What Causes Large-scale Variation in Homicide Rates?

Manuel Eisner

Institute of Criminology

University of Cambridge

(Working Paper, July 2012)

Final revised version to be published in

in Heinze, Juergen and Kortuem, Henning (eds.) Aggression in Humans and Primates. Berlin: de Gruyter.

Violence – i.e. the intentional infliction or threat of physical harm against another person – is a pervasive feature of human societies. There is no known human society where the equivalents of assault, rape, robbery, or murder do not occur. The omnipresence of violence amongst members of the human species has led some researchers to argue that violence has evolutionary roots in the development of humankind during the Pleistocene (2 Mio years ago). According to this view violence was not always the dysfunctional 'disease' or abhorred crime as which it appears to be in contemporary societies. Rather, evolutionary psychologists argue, violence had a number of uses that increased the likelihood of survival of a person who is sometimes aggressive over somebody who is always peaceful (Buss & Shackelford, 1997; Eisner, 2009).

But while violence seems to be a human universal, there also exists a lot of variation in the amount of violence in any society at a given moment of time. In some societies violent attacks by others account for up to 60% of all deaths, making violence a hugely important factor in one's chances to survive (Knauft et al., 1991; Robarchek & Robarchek, 1998). In other societies lethal interpersonal violence accounts for less than 0.05% of all deaths, meaning that it barely affects the overall life expectancy of a population. This suggests that the extent to which humans primarily display co-operative and caring or antagonistic and violent behaviour depends on social circumstances (Roth, 2011).

This paper examines homicide, the best documented manifestation of violence. In particular, it examines whether any generalizable conclusions can be drawn from three research traditions that have tried to understand why societies differ in levels of homicide. The three research traditions examined here are a) criminological research on cross-national differences in homicide, b) comparative anthropological research on levels of lethal violence in non-state societies, and c) historical research on the factors that affect long-term variation in homicide rates over time. Many researchers believe that homicide is probably a good lead indicator of overall levels of interpersonal violence in a society. However, the extent to which this assumption is true is not clear, and one should bear in mind that different manifestations of violence may have different distributions across societies and over time. Thus, the large-scale variation in the frequency of rape, robbery, wife beating or infanticide may be partly correlated with the distribution of homicide, but each of these behaviours is probably also influenced by specific factors.

The first section will examine the extent of variation in homicide across human societies. I then examine the extent to which some characteristics of 'homicide' differ between relatively peaceful societies and violent societies. This is important because we need to understand whether peaceful and violent societies simply have more or less of the same problems, or whether homicide in high-violence societies differs systematically from homicide in low homicide societies. In a third section I discuss empirical research in each research tradition on the factors that are systematically associated with variation in homicide levels, both over time and between societies. In a final section I examine some research gaps and strategies for future research.

1. How Much Variation is there?

Before we can understand the causes of large-scale variation in homicide rates we need to establish the extent of variation that exists between human societies. To do this I examine data from three research traditions that rely on very different data sources:

Data on variation in homicide rates across modern states can now be found for almost every nation of the world. Comprehensive recent tabulations of data along with methodological considerations are reported in the *Global Study on Homicide* by the United Nations Office on Drugs and Crime, UNODC (United Nations Office on Drugs and Crime, 2011). A large proportion of the data are derived from either of two sources: The World Health Organisation compiles annual cross-national mortality datasets based on national mortality statistics, where deaths due to injuries resulting from assault by another person are coded in the ICD (International Classification of Diseases) codes X85-Y09. The *United Nations Survey of Crime Trends and Operations of Criminal Justice Systems*, on the other hand, is based on the number of police recorded completed homicides as reported to the UNODC through national police agencies. While great progress has been made in the quality and the geographic coverage of homicide data, the quality is generally more likely to be problematic in low-income countries. Also, coverage can be biased in societies with high levels of violent political conflict and civil war, not only because the bureaucratic process of collecting mortality statistics breaks down, but also because the boundaries between homicide and war-related death become blurred.

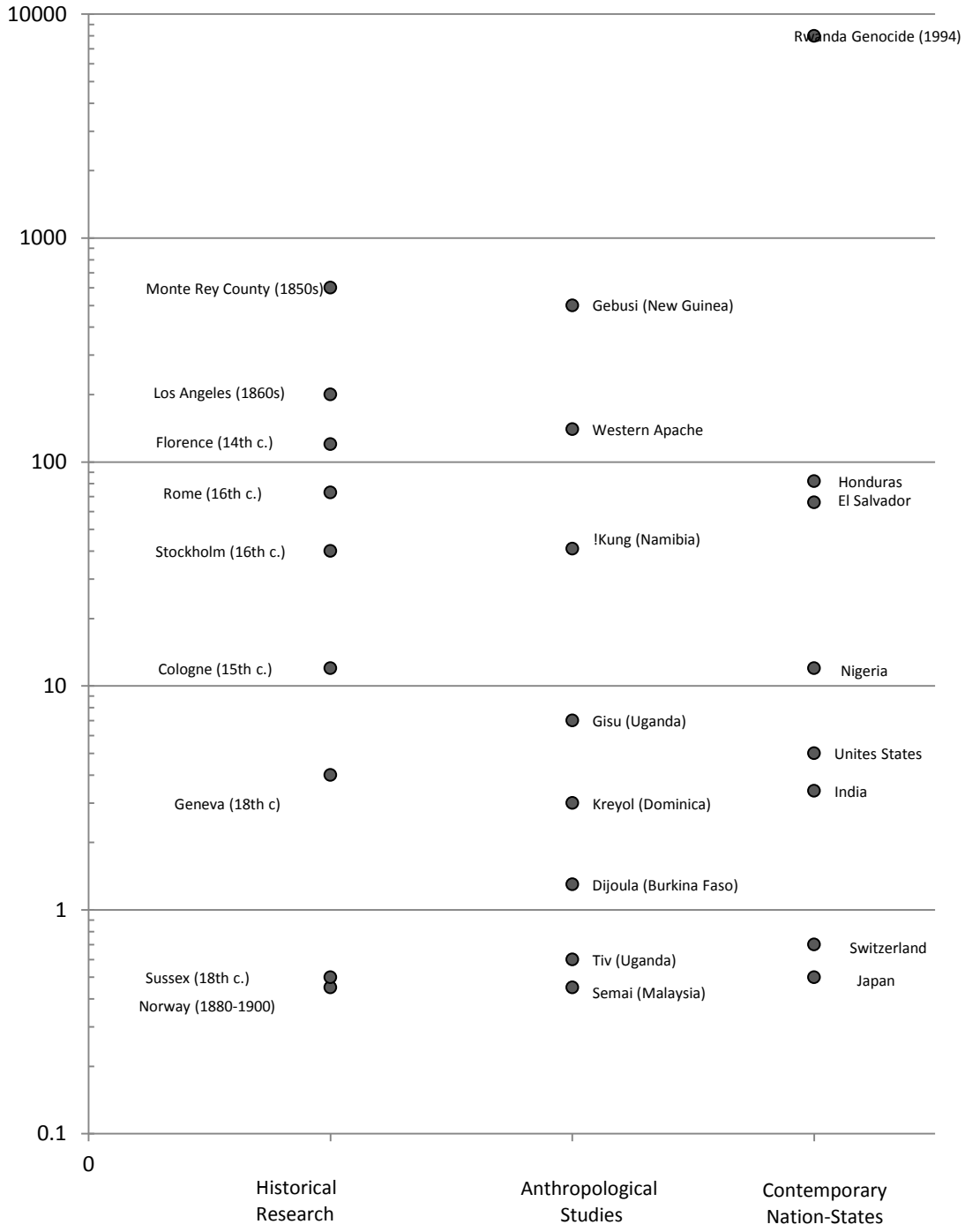
Data on variation in homicide rates across historical time periods are mainly available for Europe and for the United States. Probably the most comprehensive review of historical data on homicide rates is the *European Homicide Database* compiled by Eisner (2003). This database comprises estimates of homicide rates across Europe over the past 800 years. Estimates for the period before the onset of national statistics (i.e. between the 13th and the early 19th centuries) are based on research findings published by historians of crime, each relating to a specific geographic area and historical period. From about 1800 the database comprises series annual data derived from official statistics in 18 countries. The most comprehensive analysis of historical homicide in the United States is the study *American Homicide* by Roth (2009). It is based on an extensive examination of thousands of homicide cases, based on a variety of primary sources including newspapers, judicial records and mortality data, in every region of the United States over up to 400 years. Homicides estimates based on historical sources are subject to various limitations: An unknown number of cases may not have come to the attention of the authorities; the likelihood of dying from trauma changed over time as medical treatment improved; population estimates are often inaccurate; and often – particularly for periods before 1800 - we only have estimates for limited geographic regions or cities, making generalisations to whole countries difficult.

