

A gender geography of intentional homicide within and outside of the family: Male and female murders in Europe, the US and Canada (2003–15)

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journals.sagepub.com/home/euc**A. Minello** 

University of Florence, Italy

G. Dalla-Zuanna

University of Padua, Italy

Abstract

Using the most recent and unpublished international data provided by the United Nations Office on Drugs and Crime, we discuss the geography of male and female homicides in Europe, the US and Canada during the period 2003–15.

We observe declining trends in mortality for both male and female homicide in most of these countries. For within-family homicides, geographical differences are much less pronounced compared with those occurring outside the family, especially if the victim is a woman and the perpetrator is the partner or former partner. Only for men is the risk of being the victim of a homicide committed by a family member greater where the risk of being killed by someone outside the family is also higher.

Keywords

Family homicide, gender, homicide, international, intimate partner homicide

Introduction

The study of intentional homicide is essential for two reasons: first, owing to the gravity of the offence, and, second, because it is one of the most measurable and comparable indicators for monitoring violent deaths. Moreover, it is often considered both a proxy

Corresponding author:

Alessandra Minello, Department of Statistical Sciences, University of Padua, Via Cesare Battisti, 241, 35121 Padova PD, Italy.

Email: alessandra.minello@unipd.it

for violent crime as well as an indicator of levels of security within countries (UNODC, 2015). The specific study of intentional intimate partner homicide and murder within the family is equally imperative. Family should represent the ultimate safe space. It is, instead, the place where most of the female victims meet their death.

Although intimate partner homicide, within-family homicides and, more generally, the subject of the relationship between the victim and the perpetrator is of extraordinary importance, in the past it was difficult for researchers to find comparable international data. Even now, information is still not always easily traceable or is simply not available for some countries. In fact, data mainly come from the police or mortuaries and, although information about perpetrators is extremely important in defining the phenomenon, it is often not collected (Stöckl et al., 2013).

A number of studies, mainly using administrative data that include information on the victim–perpetrator relationship, focus on homicides committed by intimate partners (see, for example, Block and Christakos, 1995; Browne et al., 1999; Caman et al., 2017; Dugan et al., 1999; Jennings and Piquero, 2008; Reckdenwald and Parker, 2011). Research on the trends of intimate partner homicide reveals a decrease in the US and Western Europe over the past century, although the decline is modest compared with other kinds of homicide (Corradi and Stöckl, 2014; Fox and Zawitz, 2007; Greenfield et al., 1998; UNODC, 2013).

Stöckl et al. (2013) provide one of the most comprehensive analyses available, examining data on intimate partner homicide separately for women and men. They confirm what is clear in the previous literature: the majority of murder victims are men but, when it comes to homicides committed by intimate partners, the causalities are mostly women: 38 percent of female homicides are committed by partners or former partners, whereas this figure for men is much lower (6 percent).

In the literature in general, distinctions according to the gender of the victim are common. Every year, the United Nations Office on Drugs and Crime (UNODC) prepares a report taking stock of the spread of intentional and unintentional homicide around the world, taking care to distinguish by gender. Some mechanisms are clear and affirmed. Among these, intentional murder is a phenomenon that clearly affects mainly men, who globally account for 80 percent of the victims. However, in some contexts, such as in Europe, women make up almost one-third of victims. Age differences between victims according to gender are another crucial point. Male victims are, on average, younger than female victims. Finally, and importantly for our research, there is a strong gender component in the relationship between victim and perpetrator. The most recent data show that 60 percent of the victims of homicides committed within the family or by partners are women. If we look exclusively at the victims of homicide by partners and former partners, this percentage rises to 78, with no major territorial differences or great variations over time (UNODC, 2016).

Recent years have seen advances in the collection of data on homicides and in particular in the identification of the relationship between victim and perpetrator. Above all, there is an increasing focus on the need to collect better data in order to outline policies that reduce the incidence of homicide, especially that of women (Vives-Cases et al., 2016). In the European context, the Convention of Istanbul, signed by the countries of the Council of Europe in June 2011, with the aim of preventing and combating violence

against women and domestic violence (see especially Art. 11), has led to improvements in data collection.

The main aim of this article is to assess the latest available data for the 21st century on intentional homicide committed within and outside of the family and to indicate its gender geography. We endeavour to establish whether there is a connection between the spread of homicides involving men and those in which the victims are women. Moreover, we explore the relationship between the diffusion of general intentional homicide and female homicide, within-family homicide and intimate partner homicide, maintaining a gender perspective. This type of descriptive analysis is preliminary to any attempt to interpret differences between countries. It is also important if we want to deepen the study of the phenomenon within each national context.

In our article, we discuss not only the relationship between male and female homicides, but also the specific relationship between overall homicides and murders occurring in a family context, in light of the victim–perpetrator relationship, considering partner or former partner and other family members separately. We focus specifically on Europe, the US and Canada. Our analysis is particularly salient given the use of new, internationally comparable, unpublished UNODC data. The novelty, from an informational point of view, is the availability of data for the period 2003–15 – in varying degrees of completeness depending on country – on homicide rates by gender of the victims, and on the context in which the murder took place (that is, within the family vs. outside the family). Moreover, for homicides that occurred within the family, data are available on the victim–perpetrator relationship (that is, partner or former partner vs. other family members).

A brief look at the literature on historical homicide trends and gender differences

The analysis of murder trends is, in fact, one of the milestones of criminological and historical literature. After a sharp reduction in the number of murders from the Middle Ages to the mid-20th century, murder trends in the US and Western Europe increased from the 1960s to the 1980s (Eisner, 2001; LaFree and Drass, 2002), followed by a decline during the 1990s, which continues today (Aebi and Linde, 2010; Eisner, 2008; LaFree et al., 2015; Weiss et al., 2016).

Many authors have reconstructed trends in violent crime over time, attempting to find a common explanation for this pattern. Interpreting the sharp decline in murders over time implicitly means attempting to understand a dynamic in which both the perpetrator and the victim are predominantly men. Today, as in the past, in fact, the majority of victims and murderers are men. Interpreting the murder of women thus requires a more specific and detailed elaboration.

First of all, scholars have tackled the issue of the massive decline in murders in recent centuries. One of the first attempts to comprehend the decrease in homicides was made by Gurr (1981), according to whom this decrease is driven by an ‘increase in non-aggressive behavior’. He argued that, whereas men previously tended to have relationships based on power and aggressiveness, recent centuries have seen other factors, less marked by forcefulness, regulate social relations. Later, Spierenburg (1984, 1995) applied Elias’s

Civilization Process Theory to murders (1976, 1983), declaring that the reduction in homicides was due to an increase in self-control, leading to fewer episodes of violence in the public sphere. Elias's explanation was based on the importance of an increasing internalization of social control associated with the spread of Western democratic regimes (LaFree, 2005). According to this theory, the development of a central authority has contributed to calming interactions in the public space.

In addition to the importance of self-control and democratic regimes for the decrease in violence, another major theme that scholars have called upon to explain the decline in homicides is individualism. The growing importance of individualism as a deterrent to widespread murder was first introduced by Emile Durkheim (1991), who emphasized the role of moral culture in his interpretations of violence. Durkheim argued that individualism, as a form of liberation from collective bonds and uncontrolled emotions, has had the effect of decreasing murders. As an example, once people are freed from the need for revenge and can express indifference in conflictual situations, murders begin to decline.

Finally, among the explanations of murder trends, we cannot help but mention Pinker's work (2011), which offers a historical perspective on the general decrease in violence and intentional homicide over time. Building on Elias (1976, 1983), Pinker emphasizes the role of empathy, self-control and moral sense and reason in directing people towards cooperation and altruism instead of violence. He also recognizes, relying on international data to show the general decline in violence, the role of commerce, the state, literacy and rational problem-solving attitudes.

As previously mentioned, however, this type of explanation adequately summarizes the murder of men. Analysing the dynamics of the murder of women instead requires a focus on domestic homicides, particularly those committed by a partner, where the power dynamics and relationships between victim and perpetrator are different from those between men.

