflict in a number of countries, as have nesting mortality assessments within other planned assessments.<sup>18</sup> These techniques have shown that indirect causes of death—such as inadequate access to water, sanitation, and health services—have accounted for most civilian deaths and have had a differentially large impact on children and early teens.<sup>19</sup>

### *Violence: From political conflict to interpersonal violence*

One of the newest frontiers in understanding conflict involves quantifying how political violence may impact human aggression even after formal peace is declared. An increasingly rich body of literature documents the “contagion” of violence. Like diseases and many complex social phenomena, violence can be transmitted across individuals, groups, generations, and different levels of social organization.<sup>20</sup>

Together, political violence and GBV, including IPV, represent two of the most pressing affronts to human rights and well-being throughout the world; understanding how these abuses are linked will help advance an understanding of how cycles of violence can potentially be disrupted.<sup>21</sup> Globally, 35% of women globally have been victims of physical or sexual abuse during their lifetime.<sup>22</sup> In turn, war accounts for roughly one-fifth of deaths globally.<sup>23</sup>

IPV can be a major factor affecting the physical and mental health of individuals before, during, and after conflict.<sup>24</sup> Because it occurs in homes rather than in theaters of war and may be condoned or overlooked because of cultural norms, IPV is often far less visible than conflict-related sexual violence.<sup>25</sup> This form of abuse, however, may be more common than sexual violence perpetrated by armed actors during war.<sup>26</sup> Relatively few studies have examined how political violence at the community level may impact IPV, though this field is rapidly expanding to understand how residing in a conflict-affected place may impact IPV after peace has been declared.<sup>27</sup> However, previous re-

search from Liberia has shown that residence in a fatality-affected district in Liberia was significantly associated with a 50% increase in IPV and increases in nonpartner physical violence.<sup>28</sup>

This paper aims to extend this body of work by examining whether severe forms of IPV are associated with previous experience of political violence. The multilevel analysis focuses on a single conflict-affected setting—Liberia—and leverages household-based survey data collected through Liberia's Demographic and Health Survey (DHS) for IPV outcomes, and data gathered from the ACLED database for political violence exposures. Results are discussed in the context of the long-term impact of conflict on individuals and communities, and the implications for public health and human rights.

### *Liberia country profile*

Situated in West Africa, Liberia is one of the continent's smaller countries. In 1979, riots broke out in the country in reaction to rising prices of rice, economic stagnation, and increasing tension between the Americo-Liberian population and Indigenous groups.<sup>29</sup> The ensuing unrest launched the first Liberian war (1985–1996). From 1989 to 1997, according to national-level data, the countrywide conflict resulted in the deaths of over 150,000 Liberians.<sup>30</sup> In 1999, antigovernment fighting once again broke out. Rebel groups entered Liberia from neighboring countries and fighting became widespread in the following year.<sup>31</sup> The Second Liberian Civil War (1999–2003) ended after international intervention, when a peace agreement was signed and rebel troops were demobilized. In both wars, combatants were both victims and perpetrators of human rights abuses, including rape, torture, and murder.<sup>32</sup>

## Study data and methods

### *Analytic sample*

This study combines geo-coded information from two existing datasets: the Liberia DHS, which provides individual-level data on health and social outcomes in 2007—four years after the Liberian Civil War—and ACLED, which provides informa-

tion on the number of conflict events and fatalities occurring during Liberia's civil unrest from 1999 to 2003.<sup>33</sup> We chose the 2007 Liberia DHS because it provides the first population-based data in Liberia after the conflict. While other DHSs are more recent, they represent a longer lag between the conflict and the outcomes we are seeking to understand. In the 2007 DHS, 7,092 of 7,448 women sampled completed the survey. Of these, a total of 4,913 women were sampled for the domestic violence module. Roughly 400 individuals were not given a geographic identifier in the DHS dataset, representing 8.4% of the sample, leaving 4,502 women. Of these 4,502 women, just over 80% (n=3,648) were administered questions about intimate partner violence because they reported being currently or formerly in a union. Over 98% of the sample (n=3,596 women) responded to this question and are thus eligible for inclusion in the analysis.

