New Standards for Historical Homicide Research

Eric Monkkonen

Electronic version

URL: <https://journals.openedition.org/chs/733>

DOI: 10.4000/chs.733

ISSN: 1663-4837

Publisher

Librairie Droz

Printed version

Date of publication: 1 January 2001

Number of pages: 5-26

ISBN: 2-600-00664-8

ISSN: 1422-0857

Electronic reference

Eric Monkkonen, "New Standards for Historical Homicide Research", *Crime, Histoire & Sociétés / Crime, History & Societies* [Online], Vol. 5, n°2 | 2001, Online since 02 April 2009, connection on 22 March 2022. URL: <http://journals.openedition.org/chs/733> ; DOI: <https://doi.org/10.4000/chs.733>

New Standards for Historical Homicide Research

Eric Monkkonen

Les historiens de la violence disposent dorénavant de douzaines, voire de centaines, de taux d'homicides de bonne qualité pour la plus grande partie de l'hémisphère occidental. Nous nous trouvons donc dans une situation qui, conformément à l'usage, implique d'entreprendre synthèse et généralisation. Un effort de ce type est méritoire et doit être poursuivi, mais il est temps de revenir à une recherche empirique beaucoup plus soigneuse, et les avancées significatives réalisées jusqu'ici devraient nous inciter à rehausser encore la qualité de nos recherches. Pour le dire simplement: si des recherches plus sophistiquées confirmaient les travaux antérieurs, ce serait positif. Si inversement, elles modifiaient nos résultats, nous devrions leur faire bonne figure et repenser nos grandes questions et nos analyses en conséquence.

Historians of violence now have dozens, even hundreds, of high quality homicide rates for much of the Western world. We are now in a position which would, by custom, demand the beginning of synthesis and generalization. Such efforts are of merit and should continue, but it is time that we turn back to much more careful empirical research. Our substantive gains should give us the confidence to raise even higher the quality of our research. Simply put, if refined research efforts confirm previous work, this is comforting. On the other hand, if they change or modify findings, we should welcome the new results and rethink our big questions and analyses.

The study of personal violence has come a long way in the years since Ted Gurr and Alfred Soman wrote their path breaking essays synthesizing large bodies of scholarly work; the best internal critique of the oeuvre thus far has been articulated by Spierenburg². There are now hundreds of studies (over 300 according

¹ Eric Monkkonen is Professor at the University of California (Los Angeles). He is the author of five books on American cities, police, and crime. His most recent book is *Murder in New York City* (University of California Press, 2001), a study covering two centuries of homicides. Following his exhortations in this article, his research in progress is a reconstruction of age standardized homicide rates in the turn of the century (1900) United States. He holds joint appointments in the Departments of History and Policy Studies at the University of California, Los Angeles (UCLA). An earlier version of the paper was presented at the European Social Science History meeting, Amsterdam, April 2000. He is indebted to the panelists – Pieter Spierenburg, Manuel Eisner, Helmut Thome – and to the audience for comments which helped me sharpen some of the points. He wishes to give special thanks to David Eisenmann, M.D., and Susan Lambe, M.D. for their help in understanding the time to death data. The research in this paper was supported by grants from the National Science Foundation, the National Consortium on Violence Research, and the UCLA Academic Senate.

² Soman (1980); Gurr (1981, 1989); Spierenburg (1996).

to Eisner), rather than the dozen or so on which Gurr and Soman based their essays.³ Because of these studies, we now know that we can get a firm grasp on personal violence well into the past. There are now several fruitful theoretical ways to examine violence, from the civilizing process to classical Durkheimian sociology to evolutionary psychology⁴. There is a growing international standard of definition and communication which makes cross national comparisons ordinary, rather than merely wished for: researchers now make explicit their definitions of what they include as homicide and regularly per capitaize their results.

This paper deals briefly with the empirical problems of this long term synthesis, and then focuses on what I believe should be new international research standards. The subject of violence is restricted here to mortal personal violence, homicide, and does not address other forms of violence which do not result in death. It makes no claims that homicide indexes other kinds of violence, but rather assumes that homicide, in and of itself, is a significant enough aspect of violence to merit singular attention. The argument is simple: the time has come for new levels of quality in data gathering. Just as the beginnings of cross national and theoretically interesting analysis came from the discoveries made by high quality empirical research, the next step is to refine the data and then to refine the questions.

I.

In their syntheses, both Gurr and Soman juxtaposed disparate studies – studies characterized by focused, non comparative research efforts – to show a now familiar picture reproduced in Figure 1: the decline from very high rates of personal violence in the middle ages to relatively low rates by the late nineteenth century, at least in Europe. It is important to remember how startling these results were as they refuted scholarly wisdom and theory, the romantic notion of a peaceful communal past overcome by the violence of urban industrial order. This change in understanding, while now thorough in the community which studies crime, has probably still not penetrated conventional wisdom, even though a highly visible article on the synthesis appeared in *Past & Present*⁵.

Since the 1980s, continuing research on levels of personal violence appears to buttress the Gurr/Soman synthesis. Most recently Ylikangas has summarized a large number of studies of Nordic countries, adding many new places to the list⁶. A summary graph of these new studies still resembles the Gurr graph, with the virtue of many new data points. Ylikangas' thorough review of these studies suggests that the long turn decline is a robust empirical finding, and he argues that the Elias thesis applies across many more places than just the core European nations.

Should we conclude that the empirical question is now settled? That «violent past, peaceful present» describes our world? Should we move on to other questions? I believe not, for several reasons.

³ Eisner (2001).

⁴ Spierenburg (1996), Thome (2001); Daly, Wilson (1988).