The authors have tried to give an explanation of the decline on the one hand and of the possible reasons for the growth of this type of murder on the other. The earliest possible explanation for a reduction in this type of murder was the growing importance of feminist movements and their fight for the protection of women through dedicated services (the so-called 'improvement' hypothesis) (Brownmiller, 1975; Dobash and Dobash, 1979; Dugan et al., 2003; Klein, 1981; Stark, 2007; Taylor and Jasinski, 2011). According to this theory, patriarchy is responsible for the domination and male control of women. Movements to protect women intervened to cope with this domination. They helped to create an extensive series of policies and protection systems that have, on the one hand, inhibited men from extreme violence and, on the other hand, built a network of protection and support for women to prevent them from becoming victims of male persecutors.

A second explanation for the decrease in household deaths is the so-called 'theory of exposure reduction', which highlights women's growing participation in education and the labour market, along with rising divorce rates facilitating their escape from domestic violence and often murder (Dugan et al., 1999, 2003; Whaley and Messner, 2002). Global gender equality, increased opportunities in the labour market and economic and emotional independence therefore constitute a form of protection for women (Eriksson and Mazerolle, 2013; Dawson et al., 2009; Whaley and Messner, 2002). Though this theory finds many supporters, it also brings an opposing vision that instead sees a source

of increase in the murder of women by their partners. More specifically, the societal changes described above might put men's role in crisis and induce feelings of being no longer able control their partners. Such loss of control could in turn push violent acts towards murder. This explanation, known as the 'retaliation effect', is associated with the so-called 'backlash' hypothesis (Dugan et al., 2003).

Together with the general study of homicide, or homicide particularly of women, there is also an established tradition of research on the relationship between male and female homicide, much of which focuses on the remote causes of observed temporal and geographical differences. A milestone in the definition of this relationship is the work by Verkko. As early as 1951, studying a lengthy series of international data on homicide, Verkko concluded that the ratio between male and female homicides changes based on the overall level of violence in the country, with homicides committed by males as the most variable segment of homicidal crime. Female homicide is, in fact, more static than male homicide, hence the ratio is lower in countries with low homicide mortality. Starting from his data, Verkko proposed two 'laws'. The first is related to the static development of female homicide. It claims that, the higher the level of violence in a country, the lower the proportion of female victims. The second law regards the dynamic nature of male homicide. It states that rising or declining trends in mortality have a greater effect on male homicide than on female homicide. These dynamics have recently been confirmed by other scholars. Eisner (2008), for example, demonstrates that changes in homicide rates in Western Europe between 1950 and 2000 were mainly due to male homicide. Spierenburg (2012) arrives at similar conclusions, arguing that the variation in homicide in Europe since the Middle Ages is due to male homicide, and that societies with high homicide rates have a low proportion of domestic homicides. It was, however, Eisner who first noted (2003, 2008, 2014) that there is a certain stability in domestic homicide (where most victims are women) with respect to other kinds of homicide. Behind these diverse dynamics of male and female homicides, there are also different motivations and relationships between the victim and the perpetrator. Whereas male homicide is more connected to volatile factors such as socio-political crises, drug-market implications and so on, female homicide is, in contrast, linked to less volatile and changeable factors, and thus more connected to the domestic environment (Kury et al., 2016).

A recent more specific focus of interest is the analysis of the links between intimate partner homicide and overall homicide, led by the work of Stöckl et al. (2013). Owing to the international perspective of the study, the authors risk a regional interpretation of differences in homicides committed by intimate partners: they could represent real differences in murder patterns and support the argument that intimate partner murders are more common in countries with a generally low level of homicide rates. This finding appears particularly evident in their consideration of geographical differences in homicide between high-income/low-homicide rate countries and low-income/high-homicide rate countries. However, the study suffers from potential bias owing to the quality of the data sources, which could invalidate the results. The authors recognize that the identified differences could indeed be a product of inconsistency in the availability, completeness and quality of information on homicides between countries and regions, and they note an increase in missing data relative to intimate partner homicide, especially in low-income

countries. Our effort is to overcome this limitation, using reliable data only from developed countries.

Our article has mainly a descriptive aim, which is a preliminary for performing any further causal analysis. We seek: (1) to confirm the gender differences in intentional homicide trends in Europe, the US and Canada during the 21st century; (2) to define geographical differences and similarities between male and female homicide; (3) to investigate the specific relationship between overall homicides and murders occurring with the family context, according to the victim–perpetrator relationship, considering separately partner or former partner vs. other family members, and always distinguishing whether the victim is male or female; also in this case, (4) to understand change over time, although obtaining strong and homogeneous results is challenging owing to data limitations.

Data

UNODC offers material on intentional homicides, defined as ‘unlawful death inflicted upon a person with the intent to cause death or serious injury’ (UNODC, 2015: 16). Additional significance is provided by the ability to disaggregate intentional homicide by the characteristics of the victims and perpetrators, quantitative information on social context, and the mechanisms of intentional homicide.

UNODC annually requests data on crimes and homicides from the statistical offices of its Member States. In turn, central statistical offices collect such data from police forces. More specifically, the resulting national data used in UNODC statistics are based mostly on information reported annually by Member States through the United Nations Survey of Crime Trends and Operations of Criminal Justice Systems (UN-CTS).¹ Recent years have seen considerable efforts to make comparable data available. This had been made possible, in particular, by the International Classification of Crime for Statistical Purposes (ICCS), a classification of criminal offences based on internationally defined concepts, definitions and principles aimed at enhancing the consistency and international comparability of criminal statistics, and improving analytical capabilities at both the national and international level.

Through UNODC, we thus have international data on intentional homicide that includes information on the victim–perpetrator relationship. Publicly available data cover the period between 2005 and 2012. Thanks to a collaboration with UNODC, we also have access to data between 2003 and 2015. Moreover, whereas the publicly available data distinguish only between family homicide and other homicides, our dataset contains more detailed information. The original UNODC data distinguish between: current intimate partner/spouse, former intimate partner/spouse, blood relative, other household member, friend, acquaintance, colleague/work relationship, authority/care relationship (doctor, nurse, police, etc.), other offender known to victim, offender unknown to victim, relationship not known. For our purposes, we use a collapsed version of this categorization, dividing homicides between those perpetrated by the partner/ex-partner of the victim, by a member of the victim’s family, or by any other person (known or unknown to the victim). A focus on the period 2003–15 provides a sufficient span of time to observe changes in intentional homicide trends

and to analyse the evolution of this phenomenon during the first part of the 21st century.

As mentioned, despite the efforts in data collection, the quality and completeness of these series vary from country to country, and they are essentially affected by the changes and constant improvement in data collection over recent years. We consequently employ several criteria to define our sample. As a preliminary step, we avoid presenting incidence rates with the number of homicides that remain too small even if we combine years. Countries such as Iceland or Luxembourg, or those that are demographically smaller, are not included, even if data are available. Moreover, whereas the coverage of voluntary homicide by gender is widespread (35 countries, although large countries such as the Russian Federation, Ukraine and Poland are unfortunately missing), data according to the context of the murder in terms of the victim–perpetrator relationship (within vs. outside the family) are not always available or are not available separately by gender. Finally, for intentional homicides of males and females where the perpetrator is a family member, the distinction between partner/ex-partner vs. other relatives is available for only 12 countries (including the US, but without distinguishing between male and female victims).

In this article, we calculate male and female homicide rates, as well as homicide rates according to the victim–perpetrator relationship, stratified by gender. As denominators of these rates, we use data on population by gender published by the Population Division of the United Nations.

The data suffer from some limitations. They do not cover homogeneous spells of time in all the countries considered, exhaustive material on missing cases is not available, and detailed data on homicides within and outside the family are limited to 12 countries. Despite these drawbacks, we believe that the available material is sufficient to delineate the geography of homicide in Europe, the US and Canada from a gender perspective. For a detailed list of the countries, see Table 1.