Data on homicide levels in non-state societies have been collected by various anthropologists interested in the cross-cultural comparison of violence. Nivette (2011b) has reviewed much of the evidence, collating estimates from a considerable number of studies. Estimates of homicide rates in non-

state societies have many limitations, and comparisons with data from bureaucratic nation-states must be made with great caution. First, the estimates from many studies derive from societies that have had contact with Western societies or that had effectively been colonialized (e.g. Bohannan, 1960). Evidence from such societies may have been influenced – in either direction - by the consequences of Western cultural, political and economic domination. Second, many estimates for simple societies relate to small societies of sometimes just a few hundred members and are based on recollections of violent deaths as recorded in ethnographic interviews. Such estimates can be subject to wild fluctuations as a result of small numbers, and it is difficult to determine to what extent they are subject to bias. Third, some studies such as the well-known analysis by Keeley (1996) indiscriminately combine deaths from intra-group and inter-group (war) conflict. While this is a defensible strategy if one is interested in overall levels of lethality from human conflict, it results in a lack of comparability to modern statistics, where deaths resulting from war and deaths due to homicide are clearly separated. Fourth, one needs to bear in mind that in any society without a functioning state it is impossible to clearly distinguish capital punishment as a strategy to restore order from homicide as a transgression of moral rules (Boehm, 1984; Chagnon, 1988). Thus, many violent deaths in non-state societies were considered justifiable since they were permissible reactions to a previous harm such as theft or adultery, and hence equivalent to punishment in a state-organized society. Finally, it is important to recognize that all 'simple' societies had very limited abilities to treat wounds resulting from injury, meaning that a far greater proportion of traumas resulted in death than is the case in modern societies.

All together, these three datasets represent several hundreds of estimates of homicide rates from all parts of the world, different historical periods, and both state-organized and non-state societies. Despite their limitations, they give an impression of the variation in homicide rates across human societies. To illustrate this amount of variation I have placed a small selection of estimates from each of the three data sources on a single spine (figure 1). The spine, shown on the vertical axis, is displayed on a logarithmic scale that ranges from 0.1 per 100,000 person-years to 10,000 per 100,000 person-years, meaning that it comprises six orders of magnitude.

Figure 1 *Homicide Rates in Selected Contemporary, Historical, and Non-state Societies*



The World Records in Peacefulness

Finding the haven of peace where people live harmoniously together has always fascinated philosophers and social scientists. What exactly 'peacefulness' means and whether a low likelihood of lethal within-society conflict is an acceptable operationalization, may be open to contention. There was a time when researchers interested in peaceful societies were primarily looking for simple pre-state societies (Bonta, 1996; Mead, 1928). However, the illustrative data shown in figure 1 and more comprehensive analyses suggest that some modern, highly developed societies may be as close to the ideal of a peaceful society as any other.

The tables of officially recorded homicide rates in modern states such as those compiled for the Global Study on Homicide (United Nations Office on Drugs and Crime, 2011) suggest that the lowest national homicide rates found in today's world are around 0.5 cases per 100,000 inhabitants per year. At such rates homicide becomes a very marginal cause of death, accounting for around 0.04% of all deaths in any given year. According to the UNODC database there existed several contemporary societies with homicide rates of about 0.5 in around 2005-08. This includes Hong Kong (0.5), Singapore (0.5) and Japan (0.5) in Eastern Asia; Bahrain (0.6), Oman (0.7) and the United Arab Emirates (0.8) in the Middle East; and Norway (0.6), Slovenia (0.6), Austria (0.5) and Switzerland (0.7) in Europe. In Africa or the Americas no nation-state is currently recorded with a homicide rate of less than 1 per 100,000.

Remarkably, historical data on homicide rates suggest a similar lower boundary during the history of Europe or the United States over the past centuries. For example, the European Homicide Database suggests a cluster of countries including Sweden, Denmark, Norway and the Netherlands in the late 19th and early 20th century that had remarkably few homicides. In Norway, for example, the mortality statistics between 1875 and 1900 report an average of 9 non-infant deaths due to murder or manslaughter each year. In a country with a population of 2 Million people this equals a homicide rate of about 0.45 per 100,000. This is particularly impressive as emergency services in the late 19th century were considerably less effective than they are today and Norway was a relatively poor, sparsely populated and rural country, where trauma victims were unlikely to receive specialist treatment. No exact estimates exist on the impact of emergency services on the mortality risk of, for example, stab wounds. However, Monkkonen (2001) estimates that probably half of all violent deaths that occurred in the mid-19th century could have been prevented with modern technology. This implies that the late 19th century homicide rates of Norway might be equivalent to a rate of around 0.2 per 100,000 in the contemporary world, once progress in medical emergency technology is taken into account. I am not aware of any society at any time with fewer within-group lethal conflicts. However, a very similar range of values found in Denmark and the Netherlands during this period, and I believe these rates may be very close to the world records of peacefulness as measured by the rate interpersonal killing within a society.

However, low homicide rates are not the exclusive prerogative of people living in well-integrated nation states. The evidence reviewed by Nivette (2011b) suggests a lot of variation amongst 'simple' non-state societies. Some of these societies have homicide rates that are very close to those of the most pacified societies found in the historical and contemporary data of Western Europe. For example, the *Dioula* in Burkina Faso – a group known for their important historical and contemporary role as traders and merchants across the Sahara and the Sahel areas – are reported in the study by Faurie and Raymond (2005) to have an estimated homicide rate of 1.3 per 100,000. Similarly, several societies studied in the contributions to the volume *African Homicide and Suicide*, published in 1960, were found to have very low levels of homicide. For example, Beattie examined homicide amongst the Nyoro, an ethnic group of about 110,000 people in Uganda. Over the 20-year period from 1935-1955 a total of 34 cases of completed or attempted intentional homicides were recorded by the district court, the coroner, or the in the Police files. This equals a homicide rate of about 1.5 attempted and completed homicides per 100,000 in a society with hardly any medical services – certainly a remarkably low level, even if the official figures may be incomplete. Finally, there is the famous example of the Semai, a farming people living in small autonomous bands in the rainforest of Malaysia, amongst whom physical violence including fights among adults, domestic violence against wives or the beating of children appears to be extremely rare. According to Dentan (1968) there were two homicides amongst the Semai (one of which was an abandonment of an old person) in the period between 1955 and 1977 (Robarchek & Robarchek, 1998). With a population of about 15,000 this equals a homicide of about 0.6 per 100,000, a value that is very similar to what has been found to be the range of what human societies can achieve in contemporary and in historical research.