⁵ Stone (1983); see also Sharpe (1981, 1982).

⁶ Ylikangas (2000).

Figure 1: Gurr's original graph. Source: Gurr (1981).

Spotty Knowledge

First, consider the awkward problem of those places that we actually know about. Given the lack of knowledge about medieval and early modern populations, we do not really know how representative the study sites have been. We do not even know what proportion of a region's population has been studied. In an era when few people lived in cities, it may be necessary to study large rural areas or sets of villages.

The cliché that it is easy to lie with statistics needs a corollary: it is even easier to lie without statistics. Limited information is much better than none, but we should not stop with our current limits. The more studies we get, the better: a large sample will give us some confidence that the generalizations we have been accepting are reasonable. Since we may never have a good sense of the populations of the medieval and much of the early modern world, we may have to substitute many study sites with unknown biases for fewer and more representative study sites. The notion of adding piece by piece to knowledge truly applies to this research: it is a thousand piece puzzle, or series of puzzles, to which many projects contribute.

Nevertheless, no matter how well done the individual studies, the data are very hard to interpret and we must confront this issue. The individual studies give us homicide rates for places which may vary enormously in size, and we do not know if a few small places distort the picture. If we suspect that a few small or large places do distort the overall picture, we may need to consider them separately, arguing, as it were, over tiny pieces in the larger puzzle. Consider the impact of the homicide count in Hammer's pioneering and justly well regarded study of Oxford⁷. Because the city was so small (approximately 6 000), two unusual years with high violence

⁷ Hammer (1978).

could have easily produced the high rates. Two riots, say, with ten dead each, would be enough to account for the rates he found (this would yield 166 per hundred thousand per year). If the city returned to a normal high rate of one death per year, the rate would then be 16 per hundred thousand: high but not the bizarre extreme Hammer discovered. It is odd that such a pioneering and important article has not generated follow up studies – say, the next decades or century in Oxford or a parallel study of another university town.

Note that many other important cities, for example Bergen in 1600, had populations as small as Oxford's. In the case of small study sites one must be more careful because the numerator of homicide counts can exert high power when converted to rates per hundred thousand. If, for instance, a city of 6 000 reported a death a year because the coroner or his equivalent met in that city but viewed the evidence from deaths in the surrounding region, one would have an apparent homicide rate of 16 per hundred thousand. Similarly, if there was a feud in a city of 6 000, and for three years there was a single homicide a year, but then none for the subsequent twenty years, the rate should not be reported as 16,7 per hundred thousand for three years, but smoothed to 2,2 per hundred thousand (3 divided by 138 000 (that is, 6 000 times 23 years) then multiplied by 100 000). Or, if a city's reported population excluded the non-resident sojourners, their size would have to be estimated. With small denominators, seemingly trivial differences can be converted into dramatic rate differences. Extreme caution is in order.

A similar critique may not apply to medieval London – its size precluding distortions caused by numerator error or size – but note that if for some unknown reason its rates have been overestimated, then the shape of the line in Figure 1, the basis for Gurr's original analysis, is not nearly so dramatic.

To highlight the extraordinary potential for misunderstanding caused by the inadvertent selection of atypical study sites, consider the United States in 1996, about which we have very good data (see the Appendix). I use here FBI murder statistics on just those 188 cities with populations greater than 100 000. Even for these current data, it is important to note that some cities are not listed by this source due to reporting failures; we do not know what difference this might have made. Two of the highest murder rate cities were also among the smallest in size. San Antonio had the highest murder rate, 55,2, and a population of only 107 000, while third highest was Gary, Indiana (rate 35,1), with a population of 111 000. If we were delving into American violence from afar and had selected these two cities, both in the middle of the country, one in the north and one in the south, we would think violence very high, especially among smaller cities (if we knew enough to know that these were in fact smaller cities). We almost might think that the north and the south had similar homicide rates. Or, if we had compared 1996 Gary to 2000 San Antonio, we would think something else, for in the intervening 4 years San Antonio's rate had plummeted⁸.

On the other hand, twelve of these 188 largest US cities had no murders, none. The chances are one in sixteen that a scholar could have selected one of these cities for a homicide study. If, for example, one had selected Plano, Texas, population of 192 000 and no murders, one might have concluded wrongly that Texas was violence free.

⁸ See <http://www.ci.sat.tx.us/sapd/UCR.htm>.

Further, an unweighted average of these three example cities – Gary, San Antonio, and Plano – would give a very poor understanding of the whole, 30 homicides per hundred thousand. The actual mean rate for all 188 cities was 8.8. The extremes pull up this mean, for only 43 of these 188 cities actually had murder rates at the average or higher. Fully half of the United States cities had rates of 4.4 or less. So, there is a fifty percent probability that one would select a study city with a homicide rate half that of the national urban mean. The major lesson to take away is that a sample of cities can produce huge biases and that without full information, these cannot be known easily if at all. We have the ability to standardize to a population base of 100 000, to make the comparisons accurate, but the places may be highly different.

One apparent solution to the problem of cross site comparison has been to look at trends in one place: again, the actual place may not capture the whole. In the United States, the much discussed decline in homicide rates from 1991 to the present occurred in 100 of these largest 188 cities, but homicide rates increased in 81.