Gender differences in intentional homicide

The average annual rate of intentional murder in the 35 countries examined, over the period 2003–15, is 2.09 per 100,000 inhabitants (see Table 4 in the Appendix for details), with strong territorial differences (see Figure 1(d)) – ranging from 0.62 in Switzerland to 5.59 in the Republic of Moldova.

The risk of being killed is 2.5 times higher for males (3.09 per 100,000) than for females (1.23 per 100,000), and the variability among countries is also greater among males (coefficient of variation = 0.87) than among females ($CV = 0.72$).

Gender differences also vary widely – from Switzerland, where the risk of being killed is the same for males and females, to Albania and Kosovo, where the risk of being killed for men is almost five times higher than for women. Overall, in most of the countries examined, women have a lower risk of being killed by intentional homicide than do men. This result confirms previous international research on the topic: generally speaking, murders mainly involve men. Territorial differentiation does not provide much further insight. The only regularity we detect is a slight variation in Central European countries, where, in addition, the mean M/F ratio is 1.02, lower than in any other area

Table 1. Victims of intentional homicide by gender of victim and perpetrator (outside the family vs. within the family) in some developed countries (rates per 100,000 population; data available for 2005–15).

	Years		Total population				Males				Females				Percent within family				M/F ratio of rates	
	First	Last	Total	Outside family	Within family	Total	Outside family	Within family	Total	Outside family	Within family	Total	Outside family	Within family	Total	Males	Females	Total	Outside family	Within family
USA	2006	2014	5.00	4.25	0.75	7.88	2.00	0.40	2.16	0.91	0.33	0.58	15	17	3.6	15	64	2.6	6.1	0.7
Canada	2007	2015	1.65	1.16	0.49	2.40	2.00	0.40	0.91	0.33	0.58	30	17	2.6	20	31	2.3	2.7	1.5	
Belarus	2008	2015	3.65	2.78	0.87	5.23	4.18	1.06	2.27	1.57	0.71	24	20	2.3	6	19	2.7	3.2	0.9	
Moldova	2006	2014	5.59	5.04	0.55	8.34	7.82	0.52	3.04	2.46	0.58	10	6	2.7	26	26	2.9	4.0	0.9	
Latvia	2012	2015	3.03	2.25	0.78	11.02	9.84	1.18	3.84	2.47	1.37	18	11	2.9	36	2.9	4.0	0.9		
Lithuania	2011	2014	7.15	5.83	1.32	11.02	9.84	1.18	3.84	2.47	1.37	18	11	2.9	36	2.9	4.0	0.9		
Romania	2005	2011			0.46			0.52		0.41										
Poland	2013	2015	1.52	1.12	0.40	1.70	1.32	0.39	1.15	0.52	0.64	37	23	1.5	2.5	0.6				
Hungary	2007	2015	1.41	0.90	0.52	1.70	1.32	0.39	1.15	0.52	0.64	37	23	1.5	2.5	0.6				
Czech Rep.	2007	2015	0.93	0.41	0.51	1.03	0.60	0.42	0.83	0.23	0.60	55	41	1.2	2.6	0.7				
Finland	2011	2015	1.99	1.31	0.68	2.80	2.32	0.47	1.22	0.33	0.88	34	17	2.3	7.0	0.5				
UK (England & Wales)	2007	2014	1.05	0.71	0.35	1.46	1.23	0.24	0.66	0.21	0.45	33	16	2.2	5.9	0.5				
UK (Northern Ireland)	2005	2014	1.38	0.99	0.39							28								
UK (Scotland)	2005	2014	1.71	1.28	0.43	2.77	2.35	0.42	0.71	0.28	0.43	25	15	3.9	8.4	1.0				
Netherlands	2007	2015	0.81	0.54	0.28	1.07	0.89	0.18	0.56	0.19	0.37	35	17	1.9	4.7	0.5				

(Continued)

Table I. (Continued)

	Years		Total population		Males		Females		Percent within family		M/F ratio of rates						
	First	Last	Total	Outside family	Within family	Total	Outside family	Within family	Total	Males	Females	Total	Outside family	Within family			
Germany	2009	2014	0.86	0.48	0.38	0.94	0.70	0.23	0.79	0.26	0.53	44	24	67	1.2	2.7	0.4
Austria	2005	2015	1.17	0.68	0.49	1.42	1.07	0.35	0.93	0.32	0.61	42	25	66	1.5	3.3	0.6
Switzerland	2009	2015	0.62	0.30	0.31	0.61	0.41	0.20	0.63	0.18	0.45	50	33	71	1.0	2.3	0.4
France	2015	2015	1.58	1.25	0.33	2.00	1.77	0.23	1.15	0.72	0.43	21	12	37	1.7	2.5	0.5
Slovenia	2005	2015	0.74	0.43	0.31							42					
Croatia	2010	2015	1.09	0.61	0.48	1.27	0.87	0.40	0.93	0.36	0.57	44	31	61	1.4	2.4	0.7
Bosnia and Herz.	2010	2015	1.41	0.95	0.46	2.01	1.64	0.37	0.81	0.25	0.56	33	18	69	2.5	6.6	0.7
Macedonia	2010	2015	1.70	1.11	0.59	2.46	1.89	0.57	0.95	0.34	0.61	35	23	64	2.6	5.6	0.9
Albania	2005	2015	3.91	3.20	0.71	6.54	5.89	0.65	1.33	0.56	0.77	18	10	58	4.9	10.5	0.8
Greece	2007	2015	1.30	1.16	0.14							11					
Italy	2007	2015	0.91	0.60	0.31	1.31	1.08	0.23	0.50	0.13	0.38	34	18	76	2.6	8.3	0.6
Spain	2013	2015	0.67	0.45	0.22	0.82	0.69	0.13	0.53	0.22	0.31	33	16	58	1.5	3.1	0.4
MEAN			2.03	1.53	0.50	3.10	2.43	0.44	1.23	0.60	0.58	31	20	59	2.3	4.7	0.7

Note: Empty cells correspond to unavailable data.

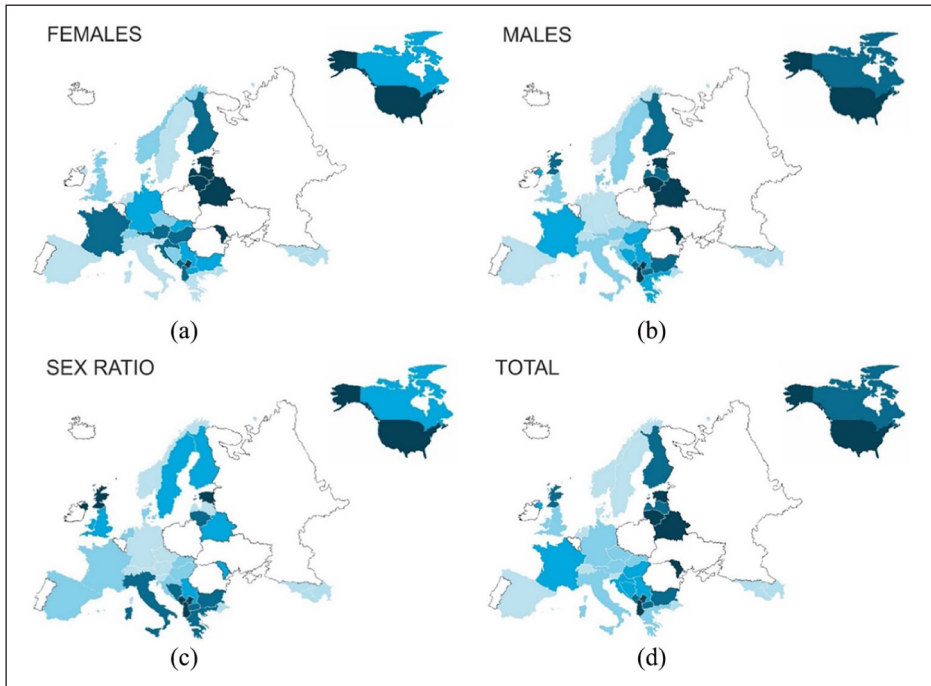


Figure 1. Intentional homicide rates per 100,000 population in 35 countries by quintiles: (a) female, (b) male, (c) sex ratio, (d) total.