The World Records in Violence

It is unclear whether something like an upper limit of intraspecific killing exists in human societies. There are examples of massacres and genocides where humans got as close as possible to wiping out whole societies. To illustrate the issue I have included Rwanda during the year of the genocide against the Tutsi minority in 1994 at the top of the scale of homicide rates in modern societies. Various estimates put the death toll at 5-800,000 people within a few months, equal to about 10% of the population or a homicide rate of 10,000 per 100,000. Of course, the rate would be even higher if we calculated a separate rate for the Tutsi minority, but exact figures are not relevant here. The issue is whether such 'extreme' and organized kinds of large-scale killings should be placed on a single spine of violence as suggested in Figure 1. Most criminologists don't consider themselves competent to analyse these kinds of levels of killings, believing that genocides and civil wars are something entirely different from criminal homicide, and better analysed by sociologists or political scientists. I don't believe this is true. Rather, the single spine used in figure 1 reflects my assumption that there is a continuum from the more individual 'traditional' types of pathological murder to the organized elimination of whole population groups.

If we ignore such extreme cases as Rwanda in 1994 and focus on homicide in the more narrow sense, we find that the highest rates of recorded homicide in the modern world are between 50 and 100 per 100,000 inhabitants. In the UNODC statistics the countries with the highest homicide rates were Honduras (82.1), El Salvador (66.0), Cote d'Ivoire (56.9), and Jamaica (52.0). In all four countries endemic violence, much of it associated with organized groups, is a major problem and homicide constitutes a major cause of death, especially amongst young men, who are the most highly affected group of victims. Also, the national averages mask a lot of regional variation, meaning that violence levels in some regions will be much higher than the respective national averages.

While these four countries certainly suffer from very serious levels of violence, it is possible that UNODC statistics seriously underestimate the values of some other countries. For example, the *Global Study on Homicide* counts 608 homicides in Iraq in 2008, equivalent to a homicide rate of 2.0 per 100,000. This would make Iraq in 2008 one of the most peaceful places in the world. It is unclear, how this figure was arrived at, but it must exclude a very large number of civilian deaths related to the political instability and sectarian violence in the country. According to the Iraq Body Count project, for example, there were almost 10,000 civilian violent deaths in Iraq in 2008, which would amount to a homicide rate for 2008 of about 30 per 100,000. Even more stunningly, the UNODC report presents a figure of 138 homicides for Somalia in 2008, equivalent to a rate of 1.5 per 100,000 in 2008 and corresponding to a level that would put the homicide rate in Somalia close to that of politically stable and affluent societies in Western Europe. In that year Somalia was in the midst of a cruel civil war with gangs of rival war-lords fighting each other in Mogadishu and other cities. According to the Mogadishu-based *Elman Peace and Human Rights Organisation* the number of civilian deaths in 2008 was around 7,500 persons, more than fifty times the figure in the homicide statistics. These inconsistencies illustrate two problems that we often observe in societies with high levels of violence: One is that under such conditions the bureaucratic structures that are responsible for collecting information about causes of death stop operating, meaning that data will be incomplete. The other problem is that under such conditions the distinction between 'criminal' interpersonal violence, political violence and civil war becomes increasingly blurred.

Historical research has uncovered a number of societies with very high rates of homicides. In Europe, for example, some studies find very high rates of homicide in some cities in the Middle Ages and the Early modern period – although the notion of general lawless and pervasive violence in the high Middle Ages is certainly wrong (Dean, 2001). For example, local studies for 14th century *Florence* (Becker, 1976), 16th century *Stockholm* (Karonen, 2001) or medieval *Utrecht* (Berents, 1976) suggest that the upper limit are homicide rates in the range of 50-150 per 100,000 inhabitants over extended periods of time, although Spierenburg (2001) quotes a homicide rate as high as about 700 per 100,000 for Corsica in the early 18th century.

In the United States, Roth documents some very high homicide rates during the early phases of European colonialisation. For early 17th century *Virginia* Roth reports a homicide rate of about 250 per

100,000 (Roth, 2009: 37), and a rate of almost 500 per 100,000 for Maryland during the same period. Roth explains that this rate was not solely the result of the clash between settlers and Native Americans: "Non Puritans killed Puritans; the Dutch killed their fellow Dutch; Englishmen killed Frenchmen; and Frenchmen retaliated. Men died in clashes between rival governments and political factions that fought to control trade and territory" (Roth, 2009: 27).

Some ethnographic studies have come up with even higher estimates. Amongst these, the estimates provided by Lawrence Keeley in *War before Civilization (Keeley, 1996)* are particularly remarkable, not least because they have been cited prominently in the more recent work by Pinker (2011). Amongst others, Keeley reports rates of violent deaths of about 1450 per 100,000 for the Kato tribe in California during the 1840 or of 970 per 100,000 in the 1920s for the Dinka, an agripastoral group without central political authority in what is now Sudan, who had a long tradition of cattle-raiding and encroachment on grazing lands of their neighbours (Fluehr-Lobban, 1976). Similar rates have been documented for a range of hunter-gatherer and horticultural societies across the globe. They imply that in some agropastoral societies up to 1% of the population were killed by violent acts each year, which in turn means that up to 50% of men could expect to die through violence (Schiefenhoevel, 1988).

However, it should be borne in mind that these and similar data are reported by Keeley and Knauft (Knauft, 1987) relate to lethal violence in a much broader sense as they include, besides the conflicts we would identify as homicides, wars with neighbours, conflicts within tribes, and capital punishments for perceived transgressions such as theft, adultery or witchcraft.

2. Variation of What?

Homicide is a judicial category, which lumps together all cases where the intentional infliction of a trauma by a person leads to the death of another person – and the perpetrator is not legitimized by the state to inflict the lethal trauma (e.g. in a war or as an executioner). As a behavioural category homicide therefore is a mix of very different situations. This raises the question of whether the characteristics of homicides (and of violence more generally) are broadly similar in societies with much and with little interpersonal violence, the only difference being that there is more or less of the same phenomenon, or whether different kinds of violence dominate in high violence societies as compared to pacified societies. This is an important issue to address if one wants to understand the causes of macro-level variation in violence. The reason is that some types of violence or some groups of perpetrators may be more strongly influenced by contextual conditions related to the likelihood of violence than others.

Currently there is limited consolidated knowledge about which contextual aspects of homicide are invariant across societal levels of homicide and which aspects vary in systematic way. However, it seems that for some aspects of homicide different comparative studies converge to similar findings. I briefly review a selection of relevant aspects. It is mostly based on

Sex of perpetrators: It is clear from empirical studies across the world that the vast majority of homicides are committed by men (Eisner, 2003; Nivette, 2011b: 11). However, much less is known about the extent of variation in the proportion of male perpetrators. Eisner (2003) has examined samples of assault and homicide over the past 800 years and concluded that the male perpetrator rate fluctuated within a rather narrow range of between 3 and 15%, with no clear trend over time or between societies. Some isolated findings may suggest that the preponderance of male perpetrators is even greater in high homicide societies than in pacified societies. However, no systematic research has yet been done on this issue.

Social Disadvantage of Perpetrators: Evidence from many studies suggests that in pacified societies the majority of homicides is committed by people who are socially highly marginalized. Perpetrators often have no or irregular employment and a large proportion suffers from a combination of problems including substance abuse, mental health problems, etc. In contrast, it seems that in highly violent societies the perpetration of murders and manslaughters is much less constrained to disadvantaged groups. Cooney (1997, 1998) has argued that high involvement of the elites in violence was the rule over long historical periods, and that it was not limited to political conflicts but included a range of violent clashes over private matters amongst members of the elites, and ruthless lashing out against people at lower ranks. Eisner (2003) has presented some empirical evidence supporting the idea that historical societies with high levels of homicide often also displayed a high involvement of members of the elites in violent acts. In a similar vein, ethnographic research suggests that in some societies with a very high homicide rate men with a high prowess to fight and kill enjoy a higher social status and have a reproductive advantage over other men (Chagnon, 1988; C. R. Ember & Ember, 2007).