### *Severe intimate partner violence in the past 12 months*

Ever-partnered women were classified as having experienced partner physical violence or partner sexual violence within the last 12 months if they replied “yes” to at least one item from Table 1 and responded that the violence occurred “sometimes” or “often” within the last 12 months.

Severe IPV is defined by WHO “on the basis of the severity of the acts of physical violence: being beaten up, choked or burnt on purpose, and/or being threatened or having a weapon used against you is considered severe. Any sexual violence is also considered severe.”<sup>34</sup> Those women who reported any of the forms of violence from items iv–vii were defined as having experienced severe IPV. Those women who responded having experienced any of the forms of violence from items viii or ix were defined as having experienced sexual IPV. This approach is in keeping with other studies that have looked at the severity of IPV.<sup>35</sup>

Our project assessed IPV in the categories given in Table 1: no IPV, less severe IPV, severe IPV, and sexual IPV. WHO categorizes sexual IPV within the severe category; we assessed this form of violence separately from physical violence to deter-

mine whether there might be differences between sexual and physical IPV. This approach reflects the fact that IPV often escalates from less severe to more severe, either during the same altercation or over time. Looking at only one form of violence while excluding less severe forms of violence would result in untenably small sample sizes for the analysis. Women are classified according to the most severe form of violence they have experienced during the past year, with sexual IPV considered the most severe.

*Injuries from intimate partner violence in the past 12 months*

Of those women reporting having experienced IPV, women were given three questions that assessed three different sets of injuries: (1) cuts, bruises, or aches; (2) burns, eye injuries, sprains, or dislocations; and (3) deep wounds, broken bones, broken teeth, or any other serious injury. Women who responded “yes” to any of the three questions were classified as having experienced injuries from past-year IPV.

*Primary predictor: Conflict exposure*

ACLED defines a politically violent event as “a single altercation where often force is used by one or more groups for a political end, although some instances, including protests and non-violent activity, are included in the dataset to capture the potential pre-cursors or critical junctures of a conflict.”<sup>36</sup> The quantification of politically violent events in Liberia allows us to characterize conflict in the country through fatalities and events—the primary expo-

sure for this analysis.<sup>37</sup> Events are any political incident, including clashes, protests, riots, and battles that occurred during the 1999–2003 civil war. If an event resulted in any deaths, then the number of fatalities were recorded. Thus, all fatalities occur as a result of a political event, but every event does not necessarily result in fatalities. The conflict measures were aggregated at the district level. There are 61 districts in Liberia, which are administrative areas defined by the national government. Districts were chosen because they are large enough areas to have large numbers of individuals and have heterogeneity across their levels of conflict exposure.

*Potential confounding variables*

Potential confounding variables measured for each woman were selected based on theory as well as by those variables that have been found to be significantly associated with interpersonal violence.<sup>38</sup>

*Model specification*

Multilevel regression models were used to quantify the associations between levels of IPV (multinomial model) and experience of IPV-related injury (logistic model) with district-level conflict. Models contained a random intercept defining the district. Separate models were constructed using the primary exposure and the two alternative conflict measures. All models included the potential confounding variables described above. To account for the complex survey design of the DHS, the survey weights for the DV module were included in all analyses.<sup>39</sup> Analyses were conducted with Stata/SE 14.0.

TABLE 1. Questions assessing intimate partner physical and sexual violence from Liberia’s 2007 Demographic Health Survey

Does/Did your (last) husband/partner ever do any of the following things to you?	
Less severe partner physical violence	(i) push you, shake you, or throw something at you (ii) slap you (iii) twist your arm or pull your hair
Severe partner physical violence	(iv) punch you with fists or something harmful (v) kick you, drag you, or beat you up (vi) try to choke you or burn you on purpose (vii) threaten or attack you with a knife, gun, or other weapon
Sexual intimate partner violence	(viii) physically force you to have sexual intercourse with him even when you did not want to (ix) force you to do any sexual acts you did not want to do

## Results

### *Severe intimate partner violence*

Of the 3,596 women asked about past-year IPV, 18.5% (n=665) stated they had experienced less severe IPV, 12.6% (n=454) reported severe IPV, and 8.3% (n=299) reported sexual IPV. As noted in the methods, violence often escalates from less to more

severe forms of IPV. This is borne out by the data below: 96% of women who experience severe IPV also experience less severe IPV. While sexual IPV does occur without physical IPV, roughly half of women experiencing sexual IPV also experience severe IPV (Table 2). The distribution of demographic characteristics of women across the different levels of IPV is given in Table 3.