Note I: Countries in white correspond to unavailable data.

Note II: Quintile colours run from light blue (lowest rate) to dark blue (highest rate). Please refer to the online version of the article to view the figure in colour.

Source: Table 4 in the Appendix.

considered. In contrast, the highest M/F ratio is found in the former Soviet area (see Figure 1(c)).

For the set of 35 countries where data stratified by gender are available, we can observe the relationship between male and female homicide rates. Generally, if the risk is high for men, it tends to be high for women as well ($R^2 = .73$ in Figure 2). Some countries have higher and more diverse rates than all the others (mainly Lithuania and Latvia). We made several attempts and identified different thresholds to divide the countries (for example, a male rate below 3). Despite some oscillations, the R^2 always holds up. We cannot fail to point out the role of these countries in driving it. This relationship between male and female homicide rates is important in defining regional patterns, and it represents a first step towards supporting the argument that murders involving intimate partners are more common in countries with a high/low general homicide level.

The data show large differences between countries. The areas where men are most at risk are the US, second only to Lithuania and Moldova for male murders. Overall, the area of the former USSR² and that of the Balkans (excluding Slovenia and Greece) are those where the risk is highest for men. Males face a more moderate risk in Canada and Eastern Europe (with the exception of Bulgaria), and the situation in Northern Europe

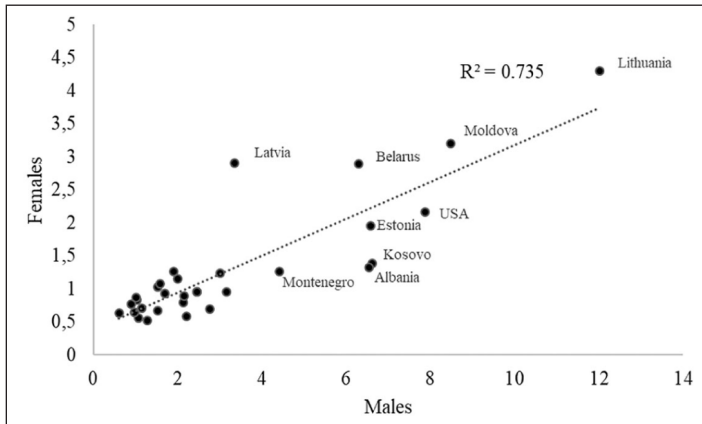


Figure 2. Homicide rate (per 100,000 population) among males and females in 35 developed countries.

Notes: Data available between 2003 and 2015. Data refer to the mean value for the available period of observation of each country.

Source: Table 4 in the Appendix.

(excluding Finland), Central Europe and Southern Europe is much better. Switzerland is the safest country for men (one-fifth of the average). For women, the risk is particularly high in the ex-Soviet countries and in the US. The safest area for women is Southern Europe, where the country with the lowest risk of homicide is Italy (less than half of the average) (see Figures 1(a) and 1(b)).

Over the period 2004–15, the risk of being murdered decreases for both males and females (Table 5 in the Appendix), and this downward trend has accelerated in recent years. In comparing the two most recent four-year periods – across 31 countries – only three nations report an increase in risk for males, and seven for females. Of course, each country is a unique case and should be studied carefully. The case of Norway stands out, for example, where there was an increase in male and female murders in 2008–11 compared with 2004–7. Here the precipitous decrease that followed in 2012–15 is due to the 2011 Utoya massacre that occurred in the previous period. However, beyond what may have happened in individual countries, the trend of a generalized and recently accentuated reduction in the risk of murder, for both males and females, is unquestionable.

The context of homicide: Within vs. outside the family

A quarter of the homicides that occurred in 2005–15 in the developed countries examined in this study took place within the family (Table 1). However, this figure is completely different for males and females: on average in the 20 countries for which data are available, only 20 percent of the perpetrators of intentional homicides of men are relatives of the victim, whereas this holds true for almost 60 percent of the homicides where the victim is a woman. When considering homicides outside the family, the M/F sex ratio is greater for men in all of the countries if we consider homicides outside the family.

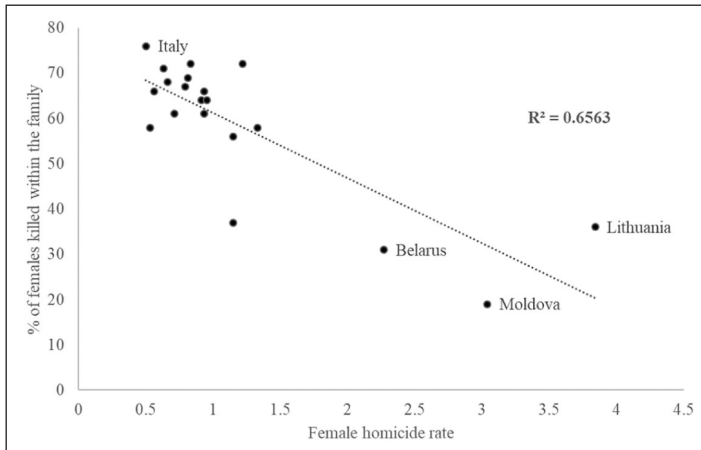


Figure 3. Female homicide rate (per 100,000 population) and proportion of females killed within the family in 20 developed countries.

Notes: Data available between 2005 and 2015. Data refer to the mean value for the available period of observation of each country.

Source: Table 1.

Once we look at homicides within the family, the ratio is almost always greater for women (with few exceptions, such as Belarus, Romania and Scotland). In fact, when stratifying by gender, we clearly observe that in all the countries the rate of male homicide within the family is lower than the rate of homicide outside the family; for women we see the opposite pattern in all the countries with the exception of the former Soviet nations and France. In the rest of the countries, the likelihood of a woman being killed by a family member is at least double the likelihood of being killed outside the family.

We also observe that the proportion of females killed within the family is higher in countries where the murder rate of women is lower ($R^2 = .66$, see Figure 3), although the R^2 drops to $.20$ if we omit Lithuania, Moldova and Belarus (that is, the countries where the female murder rate is very high, but where less than 40 percent of the murders of women are committed by family members). The opposite ‘extreme’ case is Italy, where – as mentioned – the murder rate of women is the lowest among these developed countries (0.50 per 100,000), and where more than three-quarters of the murders of women occur within the family.

This picture changes, however, when we compare homicide rates outside and within the family, stratified by gender (Figure 4). For men, the countries where the murder rate outside the family is higher tend to be those where the murder rate within the family is also higher ($R^2 = .62$). This is not the case for females ($R^2 = .38$), thus the two phenomena overlap to a much lesser extent geographically. Here again, the leading countries for males are Moldova and Lithuania, as well as Belarus and Albania. Excluding these countries, the R^2 drops to $.35$. Murder rates outside the family do not play such a determinant role for females. Moreover, for homicides outside the family, the variability between countries is high ($CV = 1.05$ for males, 1.18 for females), whereas for homicides within

