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Justifiable homicides committed by police officers are important in regard to public health because they have a distinctive etiology and because the intentional killing of citizens by an agent of the government has consequences for communities that go far beyond the immediate loss of life. Almost every major civil insurrection that occurred in the United States in the past century was initiated or accelerated by the perception that the police had misused their right to use deadly force.1,2 These incidents frequently cause large numbers of injuries and deaths, and they disrupt the social and economic relationships through which essential economic, health, public safety, and social services are provided to communities.3–5

Also, the perception that police devalue the lives of some citizens may reduce citizen cooperation in reporting crime or assisting police in investigations and may generally degrade the quality of justice.6 The ability to accurately assess the incidence and characteristics of justifiable homicides committed by police officers is central to the development and evaluation of policies that promote public health and safety.

In the United States, 2 national systems—the Uniform Crime Reporting Program of the Federal Bureau of Investigation (FBI) and the National Vital Statistics System (NVSS) of the National Center for Health Statistics—collect information on homicides committed by law enforcement officers in the line of duty. Research conducted with special populations suggests that both systems underreport the number of citizens killed by police officers.7–10 However, there has been no comprehensive comparison of estimates from the 2 systems.

In this study, we took advantage of the presence of multiple reporting systems and assessed the consistency of estimates from the 2 systems during the 23-year period encompassing 1976 through 1998. We show here that both systems underreport the number of justifiable homicides committed by police officers, and we identify major sources of undercounting.

BACKGROUND: THE 2 SURVEILLANCE SYSTEMS

Complete descriptions of the systems are available elsewhere.11–13

Uniform Crime Reporting Program

The Uniform Crime Reporting Program relies on the voluntary participation of state and local law enforcement agencies in submitting monthly information about crime. The FBI coordinates the program, but many states also have coordinating agencies that forward information from local agencies to the FBI.

The key form in regard to assessing the number of justifiable homicides committed by police officers is the supplementary homicide report (SHR), which collects information (victim and offender characteristics, relationship between victim and offender, weapon, and circumstances) on each homicide incident reported by a given agency. Among other items, the SHR provides a short field in which agencies are instructed to “furnish a brief statement as to the circumstances surrounding the victim’s death.”12 This information is coded, according to Uniform Crime Reporting Program guidelines, by staff of the state agency or the FBI.

If the description of the circumstance mentions that the decedent was killed by a police officer or other “peace officer” (persons with specified legal authority to use deadly force) acting in the line of duty, the case should be coded as a justifiable homicide committed by the police. Agencies are instructed to provide information based on the initial police investigation, not on subsequent decisions made by prosecutors or courts.

National Vital Statistics System

Production of NVSS data can be divided into 2 general phases, certification and classification. State laws require the certification of all deaths, and, in the case of homicides, they require certification by a medical examiner or coroner. Medical certifiers supply information about cause and manner of death, whereas other information is typically collected and entered by funeral directors. The certificate, when complete, is filed with a designated registrar of the district in which the death occurred.13–15

In terms of identification of justifiable homicides committed by the police, the 2 essential items on the death certificate are (1) the manner-of-death statement (wherein the certifier selects from the following options: natural, accident, suicide, homicide, pending
research and practice

were geographically classified according to the
year for which data were available). SHR cases
ers and coroners simply states the following:
that provides instructions for medical examin-
ers and coroners states explicitly that police involve-
tions for completing these items do not men-
tion justifiable homicides committed by the
police or explicitly indicate that police involve-
ment should be mentioned. The handbook
that instructions for medical examin-
ers and coroners states explicitly that police involve-
tions for completing these items do not men-
tion justifiable homicides committed by the
police or explicitly indicate that police involve-
ment should be mentioned. The handbook

Briefly and clearly describe how the injury oc-
curred, explaining the circumstances or cause
of the accident or injury, such as “fell off ladder
while painting house,” “ran off roadway,”
or “car–truck collision.” For motor vehicle acci-
dents, indicate whether the decedent was a
driver, passenger, or pedestrian.16(p39)

Certifiers do not directly classify the case
as a justifiable homicide committed by the
police, nor are they required to certify whether
the killing was legally justifiable.

In the classification phase, the information
from the death certificate is used to classify
cause of death according to the International
Classification of Diseases (ICD). Information
on manner of death (homicide, suicide, uninten-
tional) is combined with information on under-
lying cause of death by means of the
ICD E-codes used for deaths due to injury
and poisoning. The classification should be
correct if the certifier designates manner of
death as a homicide and indicates, in the “de-
scribe how the injury occurred” statement,
that the decedent was killed by the police.