TABLE 2. Prevalence of different forms of past-year IPV

	N (% of total sample)	% of total also experiencing less severe IPV	% of total also experiencing severe IPV
No IPV	2,178 (62.39%)	--	--
Less severe IPV only	526 (15.07%)	526 (100%)	--
Severe IPV (including women who also reported less severe IPV)	479 (13.72%)	461 (96.2%)	479 (100%)
Sexual IPV	308 (8.82%)	205 (17.2%)	145 (47.1%)
Total	3,491		

TABLE 3. Distribution of demographic variables across different forms of IPV

		N= 3,371			
		No IPV	Less severe IPV	More severe IPV	Sexual IPV
		N (%)	N (%)	N (%)	N (%)
Age (N, mean)		2178 (33.2)	526 (30.9)	479 (30.5)	308 (30.2)
Education	No education (ref)	1213 (50.9%)	267 (54.0%)	258 (50.6%)	156 (54.3%)
	Primary	651 (31.1%)	163 (32.4%)	155 (36.4%)	112 (31.0%)
	Secondary and above	314 (18.0)	95 (13.6%)	65 (13.0%)	40 (14.7%)
Religion	Christian (ref)	1822 (88.0)	463 (86.9)	416 (79.9)	246 (84.4)
	Muslim	270 (8.4)	44 (10.2)	49 (11.7)	36 (11.4)
	Other	86 (3.6)	19 (2.9)	14 (8.4)	26 (4.2)
Civil status	Married (ref)	1315 (51.7)	272 (49.9)	239 (61.7)	190 (57.6)
	Living together	681 (40.5)	213 (32.6)	156 (27.6)	85 (32.5)
	Widow/divorced	182 (7.8)	41 (17.5)	84 (10.7)	33 (9.7)
Partner education	No education (ref)	589 (28.6)	146 (27.3)	126 (29.5)	88 (28.0)
	Primary	457 (20.2)	103 (23.6)	109 (23.5)	70 (21.8)
	Secondary and above	1079 (51.2)	261 (49.1)	226 (47.0)	140 (50.2)
Age married (N, mean)		2178 (18.1)	526 (18.0)	479 (17.7)	308 (18.2)
Wealth	Poorest (ref)	580 (24.1)	127 (24.8)	119 (23.0)	71 (25.7)
	Poorer	522 (21.3)	112 (23.2)	111 (27.3)	84 (23.8)
	Middle	456 (20.2)	106 (19.8)	95 (22.1)	68 (20.8)
	Richer	367 (21.3)	112 (20.1)	101 (16.6)	51 (18.0)
	Richest	253 (13.1)	69 (11.1)	53 (11.0)	34 (11.7)
Employment	Didn't work in past 12 months	518 (29.0)	152 (28.0)	134 (24.5)	75 (25.3)
	Worked in past 12 months	1655 (71.0)	372 (72.0)	344 (75.5)	231 (74.7)
Aggregate violence measure	No violent experiences	682 (21.9)	115 (20.9)	100 (13.6)	42 (26.9)
	Violent experiences	1496 (78.10)	411 (79.1)	379 (86.3)	266 (73.1)
Alcohol	Partner doesn't drink alcohol	1532 (54.2)	284 (49.1)	235 (56.2)	172 (64.0)
	Partner drinks alcohol	634 (45.8)	240 (50.9)	244 (43.8)	134 (36.0)

**Analysis comparing districts with and without conflict fatalities.** Compared to women living in a district with no conflict fatalities, the unadjusted relative odds of women reporting less severe IPV versus no IPV were 2.24 times greater among women living in a district with conflict fatalities (95% confidence interval (CI): 1.60–3.13). A similar association is seen with regard to severe IPV: women reporting severe IPV versus no IPV were roughly two times greater among women living in a district with conflict fatalities compared to no fatalities (odds ratio (OR) 2.11,  $p < 0.0001$ ). Sexual IPV has a more attenuated relationship than the other forms of IPV to the conflict predictor. For a district experiencing fatalities versus no fatalities, the odds of sexual IPV compared to no IPV are 1.5 times higher with marginal significance (OR 1.51,  $p = 0.055$ ).