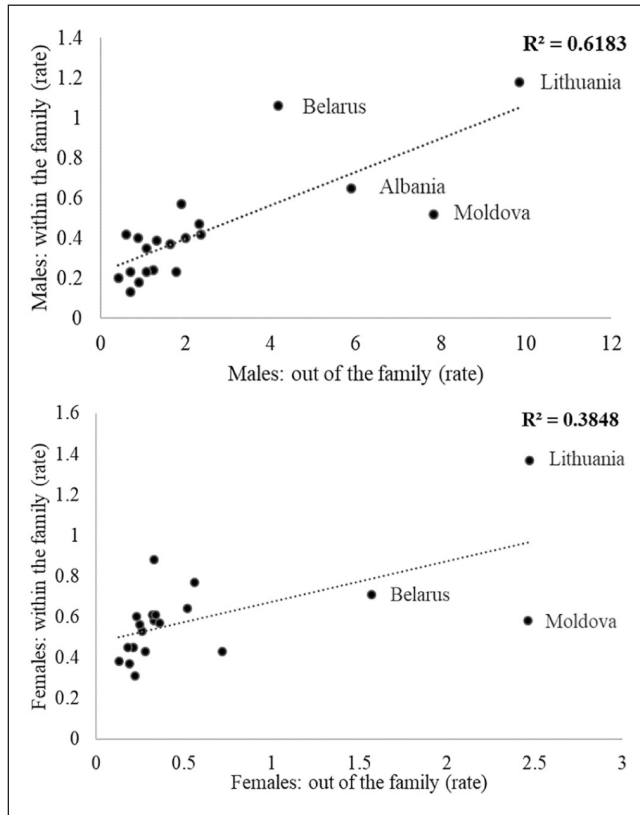


Figure 4. Homicides within or outside the family in 20 developed countries, rate (per 100,000 population) by gender.
 Notes: Data available between 2005 and 2015. Data refer to the mean value for the available period of observation of each country.
 Source: Table 1.

the family the variability is much lower (CV = 0.60 for males, 0.39 for females). Especially in the latter case, the difference among countries is quite limited. It therefore appears that the domestic murder of females is less geographically distinct, whereas that of men largely overlaps with the geography of homicides committed outside the family.

The family context: Partner and other relatives

An examination of 12 countries, for both males and females, allows us to distinguish between murders committed by partners or former partners, and those committed by another relative, over the decade 2006–15 (Table 2). The average of these 12 countries, a similar rate in both cases (0.24 other relatives, 0.29 partners or ex-partners) when considering the total population, hides a large difference between male and female cases. Among intentional homicides with male victims, those committed by other relatives are

Table 2. Homicide within the family by perpetrator (partner or ex-partner vs. other relatives) and by gender in some developed countries (rates per 100,000).

	First	Last	Total		Males		Females		M/F ratio		Percent partner		
			No partner	Partner	No partner	Partner	No partner	Partner	No partner	Partner	Total	Males	Females
USA	2009	2014	0.34	0.41							55		
Canada	2008	2015	0.24	0.25	0.29	0.11	0.19	0.39	1.5	0.3	51	28	67
Belarus	2011	2015	0.57	0.30	0.73	0.33	0.43	0.28	1.7	1.2	34	31	39
Lithuania	2007	2015	0.53	0.79	0.63	0.55	0.42	0.95	1.5	0.6	60	47	69
Hungary	2009	2014	0.21	0.31	0.23	0.16	0.19	0.45	1.2	0.4	60	41	70
Czech Rep.	2007	2015	0.20	0.31	0.19	0.23	0.21	0.39	0.9	0.6	61	55	65
Finland	2007	2015	0.25	0.43	0.29	0.18	0.21	0.67	1.4	0.3	63	38	76
UK (E&W)	2007	2014	0.15	0.20	0.16	0.08	0.14	0.31	1.1	0.3	57	33	69
Netherlands	2007	2015	0.13	0.15	0.15	0.03	0.11	0.26	1.4	0.1	54	17	70
Germany	2011	2015	0.17	0.21	0.17	0.06	0.18	0.35	0.9	0.2	55	26	66
Switzerland	2009	2015	0.13	0.19	0.15	0.05	0.12	0.33	1.3	0.2	59	25	73
Italy	2007	2015	0.17	0.14	0.19	0.04	0.15	0.23	1.3	0.2	45	17	61
Spain	2013	2015	0.08	0.14	0.10	0.03	0.07	0.24	1.4	0.1	64	23	77
MEAN			0.24	0.29	0.27	0.15	0.20	0.40	1.3	0.4	55	32	67

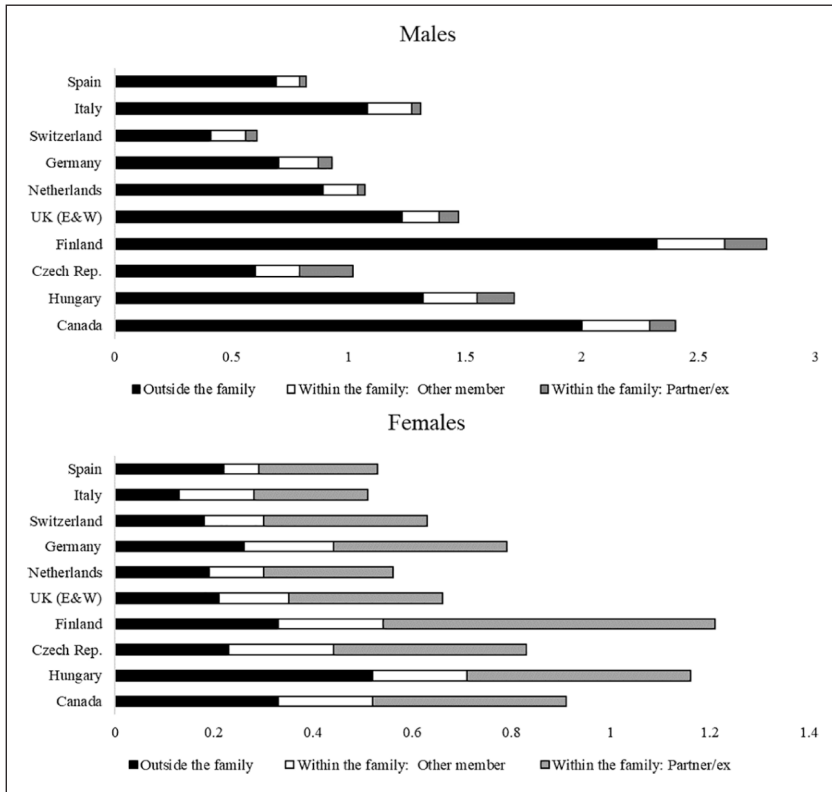


Figure 5. Homicide rate (per 100,000 population) by gender of victim and by victim–perpetrator relationship (outside family vs. within family, divided between partner/ex-partner or other family member).

clearly prevalent (0.27 other relatives; 0.15 partners or ex-partners), whereas the opposite occurs in the murder of females (0.20 other relatives; 0.40 partner or ex-partners). These differences are less extreme in countries of the former USSR and Eastern Europe (where all rates are generally higher) but they are much more pronounced in other parts of Europe and Canada (where all rates are generally lower). The extreme case is Switzerland, where the risk of a man being killed by his partner or ex-partner is just 0.05 out of 100,000, whereas that of being killed by another family member is three times higher (0.15); in contrast, the risk of a woman being killed by her partner or ex-partner is 0.33 out of 100,000, whereas that of being killed by a relative is 0.12.

In Lithuania and Belarus, the rate of homicides committed outside the family, even among females, is much higher than in other countries. In Figure 5 we compare these nations with the other 10 countries, accounting for gender and the context in which the murder was committed. We see that murders where the victim is a male are clearly much more prevalent outside the family context compared with females, as is the greater risk of being killed by a relative other than the partner. Among women, on the other hand,

Table 3. Coefficients of variation of homicide rates by gender of the victim and of the perpetrator: The 12 countries in Table 4 (excluding the US).

	Outside family	Within family not partner	Partner or ex-partner	Total
Males	2.36	1.04	1.60	2.09
Females	2.76	0.72	0.58	1.25
Total	2.30	0.89	0.78	1.72

there is a high risk of being killed by a partner or ex-partner, who is the perpetrator in 46 percent (on average) of all murders in which the victim is a female. Variability among countries is much greater for homicides committed by non-family members, though significantly less for murders committed within the family (see Table 3), especially when the victim is a female. We observe the least variability in the case of women killed by a partner or ex-partner.

Discussion

Our data on homicides in the 21st century, differentiated by gender, confirm the results of the literature on murder trends up until the end of the 20th century overall, although there is an important exception.