Sex of victims: In most societies the majority of homicide victims are men. However, the proportion of male homicide victims varies considerably between societies. According to the Global Study on Homicide (United Nations Office on Drugs and Crime, 2011), for example, the proportion of female victims varied between about 50 % in Slovenia (53.8%), Korea (51%), Japan (50.0%), Germany (49.6%), Switzerland (49.1%), and Croatia (49.0) and on the one hand, and less than 8% of all victims in, amongst others Honduras (6.9%), Paraguay (6.4%), Uganda (6.0%), Venezuela (5.0%), and Sri Lanka (3.7%). Historically, too, a similar range of values has been found across European societies between the Middle Ages and the 19th century (e.g. Eisner, 2003; Hanawalt, 1979; Sharpe, 1981). The sex composition of homicide victims seems to differ systematically between high and low homicide societies. Using historical data the Finnish criminologist Veli Verkko (1967) found that in societies with low levels of homicide the proportion of female victims is usually large. In violent societies, in contrast, the majority of victims (often 80% and more) are usually men. This relationship seems to hold in many different societies over time and as levels of homicide change, and it appears to hold cross-sectionally (Roth, 2009). It implies that in high violence societies most violence takes place between unrelated males.

Relationship between perpetrators and victims: A common way to classify homicides is to distinguish between different groups of relationship between the victim and the perpetrator. The most basic distinction probably refers to whether the perpetrator and the victim were members of the same household or family on the one hand, or whether they were friends, acquaintances or strangers on the other (Wolfgang, 1958). The number of domestic homicides as a proportion of all homicides committed in a society is highly variable. Amongst homicides recorded in judicial archives of the Middle Ages, for example, fewer than 10% of the cases related to the killing of a family member (Eisner, 2003). In late 19th century England, in contrast, when overall homicide rates were much lower, more than half of all murders or manslaughters took place between family members. In England and Wales, members of the perpetrator's family still accounted for about 50% of all cases in the 1970s, but the proportion dropped to about 25% by around 2002/3, when overall homicide rates in England and Wales were at their highest point during the 20th century (Smith, Coleman, Eder, & Hall, 2011). Several historians of homicide believe that the proportion of domestic homicides varies inversely with overall levels of homicide in the sense that high homicide societies generally have a low proportion of domestic homicides (Eisner, 2003; Roth, 2009; Spierenburg, 2012). This would mean that overall variation in homicide rates is mainly driven by change in the level of lethal encounters between unrelated friends, acquaintances and strangers. Unfortunately, no comparative study of variation in perpetrator-victim relationship exists for contemporary societies or for simple non-state societies, which would allow us to examine whether the hypothesized regularity universally exists across different types of cultures.

Instrumental Homicide: By instrumental homicides I mean homicides that are committed to achieve some material advantage (e.g. robberies), that are part of organized crime or that can be seen as planned acts of private retaliation against an adversary. Unfortunately close to nothing is known about the extent to which instrumental homicide varies across societies. Qualitative studies suggest that motives related to protecting illegal markets, turf fights between opposing gangs, and retaliation in the context of vigilanti groups or revenge cultures play an over-proportionate role in high-homicide societies.

The limited evidence that is currently available suggests that the typical profile of homicides in pacified societies is probably quite different from the profile of homicides in high homicide societies. In

Table 1 I have tentatively put together some of the characteristics that probably distinguish the modal homicide in violent societies from that in a pacified society. They suggest that in low homicide societies the perpetration of assaults with lethal consequences is limited to a small group of highly pathological individuals, and that a considerable proportion of killings is committed within a domestic context. In societies with high levels of homicide, in contrast, homicides tend to be more likely to happen between men, to be linked to instrumental motives, to include violent entrepreneurs, and to happen in public space.

Table 1 *Hypothesized pattern of characteristics of homicides in low and high homicide societies*

Characteristic	Low Homicide Societies (< 2 per 100,000)	High Homicide Societies (> 10 per 100,000)
V-P Relationship	Relatively large proportion of domestic homicides	Predominance of homicides between acquaintances and strangers
Importance of Biological and Social Risk Factors	Biological risk-factors dominate, many offenders with deficits in neuro-cognitive functioning	Social risk factors dominate
Social Class	Most perpetrators highly marginalised	High involvement of elite members, violence a strategic option for upward mobility
Sex of Victims	Relatively high proportion of female victims (> 30%)	Predominantly male victims, usually > 90%
Instrumental Violence	Low importance of strategic, instrument homicide	A significant proportion of homicides has strategic purposes
Weapons	Weapons not usually carried in public. homicides committed without specialised murder instruments	Weapons routinely carried by a significant proportion of men, a large proportion of homicides committed by means of specialised instruments

3. Where does Variation Come From?

Across human societies the level of interpersonal within-group violence varies at least between 0.3 and 200 per 100,000 inhabitants per year for 'conventional' homicide, although the upper end is a lot higher if we include raids, civil wars, and short but extreme outbreaks of massacre and genocide in the picture. Comparative researchers have long been interested in the structural conditions that are associated with this kind of variation in levels of homicide. Emile Durkheim (1957), for example, wrote in his lectures held at the Sorbonne in 1902/3 about the relationship between homicide and individualism, observing that collectivist societies typically have higher homicide rates, because an individual's life counts relatively little in comparison to the value of a collective (the family, the clan, the tribe), leading to a higher propensity to put one's own life on the line in order to defend the integrity and honor of the group. Other researchers around the turn of the 19th and 20th century, like the Italian criminologist Augusto Bosco produced the first tables that compared homicide rates across a significant number of countries and interpreted them against other macro-level indicators such as illiteracy (Bosco, 1889)

More systematic research on structural correlates of macro-level variation in levels of homicide only started in the early 1970s (LaFree, 1999). Since then considerable progress has been made in identifying conditions that are systematically associated with variation in homicide rates. However, there is

still little agreement about which factors are most relevant and what the causal mechanisms are that link structural conditions to the likelihood of homicide. I therefore refer to these correlates as macro-level risk-factors. The notion of risk factors originates in individual-level research and denotes any variable that is consistently found to be associated with an increased likelihood of a negative outcome such as coronary heart diseases, even if the causal mechanism is not clear (see, e.g. Farrington, 2006). A macro-level risk-factor is therefore that is regularly found to be associated with variation in homicide rates between societies or countries.

Correlates of Homicide in Modern Societies

Over the past 50 years many studies have examined the correlates of cross-national differences in homicide rates in modern societies. There exist three major recent reviews of the literature. LaFree (1999) reviewed 34 studies published between 1965 and 1997. Trent and Pridemore (2012) summarized the field by providing a narrative systematic review of 70 peer-reviewed studies published up to 2010. And Nivette (2011a) conducted a meta-analysis of 55 empirical studies that have examined cross-national variation in homicide rates.

The review by LaFree (1999) made six generalizations about risk-factors that predict homicide rates: LaFree found that *economic inequality* was the most consistent significant predictor of homicide rates; the study also reported much support for a negative relationship between homicide and *economic development* in the sense that economically advanced nations tend to have lower homicide rates than poor countries. In contrast, the study found no support for the hypotheses that *urbanisation*, *unemployment* rates or the *demographic structure* of a society were associated with variation in homicide rates, although LaFree suggests that high population was found to be an independent predictor of high homicide. In respect for effects of social and cultural heterogeneity the review by LaFree concluded that the evidence was contradictory.