Given this potentially devastating critique, and the remote likelihood that we will ever recreate past statistics with the coverage of those of the late twentieth century, should we give up? Of course not: but we should try to compensate, to examine with care each new case, and to ask scholars to produce some estimates of what they would guess that their sample means. For example, contextual information might suggest that a place had a reputation for being violent or quiet; we could then asterisk such cases when plotting them. Or, we could weight reported city rates by a crude Big, Medium, or Small size category, based on a scholar's assessment of the study city's size relative to other cities in that region and era. Then, when producing composite graphs like Gurr's, the plotted symbols of the largest cities could be made larger than those of the smallest ones. In this approach, little Oxford at 6 000 persons would be a tiny speck when contrasted with London at 80 000. This would give the plot much more analytic power. We might also add to each new set of study sites a date of completion so that when plotted, one could see if newer studies support or contradict older ones as they get added in.

II.

The power of violence research, especially homicide research, is that deaths are usually reported, and that we can come to some core agreements about what we can count as a homicide. For example, infanticide and the murder of very young children has been treated so inconsistently and the cause of death so often poorly reported that most scholars exclude infanticide and the murder of young children from their counts: consistency, not ethical judgement, determines this choice⁹. One consequence is a slight undercount in violence rates – in the late twentieth century United States, for example, victims under five years old account for two to three percent of all murders.

Just as there is some agreement on what can be counted as a homicide, the contemporary practice of reporting deaths as a rate – per annum counts per hundred

⁹ For a critique of this practice, see Emmerichs (2000) and Nadel (2000).

thousand population base – is highly standardized. These two basic practices – which derive from the growth of international vital statistics – have fostered the international and across time comparisons¹⁰.

Missing Homicides

However, even with agreement or definitional clarity as to what gets counted as a homicide, an obvious problem with the violent event count is the question of what has been missed. The possible missing events stem from three causes:

One, damaged or misplaced records;

Two, incomplete recording – from hidden homicides to sloppy record keeping; and

Three, systematic biases – for example, a recording practice which mentions only crimes with known assailants (typically, trial based records).

There is a very good and well established way of testing for observations omitted or unrecorded in the counts, known as «capture-recapture» or the Chandra-Sekar-Deming method. The technique is used by animal researchers to count things like the number of fish in a lake and by demographers for estimating populations in places without regular censuses¹¹. The requirements for the technique lend themselves to historical homicide research: one needs two separate lists of unique identifiers, e.g., one list of victims from the coroner and another from a newspaper, or, perhaps, one list of offenders from jail registries and another from indictments. Given two lists, one can use capture-recapture sampling to estimate the number of events missed, that is the homicides mentioned in neither. The technique assumes that each sample or list is an independent random sample: this is most certainly not the case with historical homicide lists. The bias introduced by what are probably correlated, non independent lists, is a conservative one: thus the estimates of missed homicides is low. As most researchers prefer to err on the side of conservatism, this is an important side note, a consequence of working with historical documents as opposed to fish. An important paper by Douglas Eckberg on nineteenth century South Carolina homicides clearly explains the technique, which I follow here¹².

Table One shows the results of several different re-estimates for two cities, New York and Los Angeles. These examples are based on my own recent archival work¹³. Note in the Table that for some years in the nineteenth century, my original New York estimates were relatively far off the mark, but that in general, the proportion of homicides missed was less than ten percent. This gives good confirmation that my original estimates were not wildly off. But on three occasions, the technique provides a powerful corrective: New York 1860 and 1863, and Los Angeles for 1909. Of these three, the New York correctives were already available in other sources, which had reported annual homicide counts. But, for Los Angeles, 1909, several months of coroner inquests's were missing, and without this sampling method, the year would have had to be omitted from any subsequent analysis. Thus, the technique can not only provide a strong corrective to known source problems, but it can also corroborate the original data.

¹⁰ See United States (1995) for the American part of the story of vital statistics.

¹¹ Chenuil, Crespín, Pouyaud, Patrick, (2000); Sydeman, Nur, McLaren, McChesney, (1998).

¹² Eckberg (1998); Monkkonen (2001b).

¹³ Monkkonen (2001b).

Table 1: Homicide counts & capture-recapture estimates (New York City)

Year	Original count*	Capture-recapture estimate
1784-1820	109	129
1853	57	59
1854	46	47
1855	39	41
1856	41	43
1857	94	106
1858	59	60
1860	68	108
1861	47	63
1862	46	53
1863	59	89
1865**	67	75.2
1867	55	66.25

* In the original New York City research (Monkkonen, 2001a) the strategy had been to use the highest number of homicides, whether the number came from individual murders compiled from coroners's reports, newspaper and other sources or it came from an annual count mentioned in a public health or other published reports. For the capture-recapture analysis, with the exception of the first cell, a new list of individual names was gathered from newspaper sources alone and this list was then used against the list of names from the coroner's inquests. For the first cell, the comparison list was from a record of prison admissions (see Monkkonen, 2001b, for further details). In the second panel of this table, for Los Angeles, the sources were simpler: coroner's reports and newspaper articles.

** $N1$ (Times index only) = 12 – $N2$ (Coroner's inquests only) = 21 – C (in both) = 35 – Estimation total = $N1 + N2 + C + (N1 * N2) / C$ – For 1865 = $12 + 21 + 35 + 7.2 = 75.2$

Table 1: (continued) Los Angeles City and County

Year	Coroner inquest count	Capture-recapture estimate
1899	11	12
1900	10	12.4
1901	16	21.7
1909	18 (missing pages)	42
1911	44	46.4
1919	59	62.5

Recently, Howard Taylor has published a powerful argument that, under fiscal pressure to save money, nineteenth century English coroners deliberately under-

counted homicides¹⁴. Rather than a dispute over what might or might not have happened, capture-recapture would provide a simple test of Taylor's thesis. Readily available newspapers and coroners records would provide the two lists required. Of course, a scholarly dispute without further evidence may prove more interesting, even if providing little new information.