First, the wide gender differences in the risk of being murdered noted by all authors is amply confirmed. During the first part of the 21st century, in Europe, the US and Canada, men are much more at risk of dying by intentional homicide than women. This difference is even more pronounced (almost 5 to 1) when considering only homicides committed by non-family members; somewhat less so (more than 2 to 1) when observing homicides committed by relatives other than the partner. In contrast, women have more than twice the risk, compared with men, of being killed by their partner or ex-partner.

Secondly, across Europe, the US and Canada, enormous geographical differences persist. In the former Soviet Republic, the US, the Balkans and, to a lesser extent, Eastern Europe, the risk of being murdered is much higher than in Canada, Central Europe, Northern Europe and, especially, Southern Europe. In the first 15 years of the 21st century, a woman's risk of being murdered was three times higher in the US than in England, and four times higher in the US than in Italy. There are, however, important exceptions. In Finland, for example, the risk of murder for both men and women is more than twice as high as in neighbouring Sweden. Such territorial differences call for further ad hoc study. The focus of the literature on the areas of high diffusion of homicides has been extensive so far. A study by Lysova and colleagues (2011) on the high rates of homicide in the post-Soviet countries such as Russia, Ukraine and Belarus, as an example, shows that this phenomenon is due to the timing of the civilizing process, envisioned as an increase in self-control, the cultural spill-over effect, seen as a growth in the diffusion of illegitimate violence in a context where legitimate violence is socially approved, the social structure of these countries, the stress during the transition periods, and alcohol consumption. Such research might, for instance, be enriched by addressing trends and

gender differences in the former USSR, the Balkans and Eastern Europe, countries with high rates but which are difficult to interpret with our data.

Thirdly, the differences between countries are not homogeneous in terms of the gender of the victim and the perpetrator of the crime, but are concentrated in homicides committed by strangers. For homicides committed within the family, geographical differences are much less pronounced, particularly if the victim is a woman and the perpetrator is the partner or former partner. These dynamics also confirm previous findings: there is more territorial variability relative to homicides committed outside the family, which are, typically, murders of men.

Moreover, the robust UNODC data for the first years of the 21st century confirm the results of Stöckl et al. (2013). More specifically, we support the observation that, for women, the proportion of intimate partner murders is higher in countries with low homicide rates (even if this may be due to the low proportion of intimate partner homicides in the ex-USSR countries, where the overall rate of homicide for females is higher than elsewhere). The data also allow us to add additional information through a comparison of murders committed within and outside the family. For men, countries where the risk of being killed by a stranger is higher are also those where the risk of being killed by a family member is higher. For women this regularity does not occur.

Fourthly, the UNODC data clearly show that the risk of being killed decreased throughout the first part of the 21st century for males as well as for females, at the same pace. This decline accelerated for both genders over the last four years considered in our study (2012–15). Consequently, Verkko's 'second law' cited earlier (that is, rising or declining trends in mortality have a greater effect on male homicide than on female homicide) does not seem to hold true in Europe, the US or Canada in this recent period of study – in favour of females.

As often happens in this type of descriptive study, where data from many countries are combined over longer periods of time, the results raise more questions than they answer. Further research might focus on two broad points.

First, future efforts could investigate what drives the wide dissimilarities between countries and different trends in homicides committed within/outside the family. Such studies should differentiate according to the gender of the victim and the victim–perpetrator relationship. Thus far, a variety of proximate reasons for geographical differences have been proposed, which might be the object of further research: the different rates of alcohol abuse (especially the habit of drinking heavily on the weekends) (Campbell et al., 2003; Hockin et al. 2017; Sharps et al., 2001), differences in regulating weapon possession (Killias, 1991; Killias, et al., 2001; Garcia et al., 2007; Zeoli and Webster, 2010), and variance in the presence of criminal gangs (Adams and Pizarro, 2013), to name a few. Other aspects, albeit less easily measured, should also be taken into account. Here we refer, for example, to the strength of social control: the low rate of murders of women in Spain and Italy could be linked to considerable residential proximity among relatives, an aspect that clearly distinguishes these two countries from certain states in Central and Northern Europe (for preliminary work in this direction, see Bejarano, 2015). In addition, it would also be important to understand whether the preventative and repressive measures taken by states to combat the various aspects of this phenomenon can bring about the significant differences we observed in the number of murders committed

(Abraham and Tastsoglou, 2016). The data used in this article could help to disentangle the remote causes of geographical differences and trends. The persistent decline in homicides outside the family of both men and women during the first part of the 21st century might also be interpreted in light of the literature on self-control, individualism and civilization. In contrast, the small variability and slow decline of homicides within the family hardly seem connected to what is occurring in the public sphere. It may be that this more gradual decline in homicides is due to a weakening of patriarchy that is simultaneously offset by the retaliation effect (that is, men are in crisis because they cannot control their partner or ex-partner or, more generally, a female member of the family).

Secondly, the available geographical data, although reliable and detailed, do not allow for deeper interpretation. Differential analyses should, in particular, cross the characteristics of the victim and the perpetrator. Such research requires an increasingly accurate and systematic collection of individual data, following procedures and guidelines that are as standardized as possible across countries. Comparative research in this field will not only greatly enhance our understanding of this phenomenon but also, in the longer run, increase the scope and effectiveness of enforcement measures.

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ORCID iD

A. Minello  <https://orcid.org/0000-0002-0018-5442>

Notes

1. More information on UN-CTS data is available at: <http://www.unodc.org/unodc/en/data-and-analysis/United-Nations-Surveys-on-Crime-Trends-and-the-Operations-of-Criminal-Justice-Systems.html> (accessed 10 October 2019).
2. A recent article on Russia suggests that the homicide rate for the country may be at least 1.6 times higher than that reported in the UNODC Global Study on Homicide 2013 (Lysova, 2018).

References

- Abraham M and Tastsoglou E (2016) Interrogating gender, violence, and the state in national and transnational contexts: Framing the issues. *Current Sociology* 64(4): 517–534.
- Adams J and Pizarro J (2013) Patterns of specialization and escalation in the criminal careers of gang and non-gang homicide offenders. *Criminal Justice and Behavior* 41(2): 237–255.
- Aebi M and Linde A (2010) Is there a crime drop in Western Europe? *European Journal on Criminal Policy and Research* 16(4): 251–277.
- Bejarano C (2015) (Re)living femicide through social control: The regulation of life and bodies through fear and (in)formal social control. *FIAR: Forum for Inter-American Research* 8(2): 67–91.
- Block C and Christakos A (1995) Intimate partner homicide in Chicago over 29 years. *Crime & Delinquency* 41(4): 496–526.