The review by Trent and Pridemore (2012) grouped the variables tested in the reviewed research into five bundles that are similar to those developed by LaFree (1999) namely *development and industrialization, deprivation, urbanism, population structure,* and *social and cultural heterogeneity*. Given that the studies examine the same universe of observation units and the same limited list of potential predictors it is sobering to learn that, in the authors view, "no definite generalizations" on the strength of theoretical perspectives or variables can be drawn (2012: 133). Like the earlier study by LaFree (1999) the authors conclude that evidence is contradictory or non-existing for the effects of urbanism and for the effects of the population structure on homicide. In contrast, evidence is found to be mostly supportive of the hypothesized links in two domains: Thus, the majority of studies are reported to find a negative association between modernization or development and homicide. Also, the authors conclude that the majority of studies find a positive association between measures of either absolute (child poverty) or relative (income inequality) deprivation and homicide. As to heterogeneity or fractionalization the authors

conclude that several studies did find the expected positive effect, but that the overall picture is inconsistent.

The study by Nivette (2011a) is particularly useful because the results of her meta-analysis provide, for the first time, a statistical summary of which predictors have been used in extant research, and what average effects (as measured by the standardized mean effect size correlation coefficients M_r) were found across the studies. In addition to macro level geographic variables such as 'Latin America' or 'South East Asia', which are best considered as substantially meaningless markers of something that is not understood, the variables found to be positively associated with homicide rates included *income inequality – ratio measure* (M_r = .416, $N_{studies}$ = 13), *divorce rate* (M_r = .277, $N_{studies}$ = 10) , *population growth* (M_r = .251, $N_{studies}$ = 9), *income inequality – Gini Index* (M_r = .224, $N_{studies}$ = 31), *female labour force participation* (M_r = .223, $N_{studies}$ = 13), *infant mortality* (M_r = .196, N = 8), and *ethnic heterogeneity* (M_r = .163, N = 12),. Factors found to be negatively associated with homicide rates were *social welfare protection of the population* (M_r = -.279, N = 4), *ethnic homogeneity* (M_r = -.247, N = 5), and modernization as measured by the *human development index* (M_r = -.163, N = 14).

Some of these findings are in line with the two narrative reviews. In particular, the meta-analysis confirms that high social inequality is a robust predictor of high homicide rates and it provides further support to the assumption that countries with high ethnic and cultural heterogeneity tend to experience higher homicide rates. It also suggests that high socio-economic development as measured by the human development index may be linked to lower homicide rates, while high levels of poverty as measured by the infant mortality rate tend to be associated with higher homicide rates. The latter finding is consistent with the result that societies where citizens are better protected by welfare-state arrangements tend to have lower homicide rates. Finally, the study identifies two variable domains, namely the *divorce rate* and the *female labour force participation* rate, that were not addressed in the other two reviews. Both variables may be interpreted as indicating instability of family and socialization patterns, but they could also be indicators for other aspects of social structure that are less easily measured.

It is of some concern that three recent reviews of the cross-national literature on homicide arrive at diverging conclusions about which bundles of variables of theoretical constructs are predictive of variation in homicide rates. Partly, this reflects the nature of the field, which has long been plagued by far from satisfactory and biased samples, a sometimes eclectic operationalization of theoretical constructs, very different theoretical interpretations of the same predictor variables, lack of attention to issuers of temporal order and spatial dependency, and the multicollinearity of conceptually different variables (Stamatel, 2006). Nonetheless, the analyses lead to the conclusion that in modern nation states the homicide rate tends to be high in less-developed societies, in societies with high levels of social inequality and poverty, and in societies with a low integration of ethnic and cultural minorities.

It is worth mentioning, however, that cross-national homicide research has tended to repeatedly use similar constructs over the past decades rather than exploring new theoretical and empirical avenues. One such new promising perspective are analyses of the link between variation in homicide rates and indicators of state functioning such as governance indicators, measures of corruption, or variables that capture state legitimacy (Neumayer, 2003; Nivette & Eisner, 2012). Overall, the few studies suggest that state functioning could prove to be a relevant but previously ignored factor associated with variation in intra-societal violence. For example, Nivette and Eisner (2012) examined the extent to which political legitimacy predicts levels of homicide rates. They found that political legitimacy is a strong and consistent predictor of homicide rates. As Nivette and Eisner state: "The legitimate state, as measured in this paper, is one that evokes confidence in its ability to provide fair and equal rights and protection, conducts its government according to citizens' values, and does not prey upon its citizens (i.e. through political violence) (Gilley, 2006). Tested against a number of controls, the robust results show that where polities are considered legitimate, homicide is low."

Correlates of Homicide in Non-state Societies

Anthropological research has generated an impressive volume of studies on violence in many societies around the globe (e.g. Bohannan, 1960; Chagnon, 1988; Heald, 1990; Knauft, 1987). However, few studies have tried to assess macro-level risk-factors for violence by taking an explicitly comparative perspective. Also, I am not aware of any systematic reviews of the cross-culturally comparative literature on homicide and violence in non-state societies. I therefore discuss three studies that have relied on relatively large samples of non-state societies with a view to drawing inferences about contextual factors that are associated with variation in homicide rates.

One of the first such studies was conducted by political scientist Marc H. Ross {, 1985 #10824;, 1986 #10825. It included a sample of 90 small-scale traditional societies and examined risk-factors for internal and external violence separately. In a multivariate model, four of the eleven included risk-factors for internal violence turned out to be significantly predictive: Two were structural characteristics. Internal violence tended to be high in societies with a low score in *cross-cutting ties*, i.e. weak political links between communities and the lacking sense of overarching solidarity ($\beta = -.29$) and in societies with strong *fraternal interest groups*, i.e. strong solidarity ties amongst kinsmen ($\beta = .22$). Although the two variables measure different constructs, they seem to tap on a common underlying dimension, namely the strength of bonds and allegiances within a primary group (the family, the clan) relative to the strength of 'weak ties' (Gravetter) between groups. The findings by Ross hence suggest that in non-state societies homicide was low where the sense of cohesion beyond the primary solidarity networks was high and where the mutual obligation within the kinship group was low. This finding echoes Durkheim's hypothesis that the decline of homicide is correlated with the transition from mechanic solidarity (based on kinship) to organic solidarity (based on a generalized respect).

The two other risk factors found by Ross were related to socialization practices. Violence was found to be high in societies with *harsh socialisation practices* (β = .22) and *lacking affectionate socialisation practices* (β = -.31). This would suggest that levels of violence are transmitted over generations through a socialization pattern that emphasizes the warrior abilities of young men and that promotes notions of masculine honour and toughness. Interestingly, though, the effects of both socialization variables became non-significant once the variable measuring external conflict (i.e. war) was added to the equation. This probably suggests, as Ember and Ember {, 1994 #10199} have argued, that external conflict promotes more martial and aggressive socialisation practices, which in turn lead to higher levels of internal violence.