METHODS

We compared SHR and NVSS estimates of
the number of justifiable homicides committed
by police officers during a 23-year period
by demographic group (sex, age, and race),
state, and year. Direct and probabilistic record
 linkage was not possible because there were
no unique identifiers common to both
public use data sources, and common vari-
ables (state, county, year, age, sex, race, and
weapon) lacked discriminating power.

We obtained SHR and NVSS data for
1976 (the year after an extensive revision of
the SHR) through 1998 (the most recent
year for which data were available). SHR cases
were geographically classified according to the
locale (police jurisdiction) in which the injury
occurred, whereas NVSS cases were classified
by place of death. Only deaths occurring in the
50 states and the District of Columbia were in-
cluded. Incident-level SHR data were con-
verted to a victim-level format so that they
were consistent with the NVSS data.
The SHR and NVSS case definitions were
logically equivalent. For the SHR, we counted
justifiable homicides committed by police offi-
cers, defined as the “killing of a felon by a
peace officer in the line of duty.”22(p29) For the
NVSS, we counted deaths in which the under-
lying cause was attributed to legal inter-
ventions, defined as “injuries inflicted by the
police or other law enforcement agents,
including military on duty, in the course of ar-
resting or attempting to arrest law breakers,
suppressing disturbances, maintaining order,
and other legal action” in accord with codes
E970 through E977 of the eighth (ICD-8)
and ninth (ICD-9) revisions of the ICD.22,23
We excluded legal executions (code E978).
The definitions just described specify a subset
of homicides distinguished by the legal au-
thorization of the agent and the act. Neither
system is intended to include illegal killings
committed by police officers.

The changes in collection procedures that
occurred during the study period should not
have affected estimates of the number of jus-
tifiable homicides committed by police.
Although the FBI began accepting data in a
new format in 1998, the system preserves all
of the elements of the SHR.24 In the case of
the NVSS, revisions in US standard certifi-
cates of death in 1978 and 1989 changed
the format of the manner-of-death item, ex-
plicitly including the option “pending investiga-
tion” (in 1978) and reformating the item
as a checkbox and adding “natural” to the list
(in 1989).13,25,26 Furthermore, there were no
changes in the definition of homicide or legal
intervention between the ICD-8 (used from
1968 through 1978) and the ICD-9 (used
from 1979 through the end of our study pe-
riod). The comparability ratio (estimate of the
number of cases using the ICD-9 relative to
the number using the ICD-8) for homicide
and legal intervention was 1.0057 (95% con-
fidence interval [CI]=0.9999, 1.0115).27

According to the National Center for
Health Statistics, the NVSS data cover more
than 99% of US deaths.28 Comparable SHR
estimates of number of homicide deaths were
not available. The FBI has reported that the
law enforcement agencies participating in the
Uniform Crime Reporting Program represent
between 95%29 and 98%30 of the US popu-
lation; these figures are not applicable to the
SHR, however, because some participating
agencies do not submit the SHR form or sub-
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According to the National Center for
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RESULTS

Findings showed that the SHR consistently
reported more justifiable homicides commit-
ted by the police than did the NVSS (Figure 1).
Overall, the SHR estimate of the number
of such homicides was 29% larger than the
NVSS estimate (8658 vs 6686). The pattern
was stable over time, with a mean annual
ratio (SHR to NVSS) of 1.3. An augmented
Dickey–Fuller test4 rejected the hypothesis
of a nonstationary process (i.e., of a trend or
drift) at the .05 level (P=.02) for the NVSS
series but only at the .10 level (P=.07) for
the SHR series.

If both series were stationary, their correla-
tion (r=0.73) would be a reasonable measure
of the strength of their association. If the se-
ries were nonstationary, the correlation of
their differences (homicides in year t minus
homicides in year t–1; r=0.58) would more
accurately measure the association.

<table>
<thead>
<tr>
<th>Age, y</th>
<th>SHR, No. (%)</th>
<th>NVSS, No. (%)</th>
<th>Ratio: SHR to NVSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>10–19</td>
<td>973 (11)</td>
<td>666 (10)</td>
<td>1.5</td>
</tr>
<tr>
<td>20–29</td>
<td>3613 (42)</td>
<td>2578 (39)</td>
<td>1.4</td>
</tr>
<tr>
<td>30–39</td>
<td>2333 (27)</td>
<td>1950 (29)</td>
<td>1.2</td>
</tr>
<tr>
<td>40–49</td>
<td>987 (11)</td>
<td>856 (13)</td>
<td>1.2</td>
</tr>
<tr>
<td>50–59</td>
<td>374 (4)</td>
<td>321 (6)</td>
<td>1.2</td>
</tr>
<tr>
<td>60–69</td>
<td>181 (2)</td>
<td>176 (3)</td>
<td>1.0</td>
</tr>
<tr>
<td>≥ 70</td>
<td>88 (1)</td>
<td>100 (1)</td>
<td>0.9</td>
</tr>
<tr>
<td>Unknown</td>
<td>190 (1)</td>
<td>17 (&lt;1)</td>
<td>6.4</td>
</tr>
<tr>
<td>Total</td>
<td>5583 (69)</td>
<td>4688 (66)</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Note. Two NVSS cases involving decedents younger than 10 years have been omitted. SHR = supplementary homicide report; NVSS = National Vital Statistics System.