- Browne A, Williams KR and Dutton DG (1999) Homicide between intimate partners: A 20-year review. In: Smith M and Zahn M (eds) *Homicide*. Thousand Oaks, CA: Sage Publications, 149–164.
- Brownmiller S (1975) *Against Our Will: Men, Women and Rape*. New York: Simon & Schuster.
- Caman S, Kristiansson M, Granath S and Sturup J (2017) Trends in rates and characteristics of intimate partner homicides between 1990 and 2013. *Journal of Criminal Justice* 49: 14–21.
- Campbell J, Webster D, Koziol-McLain J, Block C, Campbell D, Curry M, Gary F, Glass N, McFarlane J, Sachs C, Sharps P, Ulrich Y, Wilt S, Manganello J, Xu X, Schollenberger J, Frye V and Laughon K (2003) Risk factors for femicide in abusive relationships: Results from a multisite case control study. *American Journal of Public Health* 93(7): 1089–1097.
- Corradi C and Stöckl H (2014) Intimate partner homicide in 10 European countries: Statistical data and policy development in a cross-national perspective. *European Journal of Criminology* 11(5): 601–618.
- Dawson M, Bunge V and Balde T (2009) National trends in intimate partner homicides. *Violence Against Women* 15(3): 276–306.
- Dobash RE and Dobash RP (1979) *Violence against Wives*. New York: The Free Press.
- Dugan L, Nagin D and Rosenfeld R (1999) Explaining the decline in intimate partner homicide. *Homicide Studies* 3(3): 187–214.
- Dugan L, Rosenfeld R and Nagin D S (2003) Exposure reduction or retaliation? The effects of domestic violence resources on intimate-partner homicide. *Law and Society Review* 37(1): 169–198.
- Durkheim E (1991) *Physik der Sitten und des Rechts: Vorlesungen zur Soziologie der Moral*. Frankfurt am Main: Suhrkamp.
- Eisner M (2001) Modernization, self-control and lethal violence. The long-term dynamics of European homicide rates in theoretical perspective. *British Journal of Criminology* 41(4): 618–638.
- Eisner M (2003) Long-term historical trends in violent crime. *Crime and Justice* 30: 83–142.
- Eisner M (2008) Modernity strikes back? A historical perspective on the latest increase in interpersonal violence (1960–1990). *International Journal of Conflict and Violence* 2(2): 289–316.
- Eisner M (2014) From swords to words: Does macro-level change in self-control predict long-term variation in levels of homicide? *Crime and Justice* 43(1): 65–134.
- Elias N (1976) *Über den Prozess der Zivilisation: Soziogenetische und Psychogenetische Untersuchungen*. Frankfurt am Main: Suhrkamp.
- Elias N (1983) *Die höfische Gesellschaft: Untersuchungen zu einer Soziologie des Königtums und der höfischen Aristokratie*. Frankfurt am Main: Suhrkamp.
- Eriksson L and Mazerolle P (2013) A general strain theory of intimate partner homicide. *Aggression and Violent Behavior* 18(5): 462–470.
- Fox JA and Zawitz MW (2007) *Homicide Trends in the United States*. Washington DC: Bureau of Justice Statistics. URL (accessed 10 October 2019): <https://www.bjs.gov/content/pub/pdf/htius.pdf>.
- Garcia L, Soria C and Hurwitz E (2007) Homicides and intimate partner violence. *Trauma, Violence, & Abuse* 8(4): 370–383.
- Greenfield LA, Rand MR, Craven D, Klaus PA, Perkins CA, Ringel C, ..., and Fox JA (1998) Violence by intimates: Analysis of data on crimes by current or former spouses, boyfriends, and girlfriends. Bureau of Justice Statistics Factbook, US Department of Justice, Washington, DC.
- Gurr T (1981) Historical trends in violent crime: A critical review of the evidence. *Crime and Justice* 3: 295–353.

- Hockin S, Rogers ML and Pridemore WA (2017) Population-level alcohol consumption and national homicide rates. *European Journal of Criminology* 15(2): 235–252.
- Jennings W and Piquero A (2008) Trajectories of non-intimate partner and intimate partner homicides, 1980–1999: The importance of rurality. *Journal of Criminal Justice* 36(5): 435–443.
- Killias M (1991) Gun ownership and violent crime: The Swiss experience in international perspective. *Security Journal* 1/3: 169–174.
- Killias M, Van Kesteren J and Rindlisbacher M (2001) Guns, violent crime, and suicide in 21 countries. *Canadian Journal of Criminology* 43: 429–448.
- Klein D (1981) Violence against women: Some considerations regarding its causes and its elimination. *Crime and Delinquency* 27: 64–80.
- Kury H, Slawomir R and Shea E (eds) (2016) *Women and Children as Victims and Offenders: Background, Prevention, Reintegrations. Suggestion for Succeeding Generations* (vol. 1). Cham (ZG), Switzerland: Springer International Publishing.
- LaFree G (2005) Evidence for elite convergence in cross-national homicide victimization trends, 1956 to 2000. *Sociological Quarterly* 46(1): 191–211.
- LaFree G and Drass KA (2002) Counting crime booms among nations: Evidence for homicide victimization rates, 1956 to 1998. *Criminology* 40: 769–799.
- LaFree G, Curtis K and McDowall D (2015) How effective are our ‘better angels’? Assessing country-level declines in homicide since 1950. *European Journal of Criminology* 12(4): 482–504.
- Lysova A (2018) Challenges to the veracity and the international comparability of Russian homicide statistics. *European Journal of Criminology*. First Published Online 19 August 2018, <https://doi.org/10.1177/1477370818794124>.
- Lysova AV, Shchitov NG and Pridemore WA (2011) Homicide in Russia, Ukraine, and Belarus. In: Liem M and Pridemore W (eds) *Handbook of European Homicide Research*. New York: Springer, 451–469.
- Pinker S (2011) *The Better Angels of Our Nature*. London: Allen Lane.
- Reckdenwald A and Parker K (2011) Understanding the change in male and female intimate partner homicide over time. *Feminist Criminology* 7(3): 167–195.
- Sharps PW, Campbell J, Campbell D, Gary F and Webster D (2001) The role of alcohol use in intimate partner femicide. *American Journal on Addictions* 10(2): 122–135.
- Spierenburg P (1984) *The Spectacle of Suffering: Executions and the Evolution of Repression: From a Preindustrial Metropolis to the European Experience*. Cambridge: Cambridge University Press.
- Spierenburg P (1995) Elias and the history of crime and criminal justice: A brief evaluation. *International Association for the History of Crime and Criminal Justice Bulletin* 20: 17–30.
- Spierenburg P (2012) Long-term historical trends of homicide in Europe. In: Liem M and Pridemore W (eds) *Handbook of European Homicide Research*. New York: Springer, 25–38.
- Stark E (2007) *Coercive Control*. Oxford: Oxford University Press.
- Stöckl H, Devries K, Rotstein A, Abrahams N, Campbell J, Watts C and Moreno C (2013) The global prevalence of intimate partner homicide: A systematic review. *The Lancet* 382(9895): 859–865.
- Taylor R and Jasinski J (2011) Femicide and the feminist perspective. *Homicide Studies* 15(4): 341–362.
- UNODC (United Nations Office on Drugs and Crime) (2013) *World Drug Report 2013*. New York: United Nations. URL (accessed 10 October 2019): https://www.unodc.org/unodc/secured/wdr/wdr2013/World_Drug_Report_2013.pdf.
- UNODC (United Nations Office on Drugs and Crime) (2015) *International Classification of Crime For Statistical Purposes (ICCS), Version 1.0*. Vienna: UNODC. URL (accessed 10

- October 2019): http://www.unodc.org/documents/data-and-analysis/statistics/crime/ICCS/ICCS_English_2016_web.pdf.
- UNODC (United Nations Office on Drugs and Crime) (2016) *UNODC Annual Report Covering Activities during 2015*. Vienna: UNODC. URL (accessed 10 October 2019): https://www.unodc.org/documents/AnnualReport2015/Annual_Report_2016_WEB.pdf.
- Verkko V (1951) *Homicides and Suicides in Finland and Their Dependence on National Character*. Copenhagen: G.E.C. Gad.
- Weiss D, Santos M, Testa A and Kumar S (2016) The 1990s homicide decline. *Homicide Studies* 20(4): 321–334.
- Whaley R and Messner S (2002) Gender equality and gendered homicides. *Homicide Studies* 6(3): 188–210.
- Vives-Cases C, Goicolea I, Hernández A, Sanz-Barbero B, Gill A, Baldry A, Schröttle M and Stöckl H (2016) Expert opinions on improving femicide data collection across Europe: A concept mapping study. *PLOS ONE* 11(4): e0154060.
- Zeoli A and Webster D (2010) Effects of domestic violence policies, alcohol taxes and police staffing levels on intimate partner homicide in large US cities. *Injury Prevention* 16(2): 90–95.

Appendix

Table 4. Victims of intentional homicide by gender in some developed countries (rates per 100,000 population; data available for 2003–15).