Denominator problems

A problem parallel to the missed homicides in the numerator also exists in the denominator, the population estimates. It seems to be an historical law that places with good victim lists have poor base population counts. Most historians are grateful to have even crude population estimates with which to per capitize their hard earned murders. Few would consider actually making better population counts as this would be an entirely different – and time consuming – research project. Yet, it is conceivable to deal with the problem of poor quality population counts with the same sampling method as for the violent event counts: demographers use capture – recapture sampling principally to estimate populations in countries without censuses, after all. One thinks for example, of the extraordinary high homicide rates that Hammer found for Oxford. This city cries out for more research: we may all accept the homicide counts, but why should we believe the population estimates? Hammer carefully discusses and evaluates the various sources for his estimate: but we should note that this small population of 6 000 could well have been estimated on its permanent, rather than temporary population.

Population age structure

Should one get to the point of carefully estimated missingness for the numerator and denominator, there is a third and equally vexing challenge: the age and sex structure of the population at risk. We would expect to have few violent events in a society composed of women over sixty years old. Yet for the most part we happily create violence measures which assume that the population denominator is unproblematic, that the same population proportions by age and gender are parallel across vast reaches of history and geography. Murders per 100 000 as a measure is such an advance over previous knowledge and such an achievement in itself, that we seldom ask what kind of population base we have employed.

Surely, a new mining town filled with men between the ages of 20 and 40 is not the same as a retirement village where the average age is 60. Would we per capitize murder rates (if any) for these two sites without some careful thinking? More to the point, for long term historical studies, is the substantially more youthful population of nineteenth century and early modern places: was the age structure of the middle ages a fundamental cause of high violence rates? Does not our standard usage of population denominators mask something equally as basic? Do we need to ask more questions about the population of fourteenth century Oxford? Was it composed primarily of men exactly in the years most at risk for violence? If so, the extraordinary rates should be reduced to 20% or 30% of those reported, placing them at a still high but not wild level of 25 per hundred thousand and leaving London as the highest point on Gurr's graph.

¹⁴ Taylor (1998a, 1998b).

Consider two example cities: Turin in 1705 and New York in 1850. The mean age for men in both cities is similar, 24 in New York and 27 in Turin. (The sex balance for both is similar: 49% men in Turin, 50,5 % in New York.) This information alone does not tell us much. However, the actual age distribution tells us a great deal. Figure 2 plots the distribution by age of males in these two cities. We see that New York has a bulge of men in the age group 18 to 35, just the age at which we expect to see more criminal violence. One can only guess at what a plot for fourteenth century London or Oxford would look like.

Figure 2: Male age distributions, New York (1850) and Turin (1705).

Source: Symcox and Monkkonen (1994).

Fortunately, there is a well established method for correcting for dissimilar population numerators, known as age standardizing. The research reported on here represents an initial set of age standardized homicide rates. It serves as a cautionary tale, and I hope also demonstrates the costs and benefits of even more careful research standards. Age standardization is relatively simple computationally, requiring a systematic attention to detail which should conform well with normal historical research practices. To do the analysis, one must have the age distribution of the original population and of the homicide victims or offenders. Clearly, the age of the offenders is the more important measure, but typically the age of the victim is much more thoroughly reported¹⁵. The ages of victims and offenders are usually only loosely correlated, but the distributions are close to one another. (In the 1700 individual pre 1875 New York City homicides analyzed in Monkkonen (2001a), the mean age of 379 offenders was 30,1 years and of 783 victims over five was 31,8. The correlation of the two, for men alone, was $r = .36$.) Standard age categories are less than 1 year old, 1-4, 5-14, 15-24, 25-34, 35-44, 55-64, 65-64, 75 and up¹⁶. In the

¹⁵ See Monkkonen (1999) for a discussion of nineteenth century offender age data.

¹⁶ See Anderson and Rosenberg for a discussion of the new standards (1998, p. 13).

analysis which follows, I have not corrected for sex, only age, in part because sex balance was similar for all of my comparison cities. All rate distributions are recalculated to make the comparison population the whole United States in 2000: note that the actual base population is arbitrary – only consistency is required¹⁷.

Table Two displays the adjustments in per capita homicide rates for six different cities. It should be noted at the outset that most of these cities, with the exception of 1830 New York, have good quality census population data and that the homicide counts come from an era beginning to emphasize the systematic collection of vital statistics. Arguably, the cities share important characteristics affecting violence: all were undergoing rapid immigration and population growth, all had booming economies and great inequality¹⁸. One would not have expected dramatic differences for the cities shown here. Yet for three, the age standardized differences are substantial, with the most dramatic change for 1830 New York, an 85% increase. All of the other cities show a decrease in the rates when age standardized, the decrease ranging from a modest 5% to a large 32%.

These new calculations reverse the rank order for the first two cities, New York and Liverpool¹⁹. The rates for Los Angeles remain the highest in the group: when the Los Angeles rate is inflated to account for the 25% found missing by capture-recapture, the city had the very high rate of 19 per hundred thousand.

Table 2: Original and age standardized homicide rates: rank ordered.

Homicides	per	100,000	
Place (date)	Actual (3 yr average)	Age standardized	Percent change
NYC* 1830	2.6	4.8	85%
Liverpool* 1861	5.7	3.9	-32%
San Francisco* 1880	7.45	7.1	- 5%
Chicago 1910	10.5	7.6	-28%
St. Louis 1900	12.6	10.2	-19%
LA City* 1900	16.6	15.3	- 8%

* Los Angeles based on homicides 1895-1904; Liverpool based on 1852-1865; New York City based on 1825-1834; San Francisco based on two fiscal years, 1879-1880, 1880-1881. Note that San Francisco may have excluded Chinese. Source: see text.