The adjusted relative odds of experiencing less severe IPV versus no IPV among women living in a district with no fatalities compared to a district with any conflict fatalities were 67% higher for women living in fatality districts compared to their counterparts living in fatality-free districts (aOR 1.67,  $p = 0.01$ ).

Women living in a district with any fatalities were 59% more likely to experience severe IPV than their counterparts living in fatality-free districts compared to the referent group (aOR 1.59,  $p < 0.001$ ). Being widowed or divorced (aOR 2.95,  $p < 0.001$ ), having a partner who drinks alcohol (aOR 2.88,  $p < 0.001$ ), and having any past violent experiences (aOR 1.89,  $p < 0.001$ ) were also risk factors for this abuse. Each additional year of age (aOR 0.96,  $p < 0.001$ ) was a protective factor.

Compared to women living in a district with no conflict fatalities, the adjusted relative odds of women reporting sexual IPV versus no IPV were 5% higher for women living in a district with conflict fatalities. However, this result was not significant (aOR 1.05,  $p = 0.80$ ) (Table 4).

Because this analysis parses the outcome into four levels, the sample size was too small to run across cumulative conflict event years. However, the additional injury analysis below provides some insight into how cumulative levels of conflict may be related to IPV.

### *Injuries resulting from intimate partner violence*

Of the 1,418 women who reported any form of past-year IPV, 1,397 answered questions about injuries resulting from that violence (97.8% response rate). From this sample, 30.2% ( $n = 419$ ) reported having an injury resulting from IPV.

**Analysis comparing districts with and without conflict fatalities.** In the adjusted model, living in a district with conflict fatalities was associated with a 50% increase in IPV-related injuries (aOR 1.52,  $p < 0.05$ ; Table 5). Other variables significantly associated with increased risk of injury were being widowed or divorced compared to currently married (aOR 2.67,  $p < 0.0001$ ); having a partner who drinks alcohol (aOR 1.87,  $p < 0.0001$ ); and having any previous experiences with violence (aOR 1.59,  $p < 0.05$ ). Protective factors were having a partner with primary versus no education (aOR 0.67,  $p = 0.01$ ) and being in the second-richest wealth quintile versus the poorest (aOR 0.59,  $p < 0.05$ ).

**Analysis of cumulative conflict event years.** A similar pattern is seen when looking at the burden injury while using a different measure of conflict. After adjusting for all independent variables in the final model, each additional conflict year was associated with an 11% increase in injuries associated with IPV (aOR 1.11,  $p < 0.05$ ) (Table 6).

### *Limitations*

The cross-sectional nature of the DHS limits the ability to draw causal conclusions about the impact of conflict on IPV. However, the fact that conflict events preceded the measurement of the outcomes helps establish a temporal, if not causal, relationship. Additional literature presented here supports the hypothesis that conflict may contribute to post-conflict IPV; however, this paper does not make causal claims. Because our analysis draws on secondary data, we were not able to design a survey that elicits additional pertinent information for this analysis (for instance, personal exposure to political violence). The DHS approach to measuring IPV can also be problematic, for it asks only ever-partnered women about IPV even though women in informal

or unstable relationships may also be at risk of IPV, and possibly at higher risk. Additionally, direct reporting to an interviewer may lead to systematic underreporting of this abuse.<sup>40</sup> Expanding this analysis to additional countries and undertaking qualitative work to better understand the dynamics and mechanisms at play in postconflict contexts would further our understanding of these issues.

## Discussion

The pursuit of human rights is to allow all humans—

regardless of age, sex, national or ethnic origin, or other status—to live a life of safety, dignity, and freedom.<sup>41</sup> Political violence and GBV represent some of the gravest threats to human rights globally.<sup>42</sup> In 1993, the United Nations Declaration on the Elimination of Violence against Women recognized violence against women and girls as a violation of human rights.<sup>43</sup> This global acknowledgement of women’s right to “equal enjoyment and protection of all human rights and fundamental freedoms” helped propel a recognition that GBV is unacceptable in all contexts.