In a different study, Rosenfeld and Messner (1991) analysed data for 32 societies derived from the *Human Relations Area Files*, a systematic collection of information about various aspects of cultures across the globe (M. Ember, 1988). The study explicitly aimed at examining whether modern covariates of homicide can be replicated for pre-state societies, and included a range of potential covariates related to social inequality, social disorganization, and social development. Messner and Rosenfeld concluded that none of available measures of social inequality were related to levels of socially disapproved homicide. However, the authors found five macro-level risk factors that co-varied with levels of homicide. In particular, homicide rates were found to be lower in societies with *high levels of political oppression* (Kendall's $\tau_b = -.39$), a predominance of *larger settlements* (τ_b = -.63), a *large total population size* (τ_b = -.28), some degree of *separate centralized political authority* (τ_b = -.28), and in societies with a differentiated *military organization such as a standing army* (τ_b = -.57). Similar relationships were found when substituting homicide by measures of wife beating and drunken brawling, suggesting that these variables are macro-level risk-factors not only for homicide, but for violence more generally. Messner and Rosenfeld (1991) interpret their findings as suggesting that violence is suppressed more effectively in societies that have formalized conflict resolution mechanisms, greater centralized formal authority, and formal coercive mechanisms. They are therefore in line with the assumption that the evolution of state structures reduces interpersonal violence (Hobbes, 1968 [1660]). Also, the significant negative effect of political oppression (i.e. societies oppressed by others are more peaceful) is in line with the argument by Keeley (1996) on peoples with low levels of violence in Northern America, namely that they tended to be either isolated defeated refugees or groups that were forcefully pacified by the victors. Furthermore, the negative effects of settlement size and large population size may indicate that higher levels of social differentiation and the rise of interaction chains with people outside the close kinship group are associated with lower levels of homicide.

In the third study to be discussed here, Ember and Ember (1994) analysed up to 186 societies included in the *Standard Cross-cultural Sample* developed by Murdock and White (1969). That study concluded that cross-cultural variation in homicide and other kinds of violence was related to socialisation patterns, in particular the encouragement of aggression during late childhood amongst boys (C. R. Ember & Ember, 1994). The most important bivariate correlates of homicide were encouragement of *aggression during late childhood amongst boys* (r = .40) *parental hostility* (r = .31), and *low overall parental warmth* (r = -.50).

Similar to the findings in the study by Ross (1985), a multivariate analysis suggested that the frequency of external wars and socialisation for aggression turned out as main predictors of homicide.

It is difficult to determine whether any general conclusions can be reliably drawn from these studies on why nonstate societies vary in their levels of interpersonal violence. However, some support appears to exist for three general patterns: First, more intensive socialisation for aggression and pugnacious manliness seems to predict rates of interpersonal violence, and socialisation for aggression in turn is probably related to the likelihood that a society is involved in warfare with its neighbours. Second, the studies by Ross (1985) and Rosenfeld and Messner (1991) suggest that rates of interpersonal violence in premodern societies co-varied with the complexity of social organisation, in that societies with more intense networks of interaction across kinship boundaries, larger settlements, and a stronger overarching sense of cohesion tended to experience less violence. Third, Rosenfeld and Messner (1991) found evidence to support the notion that interpersonal violence tends to be lower as specialists of social control evolve, such as some kind of political and legal authority or a differentiated military organization.

Correlates of Homicide in Historical Research

When analysing macro-level variation in homicide, most comparative historians of crime are less interested in comparisons between societies at a given point in time than in explanations of the long alternations between ups and downs in homicide rates over time within one society. For example, their research might typically entail the search for explanations of why levels of homicide in England dropped massively from the early decades of the 17th century until the mid-18th century (Roth, 2001), or why homicide tended to increase in most Western societies between the late 1950s and the early 1980s (Eisner, 2008; Spierenburg, 2008).

Over the past 20 years many theoretical approaches have been developed to explain long-term variation in homicide rates, especially the significant declining trend of lethal violence in Europe since the Middle Ages. Most of these approaches are influenced by the seminal work of Norbert Elias, a German sociologist whose book *The Civilizing Process* was published in 1939 (Elias, 1978). In that book Elias argued that the growing monopolization of the use of force by the state and the increasing interdependence of people in long chains of interlocking networks creates a pressure towards cultivating self-control, good manners, and long-sightedness, which in turn is associated with a decline in impulsive and disruptive behaviour such as individual violence.

To date, there have been hardly any attempts to operationalize hypotheses about the causes of macro-level historical variation in homicide, especially over longer periods of time. Rather, existing work has tended to rely on qualitative evidence to develop arguments about potential explanatory mechanisms. This has resulted in a number of suggestions about the relevant covariates of historical variation in violence. I briefly review three studies in this field, namely Eisner (2003), Roth (2009) and Pinker (2011).

Each of the three studies proposes a number of general macro level risk-factors assumed to correlate with historical variation in homicide. However, neither of these studies provides more rigid empirical tests of the hypothesized relationships in the sense of attempts to demonstrate patterns of association with quantitative risk-factors.

In two papers in the early 2000s I suggested that by combining the results of a large number of primary studies it is possible to gain a differentiated picture of homicide trends in various European regions over the past 800 years (Eisner, 2001, 2003). The main finding was that homicide rates declined significantly across Europe from the Middle Ages to the 19th century, but that there were significant differences in the timing and the speed of the decline. In many regions of Northern Europe the decline appears to have started in the late Middle Ages already and by the mid-18th century all of England, the Netherlands, Northern Germany, Sweden, and Norway typically had homicide rates of around 1-3 per 100,000. In contrast, many areas in Southern Europe, especially along a rim of areas around the Mediterranean and the Balkans retained high homicide rates until well into the 19th century.

In an attempt to identify plausible macro-level correlates I distinguished several layers of explanation: First, I argued that at the most general level the long-term decline in homicide covaries with the gradual increase in centralized state power and bureaucratic control over the lives of people, supporting Elias's argument, which in turn echoes the arguments developed by Thomas Hobbes in the Leviathan, about the pacifying effect of the state, and its consequences on the display of self-control. The second explanatory bundle I proposed were 'disciplining revolutions' – large-scale coordinated efforts that involve the state but also non-state moral agencies such as the church or the family, which aim at fostering self-control, discipline, conscience, and inner-directedness. Such revolutions in social control appear to have often been associated with shifts in societal levels of homicide. The third mechanism that I identified as a potentially relevant covariate was the relationship between the state and civil society, in particular legitimate state structures and political integration. The core argument here was that the turn towards declining homicide often occurred at times when there was not necessarily any real increase in sheer state coercive power, but a shift towards a more broadly accepted state that was seen as delivering justice and operating for the benefits of its citizens. The fourth major underlying force that I proposed was culture, more specifically the ideas of Protestantism and modern moral individualism (Eisner, 2003: 132). While I introduced the notion of Protestantism and the ethic of self-discipline described by Max Weber in the specific context of European history, I believe the underlying idea can easily be generalized to a broader cross-cultural context. It implies the notion that homicide should be expected to be low in societies that emphasize duty, sobriety and frugality, a methodic conduct of life, inner-directedness and conscientiousness as major principles of conducting one's life.

In the fascinating monograph *American Homicide* the historian Randolph Roth (2009) has produced a very large number of homicide estimates for many regions in the United States since the early 17th century. His analyses suggest very high rates of homicide in the early years of settlement and a massive

decline until the early 19th century. Since then homicide rates have fluctuated in long swings, but remained at levels considerably above those of Europe. Roth has argued that a bundle of four interrelated factors have been correlated with variation in homicide rates both in the United States and in Europe over the past 400 years. Each of these factors reflects a specific aspect of *legitimacy*. The first of these factors is the belief that government is stable and that its legal and judicial institutions are unbiased and will redress wrongs and protect lives and property. This factor could also be interpreted as the rule of law - the idea that laws are effective and member of a society can rely on the institutional mechanisms for redressing wrongs. The second factor is described by Roth as "a feeling of trust in government and the officials who run it, and a belief in their legitimacy". It alludes to a broader role of the state than that implied in the first factor, namely the idea that the fictional contract at the basis Hobbes's Leviathan, which transfers previously held individual rights (such as the right to kill a thief) to the state, is based on reciprocity. The third component is "patriotism, empathy, and fellow feeling arising from racial, religious, or political solidarity", This element incorporates the idea that cooperative behaviour amongst people who are not related to each through kinship ties is easier if it can be based on an imagined collective identity. The fourth and final component identified by Roth is "the belief that the social hierarchy is legitimate, that one's position in society is or can be satisfactory and that one can command the respect of others without resorting to violence".