Figures 3 and 4 plot New York City homicide rates over a nearly two century span to illustrate the effects of that city's changing age structure. Figure 3 shows the period 1820 to 1960 in order to examine the era of low homicide rates, while Figure 4 shows the whole long span. The broken line is for the age standardized rates: the solid line shows the conventional rates per hundred thousand.

¹⁷ The actual re-estimates are done in Stata using the direct age standardization program (StataCorp, 1999).

¹⁸ See Gallman (2000) for an excellent summary of Liverpool's social situation.

¹⁹ Note that these examples have not been verified using capture recapture.

Figure 3: New York City homicides per 100,000 (solid line) and age standardized rates (broken line), 1820-1960. Source: see text.

Figure 4: New York City homicides per 100,000 (solid line) and age standardized rates (broken line), 1820-1990. Source: see text.

In both figures it is clear that age has made a difference even in this single city, sometimes dampening violence peaks and at others inflating them. All of the sharpest peak years – 1860, 1930, 1980, and 1990 – are moderated by age standardization. The lowest year, 1830, is raised. These corrections are only on the decade, so one presumes that other peaks and valleys would be similarly modified were age distributions available on an annual basis. The violent mid nineteenth and late twentieth centuries are still violent, but the contrasts are moderated. The effect is as though a string had been drawn through the plot and pulled tight, smoothing the peaks and filling the valleys. Although visually moderate, several inter-decadal trends are changed, even reversed. For instance, the period 1820 to 1830 saw an increase, not a decrease, 1910-1920 saw an increasing instead of stable trend, and 1940-1950 saw an increase, not stability.

An additional limitation to age standardization is that when one is estimating population, often the age distribution is unavailable. In both Table 2 and Figures 3 and 4, the data are reported on the decade because this is when the census enumeration occurred. Interpolating on an annual basis might be satisfactory for the cruder counts per hundred thousand denominator, but will not be satisfactory with age grouping. Accounting for immigration is simply too difficult. So, the gain in decadal quality is offset by the loss in the interesting annual fluctuations. For the pre 1880 years, I have used a ten year span of victims' ages, centered on the decade: this avoids the distortion problem caused by small numbers. The best research strategy may therefore be to establish the best counts possible and do spot estimations of both missing data and the age standardized rate. This will not be the same as the best possible set of corrected annual rates, but it will be a good sign of whether or not age and missing events have skewed the analysis.

Changing medical practice, better weapons

Violence scholars often puzzle over the question, «What would have happened with today's medical care?» Looking at long term violence rates, this is the question raised by almost all non historians about the data. Few have tried to deal systematically with this, and the usual solution is to hope that today's improved medical care is offset equally by improved weapons²⁰. Should we think so? Not answering this question implies that it is impossible to assess. Certainly we may never have – either for today or the distant past – exactly the information we need: this would include both fatal as well as non fatal assaults, the type of injury and the progress of the injuries either to death or to recovery, and the kind and effect of the medical interventions. However, we often can get information on the injuries leading to death, in particular the kind of weapon, and on the elapsed time from injury to death. This basic information offers the possibility of many insights.

For the twentieth century, both the time from injury to medical care and the changes in medical care itself have reduced mortality from injury. For American combat injuries in World War I, the modal time from injury to treatment was 12-18 hours, with a mortality rate of 8,5%: the time dropped to 6-12 hours in World War II, and mortality dropped to 5,8%. During the Korean conflict, often cited as an era

²⁰ Lane (1979, pp. 78-80) may have been the first historian to bring this question explicitly in view. See also Spierenburg (1996 at note 78).

of major advances in trauma care, treatment occurred between 2 and 4 hours, with a dramatically improved mortality rate of 2,4%²¹.

Figure 5 shows the estimated time from assault to death for a hundred and fifty mid nineteenth century New York City homicide victims²². The hours expressed are maximums: that is, someone dying instantly I coded as one hour, whereas an ambiguously noted time might be a maximum of twenty four hours and possible as low as twelve. Missing cases simply had hopelessly ambiguous notations – «died yesterday» or «died shortly thereafter» – or were reconstructed from a sketchily reported criminal trial with no information about the conflict itself.

Figure 5: Time from assault to death for those dying within three days (72% of all victims), nineteenth century New York City. Source: Monkkonen (2000a).

These data allow the big question, «How would contemporary medical intervention have affected murder rates?» to be addressed, if with huge qualifications. One can see in the picture the onset of infections, and the consequences of blood loss which occurred in three or so days after the assault. Doctors familiar with violent assaults think that many of the post twenty four hour deaths could have been prevented with today's medicine, whereas the deaths occurring in less than one hour (often called the «Golden Hour») were probably not preventible. The third group, deaths one to six hours after assault, those now treated in trauma rooms, have a pos-

²¹ American College of Surgeons (1990, p. 9).

²² For the years 1857, 1859-1861 there were 277 homicide victims, for 214 of whom I was able to get a good time to death estimate.

sible 50% save rate²³. By this standard, about fifty percent of the mid nineteenth century New York City homicide deaths would have been preventable had the assaults occurred in a modern city (all 24% of those who died in two hours or less; 2%, half of the group who died in 3-6 hours; plus 24%, one third of the group who died after 6 hours).

What about the second half of the then versus now question: improved modern weapons? Figure 6 separates the time to death by major weapons. In the figure, «other» weapons include everything from drowning and defenestration to mainly blows with feet, hands, and sticks.

Figure 6: Time to death by weapon, New York City, nineteenth century. The median time is 24 hours for guns, 48 for bladed weapons and 18 for other weapons. (Cases with time to death ranging for three weeks to four months have been dropped for visual clarity.) N=32 for guns, 78 for blade, 101 other and 211 for total. Source: see text.