TABLE 4. Multinomial model for past-year IPV with dichotomous district-level fatalities, unadjusted and adjusted associations

Less severe IPV (no IPV as reference)								
					N= 3,371			
Unadjusted association of less severe IPV								
					OR	P value	Low CI	High CI
					2.24	p<0.0001	1.60	3.13
Adjusted association of less severe IPV								
					aOR	P value	Low CI	High CI
Districts with fatalities					<b>1.67</b>	<b>0.01</b>	<b>1.12</b>	<b>2.48</b>
Age					<b>0.97</b>	<b>p&lt;0.001</b>	<b>0.96</b>	<b>0.98</b>
Number of children under 5					1.05	0.27	0.96	1.16
Education	No education (ref)				--	--	--	--
	Primary				1.19	0.28	0.87	1.65
	Secondary and above				1.45	0.07	0.98	2.13
Religion	Christian (ref)				--	--	--	--
	Muslim				0.76	0.38	0.41	1.41
	Other				0.85	0.45	0.56	1.29
Civil status	Married (ref)				--	--	--	--
	Living together				1.24	0.10	0.96	1.59
	Widow/divorced				1.12	0.53	0.78	1.59
Partner education	No education (ref)				--	--	--	--
	Primary				0.79	0.07	0.62	1.02
	Secondary and above				<b>0.77</b>	<b>0.05</b>	<b>0.59</b>	<b>1.00</b>
Age married					1.00	0.80	0.96	1.03
Wealth	Poorest (ref)				--	--	--	--
	Poorer				1.0	0.9	0.6	1.5
	Middle				1.0	0.9	0.7	1.5
	Richer				1.1	0.6	0.7	1.6
	Richest				0.9	0.8	0.5	1.7
Employment	Didn't work in past 12 months				--	--	--	--
	Worked in past 12 months				0.91	0.53	0.69	1.21
Aggregate violence measure	No violent experiences				--	--	--	--
	Violent experiences				<b>1.79</b>	<b>p&lt;0.001</b>	<b>1.25</b>	<b>2.56</b>
Alcohol	Partner doesn't drink alcohol				--	--	--	--
	Partner drinks alcohol				<b>2.16</b>	<b>p&lt;0.001</b>	<b>1.72</b>	<b>2.72</b>



For decades, scholars and advocates had challenged long-held beliefs that GBV was an inevitable and inherent by-product of war.<sup>44</sup> The declaration helped enshrine this belief in global doctrine. With an increased understanding of GBV during conflict came a recognition that some of the worst and most pervasive forms of violence during war included violence in the home.<sup>45</sup> Yet, we still have an incomplete understanding of how GBV changes during conflict, and how these changes persist after war has formally ended.

This paper represents a new contribution to

the literature examining whether the most severe forms of IPV are associated with previous experience of political violence. Living in a district that experienced conflict fatalities during war can increase the risk of experiencing severe and less severe forms of physical IPV, and being injured from IPV, in the postconflict period. Living in a district with any versus no conflict fatalities increased the risk of both less and more severe forms of IPV by roughly 60% for each form of violence compared to the referent group (no IPV).

Additionally, injury from IPV may serve as a

TABLE 4. *continued*

Severe IPV (no IPV as reference)					
					N= 3,371
Unadjusted association of severe IPV					
		OR	P value	Low CI	High CI
		2.11	p<0.0001	1.65	2.70
Adjusted association of severe IPV					
		aOR	P value	Low CI	High CI
Districts with fatalities		1.59	p<0.001	1.18	2.15
Age		0.96	p<0.001	0.94	0.97
Number of children under 5		1.06	0.30	0.95	1.19
Education	No education (ref)	--	--	--	--
	Primary	1.09	0.48	0.86	1.38
	Secondary and above	0.97	0.91	0.62	1.54
Religion	Christian (ref)	--	--	--	--
	Muslim	1.07	0.80	0.62	1.88
	Other	0.56	0.21	0.23	1.39
Civil status	Married (ref)	--	--	--	--
	Living together	1.04	0.81	0.73	1.49
	Widow/divorced	2.95	p<0.001	2.08	4.17
Partner education	No education (ref)	--	--	--	--
	Primary	1.12	0.58	0.75	1.68
	Secondary and above	0.92	0.50	0.71	1.18
Age married		0.99	0.47	0.95	1.02
Wealth	Poorest (ref)	--	--	--	--
	Poorer	1.12	0.61	0.72	1.76
	Middle	1.01	0.95	0.68	1.51
	Richer	1.22	0.30	0.83	1.79
	Richest	1.04	0.92	0.48	2.24
Employment	Didn't work in past 12 months	--	--	--	--
	Worked in past 12 months	0.91	0.41	0.72	1.14
Aggregate violence measure	No violent experiences	--	--	--	--
	Violent experiences	1.89	p<0.001	1.41	2.54
Alcohol	Partner doesn't drink alcohol	--	--	--	--
	Partner drinks alcohol	2.88	p<0.001	2.25	3.70