These hypotheses imply that historical variation in homicide rates is mostly driven by a cluster of factors that combine into the perceived legitimacy of the state and its institutions. Throughout the analyses, *American Homicide* presents a wealth of qualitative historical evidence in support of the four hypotheses. In a recent publication Roth (2012) makes a significant step towards more formal quantitative tests of his hypotheses. In particular, he proposes a number of quantitative measures of the proposed macro-level risk factors, using data from a variety of sources ranging from data on political rebellions and riots to results from content analyses of newspapers and books, such as counts of the occurrence of racist language in English between 1640 and 1720.

The latest attempt to make sense of large-scale historical change in interpersonal violence is *The Better Angels of our Future* by Harvard psychologist Stephen Pinker. The book examines the whole range of manifestations of violence from war and genocides to human sacrifice, the death penalty and homicide over the course of human history and prehistory. Essentially, Pinker argues that violence has declined over the past hundreds and thousands of years, and that five macro dynamics have contributed to the long-term decline in violence: He calls them the *Leviathan, gentle commerce, feminization, the expanding circle, and the escalator of reason*. With the exception of feminization, the mechanisms identified by Pinker reformulate, in an innovative way, ideas and observations made by social philosophers and sociologists such as Hobbes, Montesquieu, Bentham, Kant, and Elias over the past 400 years. The post powerful mechanism, in the view of Pinker, is the coercive power of the state, especially if it manifests itself under its more benevolent appearance of a democratic state based on the rule of law (Pinker, 2011: 680). The second

mechanism that Pinker proposes, following a long string of enlightenment thinkers, relates to the pacifying effect of capitalism and commerce in that people and states who exchange goods and services can be expected to have a disincentive to fight each other, at least as long both believe that the exchange is to their own advantage (Pinker, 2011: 682f). Pinker's third argument is that large scale variation in violence is related to *feminization,* i.e. violence goes down where women 'get a better deal' (Pinker, 2011: 684f). The concept not very well defined, but it seems to imply something like 'female-friendly' values (p 685), respectively a society that moves away from manly honor, approval of violent retaliation, and veneration or martial glory (Pinker, 2011). Mechanisms four and five elaborate the notion that the ideas that underpin the 'project of modernity' have a pacifying force because the universal power of reason will eventually overcome prejudice, hatred and the right of the stronger that lie at the heart of violence. Thus, Pinker expects violence to decline as sympathy and cosmopolitanism take hold in the modern world (the expanding circle) and to the extent that humans apply the principles of reason to their affairs (the escalator of reason).

Conclusion

In this paper I examined three research traditions that have examined macro-level covariates of variation in human violence, namely cross-national criminological research on homicide across contemporary societies, comparative anthropological research on violence in non-state societies, and historical research on macro-level variation in homicide over time. My main goal was to understand how much the rates of homicide vary across human societies, what factors have been found to be predictive of such variation, and whether any covariates of homicide may exist across very different types of societies.

The review suggests that human societies show an enormous variability in the likelihood that members of the same group kill each other. The societies with the lowest levels of interpersonal killing ever empirically observed had homicide rates below 0.5 per 100,000 per year. Taking the effects of modern medical technology into account I argued that rates of around 0.2 killings per 100,000 inhabitants may be lower boundary of what one might consider possible. It proved more difficult to determine an upper limit to lethal within-group violence. If we limit the perspective to acts that resemble criminal homicides in that they violate shared norms and are committed by individuals or groups of individuals, then the upper limit may be in the range of 100-400 per 100,000 per year. However, the transition from criminal homicide to organized use of force, civil war, and large scale massacres, lynchings or genocides is gradual rather than categorical, and there seems to be no upper limit for the lethality of such acts of organized violence.

Societies with high and with low levels of homicide do not only differ in the overall amount of lethal violence, but the gradient from peaceful to violent societies appears to be systematically associated with change in the quality of violence. Evidence suggests that in low homicide societies the majority of killings

are committed by highly marginalized people who usually experience a number of psychological, genetic, neuro-cognitive and family risk factors. In contrast, in high homicide societies violence is much more goal-driven, embedded in economies of violence and protection, and coordinated or carried out by powerful individuals.

The examination of macro-level factors associated with homicide suggested that within each of the three traditions of research there remains considerable disagreement about the factors that account for high or low levels of homicide in a given society. While researchers working in each of the three fields appear to share some underlying assumptions, there is little sign of an emerging consensus yet. To some extent, this may be because each tradition of research has its own theoretical anchors which lead to diverging interests in examining specific potential correlates of variation in interpersonal violence. Also, there are important limitations in how reliably differences in homicide levels can be measured for any society other than modern affluent nation-states, and the extent to which relevant potential predictors can be collected. However, it is also likely that at least some factors associated with variation in violence are specific to some types of societies. For example, variation in levels of violence amongst simple hunter gatherer societies may be driven by contextual forces (e.g. war-prone neighbours leading to socialization for aggression, beliefs in witchcraft as a source of harm-doing, etc.) that are much less relevant in a comparison between modern nation states, where factors such as the functioning of the police force or the importance of illicit markets may play an important role.

Nonetheless, it seems that some shared general topics emerge in all three research traditions: In all three traditions researchers found evidence suggesting that the existence of an accepted authority which organizes power and delivers justice is associated with lower levels of interpersonal violence. In all three research traditions, too, at least some researchers concluded that higher social complexity and interdependence are associated with a lower likelihood of violence. Both of these findings align well with classical enlightenment thinking about proper state functioning and functional interdependence between its members as two major prerequisites for internal peace. Some other shared topics emerge in at least two of the reviewed research traditions, but not in the third. For example, the finding in anthropological research about the association between socialization practices based on affection and parental warmth on the one hand and low interpersonal violence on the other seems related to the idea, developed by historians of violence, that the historical decline in violence was linked to a greater emphasis on parental warmth, conscience, and domesticity in many societies. Also, the rather strong link between social inequality and homicide found in contemporary research is possibly echoed in Roth's argument that variation in historical homicide rates is linked to the sense of living in a society with a fair hierarchy, where people are respected without having to resort to violence, but resource inequality has not been found to be covariate of homicide in anthropological research.

References

Becker, M. (1976). Changing patterns of violence and justice in fourteenth century Florence. *Comparative Studies in Society and History, 18*, 281–296.

Berents, D. A. (1976). *Misdaad in de middeleeuwen; Een onderzoek naar de criminaliteit in het Laat-middeleeuwse Utrecht*. Utrecht: Stichtse Historische Reeks.

Boehm, C. (1984). *Blood Revenge: The Enactment and Management of Conflict in Montenegro and other Tribal Societies*. Lawrence: University Press of Kansas.

Bohannan, P. (Ed.). (1960). *African Homicide and Suicide*. Princeton: Princeton University Press.

Bonta, B. D. (1996). Conflict resolution among peaceful societies: The culture of peacefulness. *Journal of Peace Research, 33*(4), 403-420.

Bosco, A. (1889). Gli Omicidii in alcuni Stati d'Europa. *Bulletin de l'Institut International de Statistique, 4*, 191-245.

Buss, D. M., & Shackelford, T. K. (1997). Human aggression in evolutionary psychological perspective. *Clinical Psychology Review, 17*, 605-619.