The differences by weapon are instructive. For guns, the initial burst of deaths probably came from bleeding, with the second group – after two days from injury – from infection²⁴.

Bladed weapons must have caused a large proportion (50%) of deaths due to internal bleeding and infection: inquests occasionally mention peritonitis. Half of all knife deaths came after two days, while half of all gun deaths came within a day.

The «other» category has a slightly quicker time to death: the initial large group of deaths probably coming from brain injury and internal hemorrhaging, with secondary infections accounting for the long trailing out of post injury deaths shown in the lower left panel of Figure 6. Does this initial burst of quick death reflect the

²³ Drs. Eisenmann and Lambe, assisted my analysis of these data.

²⁴ Wilson, Walt (1996, p. 859).

greater determination of the assailant? The scenario of stab wounds was often that the victim fled or offender departed after one or two thrusts, while fights involving blows, sticks and rocks sometimes continued until one person died.

Today, handguns account for about 75% of all murders in New York City, so if we triple the weapon proportion of nineteenth century murders and save the lives of all those surviving at least 24 hours, there would be approximately a 50% reduction in deaths. On the other hand, in a world where all involved in violent confrontations were accustomed to a leisurely conclusion to bloody conflict, who is to say that assailants might not have turned to surer forms of assault – sticks and stones, say? That is, if violent men (93% of all offenders in this sample were men) knew that medical intervention could thwart their attacks, might they have followed through more decisively, more often?

In the 21st century, we imagine murder to be sudden and decisive. Not so in the nineteenth century. In a large number of murders, after inflicting an injury, the offender was taken to jail «to await the results of the injuries.» Or, many news stories titled «Fatal Affray» concluded, often erroneously, that the victim «surely will die.» These phrases, so very common, suggest that in the pre electronic age, nothing happened that fast, whether a shipwreck or a homicidal confrontation. Ante mortem depositions were very common: part of a fatal confrontation was the time afterwards, when all – medical personnel, friends and relatives of victim and offender, the coroners and juries, police, and offender – just waited. The well known 1869 murder of Albert Richardson, a prominent journalist, by Daniel McFarland, is instructive²⁵. McFarland had previously attempted to shoot Richardson but had failed. The second time he fired from a distance of three feet, in public, in the outer office of Richardson's newspaper. Richardson then lingered in a room at the best hotel – the Astor House – for almost two weeks, while various treatments – «injections» of milk, beef tea, brandy and a «fine spray of rum» on the face (for fever) – were administered. Though the whole story of the stalking and assaults reeks of McFarland's ineptitude and delay, he succeeded. One presumes that had there been swifter and surer medical attention, McFarland would have compensated with a swifter and surer attack. So, if we imagine that modern medicine would have saved poor Richardson, we would also have to imagine a different attack as well. A third attack, perhaps, or a more vicious first one.

None of the examples fully developed in this paper show a shocking reassessment in violence rates. None suggest that the proposed refinements will erase the familiar picture of high medieval homicides. This may be in part because all of the examples are from the nineteenth and twentieth centuries. If in the future scholars do similar readjustments and test missing information and come up with similar robustness for medieval and early modern rates, that is all to the good. But, until we have used these higher standards, we must be cautious in the long run and wide ranging comparisons which have become an important part of the field of violence studies. It is probable that capture-recapture will yield more homicides but that the age adjusting will lower the rates. But, this should not be a topic for guessing. In addition, the very small size of many study sites should come in for special scrutiny: a more predictable pattern will be of great unevenness over time and space, while introducing the years and places with no homicides will lower the reported rates

²⁵ Cooper (1993).

considerably. We may discover that medieval and early modern rates were more in the range 5 to 15 per hundred thousand.

A finding of more erratic and unpredictable rates of personal violence, rather than consistently high rates, actually fits current theory quite well. Whether from the point of view of Durkheim or Elias, a slow rise in predictable and stable human interactions, in city and country, is exactly what we should find. This leaves the decline in violence hypothesis moderated yet still intact and built on a sounder basis. The hypothesis is far too important to stand untested and unrefined, as it now does.

Eric Monkkonen
School of Public Policy and Social Research (UCLA)
Department of Policy Studies
6265 Bunche Hall
405 Hilgard Avenue
Los Angeles, California 90024-1473
USA
Emonkkon@ucla.edu

Appendix: Homicide rates in U.S. cities >100 000 population, 1996

City	State	Homicides /100k	Population in 100k
SimiValley	CA	0	107
Boise	ID	0	153
Clearwater	FL	0	100
Irvine	CA	0	128
Orange	CA	0	120
Plano	TX	0	192
Madison	WI	0	198
Naperville	IL	0	107
Huntington Beach	CA	0	191
Ann Arbor	MI	0	109
Springfield	MA	0	150
Sunnyvale	CA	0	125
Fremont	CA	5	188
Garden Grove	CA	7	149
Santa Clarita	CA	8	125
Santa Rosa	CA	8	122
Sterling Heights	MI	8	119
Independence	MO	9	110
Grand Prairie	TX	9	109
Livonia	MI	1	105
Lincoln	NE	1	209
Fort Collins	CO	1	104
Allentown	PA	1	102
West Covina	CA	1	102
Anaheim	CA	1	289