vital, but underreported, measure of the impact of violence in the home. Living in districts with any conflict fatalities increased the risk of a past-year injury from IPV by 50% ( $p < 0.05$ ). There was also an evident dose-response relationship: for each additional year that a district experienced at least one conflict event, the odds of a woman reporting an injury from IPV increased by 11% (OR 1.11,  $p < 0.05$ ).

Research from Uganda, Thailand, Peru, Burma, Cote D'Ivoire, and Liberia has found that women who have higher levels of conflict-related abuses also report higher levels of IPV victimiza-

tion during and after conflict.<sup>46</sup> This study adds to the growing literature on the links between violence that has begun to make evident the connection between political violence and postconflict IPV—and draws out additional information on how the most severe forms of IPV might be exacerbated. The findings from this and previous studies clearly show the subtle “ripple effects” of conflict on one of the most hidden forms of violence: IPV. Recognizing that violence may endure in communities after political conflict officially ends has implications for postconflict policy decisions, humanitarian

TABLE 4. *continued*

Sexual IPV (no IPV as reference)		N= 3,371			
Unadjusted association of severe IPV					
		OR	P value	Low CI	High CI
		1.51	0.055	0.99	2.29
Adjusted association of severe IPV					
		aOR	P value	Low CI	High CI
Districts with fatalities		1.05	0.80	0.71	1.56
Age		0.95	$p < 0.001$	0.94	0.97
Number of children under 5		1.00	0.97	0.88	1.14
Education	No education (ref)	--	--	--	--
	Primary	1.34	0.06	0.99	1.81
	Secondary and above	1.13	0.63	0.69	1.87
Religion	Christian (ref)	--	--	--	--
	Muslim	1.22	0.41	0.76	1.94
	Other	2.34	0.01	1.30	4.22
Civil status	Married (ref)	--	--	--	--
	Living together	0.65	0.04	0.43	0.97
	Widow/divorced	1.55	0.10	0.92	2.63
Partner education	No education (ref)	--	--	--	--
	Primary	0.91	0.58	0.65	1.27
	Secondary and above	0.78	0.11	0.57	1.06
Age married		1.03	0.05	1.00	1.06
Wealth	Poorest (ref)	--	--	--	--
	Poorer	1.46	0.07	0.97	2.19
	Middle	1.39	0.13	0.90	2.15
	Richer	1.36	0.23	0.82	2.26
	Richest	1.50	0.10	0.92	2.43
Employment	Didn't work in past 12 months	--	--	--	--
	Worked in past 12 months	1.07	0.68	0.77	1.49
Aggregate Violence Measure	No violent experiences	--	--	--	--
	Violent experiences	3.23	$p < 0.001$	1.89	5.54
Alcohol	Partner doesn't drink alcohol	--	--	--	--
	Partner drinks alcohol	2.19	$p < 0.001$	1.60	2.98

response, and public health efforts.<sup>47</sup>

The 2020 Global Peace Index describes a world emerging from the conflicts that have characterized the past decade, but moving toward continuing instability and uncertainty. Current conflicts are characterized by those same factors that are drivers of violence for women—not only during conflict but after: chronic poverty, a vacuum of state and civil institutions, poor access to health care and education, low levels of state accountability, and the risk of continuing instability. Without a better understanding of how two fundamental threats to human rights—war and GBV—are interlinked, we will be less prepared to address ongoing instability globally.