	Total population		Rates by gender			
	First year	Last year	Rate	Males	Females	M/F ratio
<i>North America</i>						
USA	2006	2014	5.00	7.88	2.16	3.6
Canada	2003	2015	1.72	2.45	0.95	2.6
<i>Ex-Soviet</i>						
Belarus	2007	2014	4.48	6.30	2.89	2.2
Republic of Moldova	2005	2014	5.59	8.49	3.20	2.7
Estonia	2007	2015	4.83	6.58	1.96	3.4
Latvia	2012	2015	3.13	3.35	2.90	1.2
Lithuania	2004	2015	7.86	12.01	4.30	2.8
<i>Eastern Europe</i>						
Bulgaria	2003	2015	2.20	3.16	0.95	3.3
Hungary	2005	2014	1.62	1.90	1.27	1.5
Czech Republic	2003	2015	1.04	1.03	0.83	1.2
Slovakia	2009	2015	1.30	1.69	0.93	1.8
<i>Northern Europe</i>						
Finland	2003	2015	2.10	3.01	1.24	2.4
Norway	2004	2014	0.82	0.90	0.77	1.2
Sweden	2011	2015	0.90	1.28	0.52	2.5
Denmark	2010	2015	0.93	1.15	0.71	1.6
UK (England & Wales)	2006	2014	1.08	1.52	0.67	2.3

(Continued)

Table 4. (Continued)

	Total population		Rates by gender			
	First year	Last year	Rate	Males	Females	M/F ratio
UK (Northern Ireland)	2005	2014	1.38	2.21	0.59	3.7
UK (Scotland)	2004	2014	1.70	2.77	0.70	4.0
<i>Central Europe</i>						
Netherlands	2008	2015	0.81	1.07	0.56	1.9
Germany	2003	2015	0.95	1.01	0.87	1.2
Austria	2004	2015	1.27	1.53	1.03	1.5
Switzerland	2009	2015	0.62	0.61	0.63	1.0
France	2003	2015	1.44	2.00	1.15	1.7
<i>Balkans</i>						
Slovenia	2003	2015	0.85	0.98	0.65	1.5
Croatia	2003	2015	1.34	1.58	1.08	1.5
Bosnia and Herzegovina	2007	2015	1.34	2.14	0.80	2.7
Serbia	2005	2015	1.51	2.15	0.90	2.4
Montenegro	2007	2015	2.80	4.41	1.27	3.5
TFYR of Macedonia	2006	2014	1.70	2.46	0.95	2.6
Kosovo u. UNSCR 1244	2008	2014	4.10	6.62	1.39	4.8
Albania	2005	2015	3.91	6.54	1.33	4.9
<i>Southern Europe</i>						
Greece	2007	2015	1.30	2.04	0.60	3.4
Italy	2005	2015	0.94	1.36	0.51	2.7
Spain	2007	2015	0.79	0.97	0.55	1.8
MEAN			2.09	3.09	1.23	2.4

Note: Available data on total rate for Ukraine (2003–10) 5.99; Russian Federation (2008–15) 12.35; Poland (2013–15) 1.52.

Table 5. Intentional homicide by gender of victim in some developed countries: Four-year periods between 2004 and 2015 (rates per 100,000 population and their percentage variation).

	Total population														
	Males					Females									
	2004-7	2008-11	2012-15	Var. 1 ^a	Var. 2 ^b	2004-7	2008-11	2012-15	Var. 1	Var. 2					
USA	5.73	4.97	4.64	87	93	9.13	7.80	7.11	85	91	2.41	2.20	2.00	91	91
Canada	1.87	1.75	1.54	94	88	2.56	2.59	2.21	101	85	1.03	0.93	0.89	91	95
Russian Federation		10.65	14.05	132											
Belarus		4.77	3.56	75	75		6.67	5.04		76		3.12	2.26		73
Ukraine	6.46	4.81		74											
Moldova	6.23	6.43	4.32	103	67	8.91	9.93	6.14	111	62	3.77	3.20	2.63	85	82
Estonia		5.32	3.75	71	71		8.07	5.84		72		2.04	1.92		94
Latvia			3.13					3.35					2.90		
Lithuania	9.62	7.77	6.20	81	80	14.61	11.91	9.50	82	80	5.29	4.22	3.38	80	80
Poland			1.52												
Bulgaria	2.63	2.01	1.71	76	85	3.75	3.24	2.63	86	81	1.23	0.84	0.85	68	101
Hungary	1.74	1.50	1.42	87	95	2.08	1.93	1.61	93	84	1.42	1.12	1.26	79	112
Czech Rep.	1.21	0.95	0.83	78	88		1.06	0.89		84		0.84	0.77		92
Slovakia			1.13		75		1.93	1.51		78		1.12	0.78		69
Finland	2.45	2.25	1.62	92	72	3.52	3.23	2.29	92	71	1.42	1.31	0.98	92	75
Norway	0.71	1.04	0.67	146	65	0.54	1.17	0.78	218	67	0.81	0.91	0.55	113	61
Sweden			0.91					1.30					0.52		
Denmark		0.79	0.99		126		0.92	1.26		136		0.66	0.73		111
UK (E&W)	1.33	1.08	0.93	81	86	1.97	1.50	1.24	76	83	0.72	0.67	0.62	94	92
UK (N. Ire.)	1.72	1.38	1.06	80	77	2.70	2.30	1.60	85	69	0.79	0.49	0.54	62	109

(Continued)

Table 5. (Continued)

	Total population										Males					Females				
	2004-7		2008-11		2012-15		Var. 1 ^a		Var. 2 ^b		2004-7		2008-11		2012-15		Var. 1		Var. 2	
	2.04	1.79	1.14	1.14	87	64	3.51	2.74	1.83	78	67	0.68	0.89	0.47	131	53				
UK (Scot.)																				
Netherlands		0.89	0.74	0.74	83	83	1.19	1.19	0.96	81	81	0.96	0.60	0.52	88	88				
Germany	1.02	0.95	0.85	0.85	93	90	1.11	1.02	0.92	91	90	0.93	0.89	0.79	95	89				
Austria	1.92	1.24	0.66	0.66	65	54	2.30	1.56	0.72	68	46	1.55	0.93	0.61	60	66				
Switzerland		0.63	0.61	0.61	96	96		0.63	0.60		95		0.64	0.62		98				
France	1.56	1.39	1.32	1.32	89	95														
Slovenia	1.04	0.66	0.80	0.80	64	121	1.40	0.67	0.85	47	128	0.68	0.65	0.62	95	96				
Croatia	1.64	1.34	1.00	1.00	81	75	1.98	1.56	1.20	79	77	1.32	1.13	0.80	85	71				
Bosnia Herz.		1.36	1.41	1.41	104	104		2.39	1.96		82		0.71	0.87		123				
Serbia	1.73	1.54	1.31	1.31	89	85	2.41	2.27	1.83	94	81	1.08	0.85	0.82	79	97				
Montenegro	1.94	3.26	2.56	2.56	168	79	2.96	4.90	4.29	166	88	0.95	1.75	0.87	183	50				
Macedonia	2.15	1.73	1.35	1.35	81	78	3.33	2.51	1.81	75	72	0.97	0.97	0.90	99	93				
Kosovo		4.87	3.09	3.09	63	63		7.63	5.26		69		1.84	0.78		42				
Albania	3.87	3.83	4.02	4.02	99	105	6.21	6.54	6.79	105	104	1.50	1.17	1.35	78	115				
Greece	1.17	1.47	1.17	1.17	126	80	1.74	2.43	1.73	140	71	0.62	0.55	0.65	88	119				
Italy	1.06	0.96	0.83	0.83	91	86	1.61	1.41	1.13	88	80	0.50	0.52	0.49	103	95				
Malta	0.94	1.04	1.74	1.74	110	168	1.01	1.11	2.77	109	250	0.87	0.97	0.72	111	74				
Spain	0.84	0.87	0.70	0.70	102	80		1.11	0.87		79		0.58	0.53		90				

Notes: Empty cells correspond to no available data.

^aVar. 1: Percent ratio 2008-11 and 2004-7.

^bVar. 2: Percent ratio 2012-15 and 2008-11 – only periods where at least two years are reported were considered.