City	State	Homicides /100k	Population in 100k
El Paso	TX	1.2	600
Tempe	AZ	1.2	163
Chula Vista	CA	1.3	152
Oceanside	CA	1.4	146
Springfield	MO	1.4	143
Torrance	CA	1.5	136
Riverside	CA	1.6	255
Eugene	OR	1.6	124
Henderson	NV	1.6	122
Thousand Oaks	CA	1.8	113
Mesquite	TX	1.8	112
El Monte	CA	1.8	110
Virginia Beach	VA	1.9	430
Palmdale	CA	1.9	107
Seattle	WA	1.9	525
Berkeley	CA	1.9	103
Green Bay	WI	2	102
Tallahassee	FL	2.2	137
San Jose	CA	2.3	839
Amarillo	TX	2.4	170
Worcester	MA	2.4	166
Laredo	TX	2.4	165
Evansville	IN	2.4	123
Fullerton	CA	2.5	120
Alexandria	VA	2.6	118
Reno	NV	2.6	155
Grand Rapids	MI	2.7	188
Springfield	IL	2.7	113
Salinas	CA	2.7	112
Stamford	CT	2.7	110
Abilene	TX	2.8	108
Irving	TX	2.8	177
Erie	PA	2.8	105
Corpus Christi	TX	2.9	280
Hampton	VA	2.9	139
Mesa	AZ	2.9	345
Lexington	KY	2.9	240
Norwalk	CA	3	100
Wichita Falls	TX	3	100
Honolulu CDP	HI	3.1	423
Chesapeake	VA	3.1	192
Hayward	CA	3.3	122
Omaha	NE	3.3	364
Austin	TX	3.3	541
Modesto	CA	3.4	179
San Diego	CA	3.4	1171

City	State	Homicides /100k	Population in 100k
Rancho Cucamonga	CA	3.4	117
Escondido	CA	3.4	116
Concord	CA	3.5	115
Huntsville	AL	3.5	170
Peoria	IL	3.6	112
Anchorage	AK	3.6	251
Lubbock	TX	3.6	194
Savannah	GA	3.7	136
Yonkers	NY	3.7	190
Arlington	TX	3.7	295
Glendale	CA	3.8	184
Glendale	AZ	3.8	182
Syracuse	NY	3.8	156
Paterson	NJ	4	150
New Haven	CT	4	125
Orlando	FL	4	174
Wichita	KS	4.1	320
Salem	OR	4.1	123
Garland	TX	4.2	190
Moreno Valley	CA	4.3	141
Spokane	WA	4.3	187
Columbus	GA	4.4	183
Toledo	OH	4.4	318
Tacoma	WA	4.5	179
Tulsa	OK	4.5	378
Brownsville	TX	4.5	132
Pasadena	TX	4.6	132
Providence	RI	4.6	153
St. Petersburg	FL	4.7	236
Waterbury	CT	4.7	106
Lansing	MI	4.8	126
Albany	NY	4.8	104
Hialeah	FL	4.9	205
Greensboro	NC	5.1	195
Lancaster	CA	5.2	116
Macon	GA	5.3	113
Fort Worth	TX	5.4	480
Elizabeth	NJ	5.4	110
Ontario	CA	5.5	145
Waco	TX	5.5	108
Jersey	NJ	5.7	229
Lafayette	LA	5.7	105
Tampa	FL	6	285
Chattanooga	TN	6	150
Pittsburgh	PA	6	350
Portland	OR	6	481

City	State	Homicides /100k	Population in 100k
San Francisco	CA	6.1	735
Bakersfield	CA	6.3	206
Oklahoma	OK	6.4	470
Denver	CO	6.4	498
Boston	MA	6.4	558
Oxnard	CA	6.6	151
Sacramento	CA	6.6	376
Topeka	KS	6.7	120
Fontana	CA	6.7	104
Newport News	VA	6.8	176
New York	NY	6.9	7381
Raleigh	NC	7	244
Hollywood	FL	7	128
Jacksonville	FL	7.1	680
Knoxville	TN	7.2	168
Vallejo	CA	7.3	110
Indianapolis	IN	7.4	747
Pasadena	CA	7.5	134
Houston	TX	7.7	1744
Columbus	OH	7.8	657
Phoenix	AZ	7.9	1159
Columbia	SC	8	113
Buffalo	NY	8.1	311
Hartford	CT	8.3	133
Santa Ana	CA	8.3	302
Nashville	TN	8.4	511
Fresno	CA	8.6	396
Cleveland	OH	8.6	498
Charlotte	NC	8.8	441
Pomona	CA	8.9	135
Albuquerque	NM	9.3	420
Louisville	KY	9.6	261
Stockton	CA	9.9	233
Beaumont	TX	9.9	111
Little Rock	AR	10.2	176
Milwaukee	WI	10.3	591
Rochester	NY	10.4	222
Los Angeles	CA	10.4	3554
Norfolk	VA	10.7	233
Dallas	TX	10.8	1053
San Bernardino	CA	11.4	183
Winston-Salem	NC	11.7	154
Portsmouth	VA	11.8	101
Mobile	AL	11.8	203
Aurora	IL	12	116
Rockford	IL	12.5	144

City	State	Homicides /100k	Population in 100k
LongBeach	CA	12.6	422
Inglewood	CA	12.6	111
South Bend	IN	12.7	102
Kansas	MO	13.1	441
Fort Lauderdale	FL	13.2	152
Oakland	CA	13.3	367
Memphis	TN	13.4	597
Chicago	IL	13.9	2722
Shreveport	LA	14.1	192
Flint	MI	14.8	135
Durham	NC	16	150
Miami	FL	16.4	365
Newark	NJ	17.1	269
Jackson	MS	19.2	193
Detroit	MI	20.1	1000
Atlanta	GA	20.2	402
Birmingham	AL	20.9	259
Las Vegas	NV	22	377
St. Louis	MO	23.6	352
Baltimore	MD	24.4	675
Richmond	VA	29.3	198
Gary	IN	35.1	111
Washington	DC	36.4	543
New Orleans	LA	42.4	477
San Antonio	TX	55.3	107