## Conclusion

The past two decades have highlighted synergies between the fields of public health and human rights.<sup>48</sup> One vitally important area of convergence is in the understanding of how best to document, prevent, and address violence, particularly during conflict and its aftermath. Large population-based studies and increasingly sophisticated statistical techniques have allowed us to improve our understanding of risk factors and impacts of violence and have shaped policies and the deployment of resources around this issue.<sup>49</sup>

The current analysis shows links between two of the most pervasive forms of violence—political violence and violence against women—and suggests that women residing in a district that is more

TABLE 5. Association of injuries related to IPV with dichotomous district-level fatalities

		N= 1,334			
		aOR	P value	Low CI	High CI
Districts with fatalities		1.52	<0.05	1.04	2.23
Age		1	0.693	0.99	1.02
Number of children under 5		0.89	0.108	0.78	1.02
Education	No education (ref)	--	--	--	--
	Primary	0.99	0.947	0.73	1.33
	Secondary and above	1.1	0.503	0.84	1.43
Religion	Christian (ref)	--	--	--	--
	Muslim	1.12	0.573	0.75	1.69
	Other	0.94	0.837	0.49	1.77
Civil status	Married (ref)	--	--	--	--
	Living together	1.18	0.268	0.88	1.57
	Widow/divorced	2.67	<0.001	1.88	3.80
Partner education	No education (ref)	--	--	--	--
	Primary	0.67	0.01	0.49	0.91
	Secondary and above	0.88	0.4	0.65	1.19
Age married		0.98	0.21	0.94	1.01
Wealth	Poorest (ref)	--	--	--	--
	Poorer	0.99	0.98	0.69	1.45
	Middle	1.1	0.64	0.75	1.60
	Richer	0.59	0.01	0.39	0.87
	Richest	0.79	0.35	0.49	1.29
Employment	Didn't work in past 12 months	--	--	--	--
	Worked in past 12 months	0.84	0.32	0.60	1.18
Aggregate violence measure	No violent experiences	--	--	--	--
	Violent experiences	1.87	<0.05	1.09	2.32
Alcohol	Partner doesn't drink alcohol	--	--	--	--
	Partner drinks alcohol	1.59	<0.05	1.49	2.36

highly affected by conflict, not only people experiencing direct trauma during conflict, may be at risk of increased violence long after peace is declared. These findings point to the need for targeted programs that address IPV after a conflict. This form of violence may become elevated and persist at higher levels for years after war, especially in highly

war-affected areas.<sup>50</sup> Understanding the long-term impact of war is vital for effective and sustained recovery, yet there has been little scholarship on the enduring consequences of political violence. Assessing how violence may persist and morph after war is critical, since it may impact a country's ability to achieve sustained peace.

TABLE 6. Association of injuries related to IPV with cumulative district-level conflict events

		N= 1,334			
		aOR	P value	Low CI	High CI
Event years (0-5)		1.11	0.03	1.01	1.22
Age		1.00	0.71	0.99	1.02
Number of children under 5		0.90	0.11	0.78	1.02
Education	No education (ref)	--	--	--	--
	Primary	0.98	0.89	0.72	1.32
	Secondary and above	1.09	0.54	0.83	1.42
Religion	Christian (ref)	--	--	--	--
	Muslim	1.11	0.63	0.73	1.67
	Other	0.93	0.83	0.49	1.78
Civil status	Married (ref)	--	--	--	--
	Living together	1.17	0.30	0.87	1.56
	Widow/divorced	2.64	p<0.001	1.86	3.77
Partner education	No education (ref)	--	--	--	--
	Primary	0.67	0.01	0.50	0.91
	Secondary and above	0.87	0.38	0.64	1.18
Age married		0.98	0.20	0.94	1.01
Wealth	Poorest (ref)	--	--	--	--
	Poorer	0.99	0.95	0.68	1.44
	Middle	1.09	0.66	0.74	1.59
	Richer	0.58	0.01	0.39	0.87
	Richest	0.78	0.34	0.47	1.30
Employment	Didn't work in past 12 months	--	--	--	--
	Worked in past 12 months	0.84	0.31	0.60	1.18
Aggregate violence measure	No violent experiences	--	--	--	--
	Violent experiences	1.58	0.02	1.09	2.30
Alcohol	Partner doesn't drink alcohol	--	--	--	--
	Partner drinks alcohol	1.88	p<0.001	1.49	2.37

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