Chagnon, N., A. . (1988). Life histories, blood revenge, and warfare in a tribal population. *Science, 239*(4843), 985-992.

Cooney, M. (1997). The decline of elite homicide. *Criminology, 35*(3), 381–407.

Cooney, M. (1998). *Warriors and Peacemakers: How Third Parties Shape Violence*. New York: New York University

Dean, T. (2001). *Crime in Medieval Europe; 1200-1550*. London: Pearson.

Dentan, R. K. (1968). *The Semai: A Nonviolent People of Malaya*. New York: Holt, Rinehart & Wilson.

Durkheim, E. (1957). *Professional Ethics and Civic Morals*. London: Routledge & Kegan Paul.

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), 618-648.

Eisner, M. (2003). Long-term historical trends in violent crime. *Crime and Justice; A Review of Research, 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. (2009). The uses of violence: An examination of some cross-cutting issues. *International Journal of Conflict and Violence, 3*(1), 40-59.

Elias, N. (1978). *The Civilizing Process (Vols. I and II)*. Oxford: Oxford University Press.

Ember, C. R., & Ember, M. (1994). War, socialization, and interpersonal violence: A cross-cultural study. *Journal of Conflict Resolution, 38*(4), 620-646.

Ember, C. R., & Ember, M. (2007). War and the socialization of children. *Cross-Cultural Research, 41*(2), 96-122.

Ember, M. (1988). The Human Relations Area Files: Past and future. *Cross-Cultural Research, 22*(1-4), 97-104.

Farrington, D. P. (2006). Childhood risk factors and risk-focussed prevention. In M. Maguire, R. Morgan & R. Reiner (Eds.), *Oxford Handbook of Criminology*. Oxford: Oxford University Press.

Faurie, C., & Raymond, M. (2005). Handedness, homicide and negative frequency-dependent selection. *Proceedings of the Royal Society B: Biological Sciences, 272*(1558), 25-28.

Fluehr-Lobban, C. (1976). An analysis of homicide in the Afro-Arab Sudan. *Journal of African Law, 20*(1), 20-38.

Hanawalt, B. A. (1979). *Crime and Conflict in English Communities, 1300–1348*. Cambridge: Cambridge University Press.

Heald, S. (1990). *Controlling Anger: The Sociology of Gisu Violence*. Manchester: Manchester University Press.

Hobbes, T. (1968 [1660]). *The Leviathan*. Harmondsworth: Penguin.

Karonen, P. (2001). A life for a life versus Christian reconciliation: Violence and the process of civilisation in the Kingdom of Sweden, 1540–1700. In H. Ylikangas, P. Karonen & M. Lehti (Eds.), *Five Centuries of Violence in Finland and the Baltic Area* (pp. 1–83). Columbus: Ohio State University Press.

Keeley, L. H. (1996). *War before Civilization: The Myth of the Peaceful Savage*. Oxford: Oxford University Press.

Knauft, B. M. (1987). Reconsidering violence in simple human societies: Homicide among the Gebusi of New Guinea. *Current Anthropology, 28*(4), 457

Knauft, B. M., Abler, T. S., Betzig, L., Boehm, C., Dentan, R. K., Kiefer, T. M., . . . Rodseth, L. (1991). Violence and sociality in human evolution [and Comments and Replies]. *Current Anthropology, 32*(4), 391-428.

LaFree, G. D. (1999). A Summary and review of comparative cross-national studies of homicide. In M. D. Smith & M. A. Zahn (Eds.), *Homicide: A Sourcebook of Social Research* (pp. 125-145). Beverly Hills: Sage.

Mead, M. (1928). *Coming of Age in Samoa; A Psychological Study of Primitive Youth for Western Civilization*. New York: William Morrow.

Monkkonen, E. (2001). New standards for historical homicide research. *Crime, Histoire et Société – Crime, History and Society, 5*(2), 7–26.

Murdock, G. P., & White, D. R. (1969). Standard cross-cultural sample. *Ethnology, 8*(4), 329-369.

Neumayer, E. (2003). Good policy can lower violent crime: Evidence from a cross-national panel of homicide rates, 1980–97. *Journal of Peace Research, 40*(6), 619-640.

Nivette, A. E. (2011a). Cross-national predictors of homicide: A meta-analysis. *Homicide Studies, 15*(2), 103-131.

Nivette, A. E. (2011b). Violence in non-state societies. *British Journal of Criminology*, 51(3): 578-598.

Nivette, A. E., & Eisner, M. (in print, 2012). Do legitimate polities have fewer homicides? A cross-national analysis. *Homicide Studies*.

Pinker, S. (2011). *The Better Angels of our Nature; Why Violence has Declined*. London: Viking.

Robarchek, C. A., & Robarchek, C. J. (1998). Reciprocities and realities: World views, peacefulness, and violence among Semai and Waorani. *Aggressive Behavior, 24*(1), 123-133.

Rosenfeld, R., & Messner, S. F. (1991). The social sources of homicide in different types of societies. *Sociological Forum, 6*(1), 51-70.

Ross, M. H. (1985). Internal and external conflict and violence: Cross-cultural evidence and a new analysis. *The Journal of Conflict Resolution, 29*(4), 547-579.

Roth, R. (2001). Homicide in Early Modern England, 1549–1800: the need for a quantitative synthesis. *Crime, Histoire et Société – Crime, History and Society, 5*(2), 33–68.

Roth, R. (2009). *American Homicide*. Cambridge, MA: Belknap Press.

Roth, R. (2011). Biology and the deep history of homicide. *British Journal of Criminology, 51*(3), 535-555.

Roth, R. (2012). Measuring feelings and beliefs that may facilitate (or deter) homicide. *Homicide Studies, 16*(2), 197-216.

Schiefenhoevel, W. (1988). Indoctrination among the Eipo of the highlands of West-New Guinea. In I. Eibl-Eibesfeld (Ed.), *Indoctrinability, Ideology and Warfare: Evolutionary Perspectives* (pp. 109-132). Oxford: Berghahn.

Sharpe, J. A. (1981). Domestic homicide in Early Modern England. *The Historical Journal, 24*(1), 29-48.

Smith, K., Coleman, K., Eder, S., & Hall, P. (2011). *Homicides, Firearm Offences and Intimate Violence 2009/10 Supplementary Volume 2 to Crime in England and Wales 2009/10 (2nd Edition)*. London: Home Office.

Spierenburg, P. (2001). Violence and the civilizing process: Does it work? *Crime, Histoire et Société – Crime, History and Society, 5*, ??

Spierenburg, P. (2008). *A History of Murder; Personal Violence in Europe from the Middle Ages to the Present*. Cambridge: Polity Press.

Spierenburg, P. (2012). Long-Term Historical Trends of Homicide in Europe. In M. C. A. Liem & W. A. Pridemore (Eds.), *Handbook of European Homicide Research* (pp. 25-38): Springer New York.

Stamatel, J. P. (2006). Incorporating socio-historical context into quantitative cross-national criminology. *International Journal of Comparative and Applied Criminal Justice, 30*(2), 177-207.

Trent, C. L. S., & Pridemore, W. A. (2012). A review of the cross-national empirical literature on social structure and homicide. In M. C. A. Liem & W. A. Pridemore (Eds.), *Handbook of European Homicide Research.* (pp. 111-135): Springer New York.

United Nations Office on Drugs and Crime. (2011). *Global Study on Homicide*. Vienna: UNODC.

Verkko, V. (1967). Static and dynamic "laws" of sex and homicide. In M. Wolfgang (Ed.), *Studies in Homicide*. New York: Harper and Row.

Wolfgang, M. E. (1958). *Patterns in criminal Homicide*. Philadelphia: John Wiley.