Source: <http://www.fbi.gov/ucr/ucrpre97.pdf>

REFERENCES

- American College of Surgeons, Committee on Trauma, *Early Care of the Injured Patient*, 4th ed., Philadelphia, Decker, 1990.
- Anderson, R. N., Rosenberg, H.M., Age standardization of death rates: implementation of the year 2000 standard, *National Vital Statistics Reports*, 1998, 47: n. 3, Available as http://www.cdc.gov/nchs/data/nvsr47_3.pdf.
- Chenuil, A., Crespin, L., Pouyaud, L., Patrick, B., Movements of adult fish in a hybrid zone revealed by microsatellite genetic analysis and capture-recapture data, *Freshwater Biology*, 2000, 43, 1, pp.121-131.
- Cockburn, J. S., Patterns of violence in English society: homicide in Kent 1560-1985, *Past & Present*, 1991, 130, pp. 70-106.
- Cooper, G., *Lost Love: A True Story of Passion, Murder, & Justice*, New York, 1869, New York, 1993.
- Daly, M., Wilson, M., *Homicide*, New York, 1988.
- Eckberg, D., *Stalking the elusive homicide: dual enumeration techniques and post-reconstruction South Carolina killings*, Paper presented at the Social Science

- History Association annual meeting, Chicago, 1998 and forthcoming *Social science history*, 2001.
- Eisner, M., Modernization, self-control and lethal violence _ long-term dynamics of European homicide rates in theoretical perspective, *British Journal of Criminology*, forthcoming, 2001.
- Emmerichs, M. B., Infanticide and the coroners in nineteenth-century London, European social science history association conference, Amsterdam, April 2000.
- Gallman, J. M., *Receiving Erin's children : Philadelphia, Liverpool, and the Irish Famine Migration, 1845-1855*, Chapel Hill, 2000.
- Gurr, T. R., Historical trends in violent crimes: A critical review of the evidence, in Tonry, M., Morris, N., (Eds.), *Crime and justice: an annual review of research*, 1981, 3, pp. 295-353.
- Gurr, T.R., (Ed.), *Violence in America*, Newbury Park, Calif., 1989.
- Hammer, C. I. Jr., Patterns of homicide in a medieval university town: fourteenth-century Oxford, *Past & present*, 1978, 78, pp. 3-23
- Lane, R., *Violent Death in the City: Suicide, Accident, and Murder in Nineteenth-Century Philadelphia*, Cambridge, Mass., 1979.
- Monkkonen, E., New York City homicide offender ages: how variable? A research note, *Homicide Studies*, 1999, 3, 3, pp. 256-271.
- Monkkonen, E., *Murder in New York City*, Berkeley and Los Angeles, 2001a.
- Monkkonen, E., Estimating the accuracy of historic homicide rates: New York City and Los Angeles, *Social Science History*, forthcoming 2001b.
- Nadel, S., *Infanticide in the New Metropolis*, European Social Science History Association Conference, Amsterdam, April 2000.
- Sharpe, J. A., Domestic homicide in early modern England, *Historical Journal*, 1981, 24, 1, pp. 29-48.
- Sharpe, J.A., The history of crime in late medieval and early modern England: a review of the field, *Social History*, 1982, 7, 2, pp. 187-203.
- Soman, A., Deviance and criminal justice in western Europe, 1300-1800: an essay in structure, *Criminal Justice History*, 1980, 1, pp. 1-28.
- Spierenburg, P., Long-term trends in homicide: theoretical reflections and Dutch evidence, fifteenth to twentieth centuries, in Johnson, E.A., Monkkonen, E.H., (Eds.), *The Civilization of Crime: Violence in Town and Country since the Middle Ages*, Urbana, 1996, pp. 63-108.
- StataCorp, *Stata statistical software: release 6.0*, College Station, Texas, 1999.
- Stone, L., Interpersonal violence in English society 1300- 1980, *Past & Present*, 1983, 101, pp. 22-33.
- Sydeman, W. J., Nur, N., McLaren, E. B., McChesney, G. J., Status and trends of the ashly storm-petrel on southeast Farallon island, California, based upon capture-recapture analyses, *Condor*, 1998, 100, 3, pp. 438-447.
- Symcox, G., Monkkonen, E.H., *The Census of Turin*, unpublished article and data set, 1994.
- Taylor, H., The politics of the rising crime statistics of England and Wales, 1914-1960, *Crime, Histoire & Sociétés/Crime, History and Societies*, 1998a, 2, 1, pp. 5-28.
- Taylor, H., Rationing crime: the political economy of criminal statistics since the 1850s, *Economic history review*, 1998b, 51, 3, pp. 569-590.
- Thome, H., Explaining long term trends in violent crime, *Crime, Histoire et Sociétés/Crime, History and Societies*, 2001, 5, 2, pp. 69-86.

- Tucher, A., *Froth & Scum: Truth, Beauty, Goodness, and the Ax Murder in America's First Mass Medium*, Chapel Hill, 1994.
- United States, Center for Health Statistics, US vital statistics system: major activities and developments, 1950-1995, app ii., history and organization of the vital statistics system. <http://www.cdc.gov/nchs/data/usvss.pdf>.
- Wilson, R.F., Walt, A.J., (Eds.), *Management of Trauma: Pitfalls and Practice*, 2nd ed., Baltimore, Williams & Wilkins, 1996.
- Ylikangas, H., *Five Centuries of Violence in Finland and the Baltic Area*, Columbus, 2000.