The number of cases reported by the SHR exceeded the number reported by the NVSS in most sex, race, and age categories. More SHR than NVSS cases were reported among White and Black decedents (Table 1) and in every age category between 10 and 60 years (Table 2). There were relatively few cases and small differences between the systems in regard to decedents of unknown race and decedents older than 69 years. Also, small numbers of female cases were reported in both systems; over the 23-year period, the SHR reported only 206 female cases, whereas the NVSS reported 179.

In addition to the differences in reported number of cases, the excess of SHR reports over NVSS reports was greater for decedents who were Black and for decedents younger than 30 years. The ratio of SHR to NVSS cases was 1.5 for Black decedents but only 1.2 for White decedents (Table 1). For decedents between the ages of 10 and 29 years, the ratio was 1.4 or greater; for decedents between the ages of 30 and 59 years, however, it was no larger than 1.2 (Table 2).

When cases were stratified by state, a different pattern was revealed. In contrast to the excess of the SHR over the NVSS in terms of the number of cases reported nationwide, more than half of the states (29) reported more NVSS than SHR cases. The pattern is clear in Figure 2, in which the states and the District of Columbia are ranked according to ratio of SHR to NVSS counts. The aggregate national difference favoring the SHR is caused by a systematic relationship between state population sizes and the excess of SHR over NVSS cases. States reporting more SHR cases tended to have larger populations than did states reporting more NVSS cases (Pearson r = 0.58 between ratio of SHR to NVSS counts and mean study period population). The most prominent example was California, with 1089 more cases reported in the SHR than in the NVSS, but Texas, New York, Illinois, Pennsylvania, Michigan, and other large states also reported more SHR cases than NVSS cases.

DISCUSSION

Both the SHR and the NVSS underreport homicides committed by police officers, but for different reasons. In the case of the SHR,
both agency nonresponse (failure to file SHR forms) and incomplete information on the filed reports are responsible for the underreporting of homicides, including justifiable homicides committed by the police. A small number of agencies do not participate in the Uniform Crime Reporting Program, but a larger number of participating agencies do not file the SHR forms or do not file them every month. The important point is that the SHR estimates of the number of justifiable homicides committed by the police in the SHR. If such information is to be supplied, it must be known that the death was caused by the police, the relevance of the information must be recognized, and the will to provide the information must be present. A national sample of cases of known justifiable homicides committed by police officers should be examined to determine how the factors described operate to reduce reporting. Although general-purpose data systems such as vital statistics systems and the Uniform Crime Reporting Program cannot provide the same level of accuracy as studies focusing specifically on homicides committed by police officers, a better understanding of the structure of errors would suggest ways to improve the quality of reporting.

As it stands, however, there is a need for accurate and reliable ongoing surveillance of reports of justifiable homicides. Ideally, such a surveillance system would provide the detail necessary to adequately describe the circumstances surrounding justifiable homicides committed by police officers, an element that neither the existing SHR nor the NVSS can supply. If it is unrealistic to recommend fundamental changes to existing data systems, it may be worthwhile to explore the option of designing a new, more reliable and comprehensive system.

Because both the SHR and NVSS underreport in systematic ways, existing data should be used cautiously. The correlation between the annual series, along with the correlation between the monthly series (not described here), implies that the SHR and NVSS follow broadly similar patterns over time. Thus, one might use the series to investigate overall national trends. Even here, however, the relationships are approximate, and inferences about changes within subgroups may be misleading.

There is reason to believe that the SHR estimates may be of use in comparisons involving large cities. Sherman and Cohn compared SHR estimates of the number of justifiable homicides committed by police officers between 1980 and 1983 with survey data they had collected from a sample of large cities. Although the authors reported discrepancies (differences of at least 1 case) between values...
in 63% of the years studied, the correlations (our calculations) between the values ranged from .95 to .97. Nevertheless, even in the case of large US cities, complete and consistent reporting of SHR data does not always occur, and extra care and caution are required when making such comparisons.

Our general conclusion is that, at present, reliable estimates of the number of justifiable homicides committed by police officers in the United States do not exist. The 2 national data systems fail to account for many cases and provide different estimates of the demographic characteristics of individuals killed by the police. Analyses of existing data should proceed cautiously.

Acknowledgments

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Human Participant Protection

Ethical clearance for this research was obtained from the institutional review board of the University at Albany, State University of New York.

References