Self-Defense Gun Use: A Response to Kleck-Gertz “Illegitimacy…” in the J Criminal Law and Criminology 1997

David Hemenway (written 1998)

Since 1993, Gary Kleck has been publicly claiming that civilians use guns in self-defense against offenders some 2.5 million times each year. This figure is used continually by Kleck and gun supporters to demonstrate the large benefits of extensive gun ownership in the United States.

Phil Cook, Jens Ludwig and I have argued that more self-defense gun use is not necessarily better for society ("The Gun Debate's New Mythical Number: HOW Many Defensive Uses Per Year?" Journal of Policy Analysis and Management, 1997; 16:463-69). And in a recent article in the Journal of Criminal Law and Criminology ("Survey Research and Self-defense Gun Use: An Explanation of Extreme Overestimates" 1997; 87:1430-1445) I explain why Kleck's 2.5 million figure is probably an order of magnitude too high. That journal permitted Kleck to write a long attack on my article and on me (1446-1461). As has happened in the past (Weil D, Hemenway D, "A Response to Kleck" Violence & Victims 1993; 8:377-385), virtually everything Kleck claims is either seriously misleading or completely wrong.

**1. Ad Hominem Attacks**:

**The Claim**: Kleck argues that the sole aim of my article was political, to serve "the narrow political purpose of 'getting the estimate down' for the sake of advancing the gun control cause," (p. 1446). The goal of my article becomes self-evident, he claims, because of my supposed "close ties" with Handgun Control Inc (HCI) through two staff members, Doug Weil, with whom I have collaborated on articles, and Dennis Henigan, with whom I "co-edited" a book.

**The Truth**: The goal of my article was to bring more science into firearm scholarship. The serious problem of false positives when estimating rare events has not been sufficiently recognized in survey research (Hemenway, "The Myth of Millions of Annual Self-Defense Gun Uses: A Case Study of Survey Overestimates of Rare Events" Chance 1997; 10:6-10).

I have no direct ties with HCI, and have never been a member. I was Doug Weil's thesis advisor; our "collaborations" are mainly his dissertation papers. After graduation, he joined HCI, and we have stayed in touch, but have not worked together. Dennis Henigan and I did not "co-edit" a book. We appeared in separate chapters of a book of interviews with gun experts. The interviews were conducted individually by Howard Friel, and the book was edited by him. I did not know, meet or communicate with Dennis Henigan or anyone else interviewed for that volume (Guns and the Constitution, Alethia Press, 1995).

**2. The National Institute of Justice (NIJ) Survey**

**The Claim**: Kleck devotes a whole section of his rebuttal to "The Survey Hemenway Chose Not to Mention." "Hemenway does not mention the results of this [National Institute of Justice] survey, perhaps for an understandable reason: It almost exactly confirms our results...What could possibly justify Hemenway's calculated decision to withhold the results...?" (p. 1460).

**The Truth**: I did not discuss that survey because, when I submitted my article in early 1996, even preliminary results were not yet available. One reason it took so long for my article to be published (it was published in early 1998, with no substantive changes) was the time it took for Kleck to write his rebuttal and because, I was told, that he threatened to sue the Journal of Criminal Law and Criminology for libel if they published my article.

It should be noted that the conclusions of NIJ report are in complete disagreement with Kleck concerning his claims about self-defense gun use (Cook P, Ludwig J. Guns in America. National Institute of Justice Report, 1997).

**3. Kleck-Gertz Survey Problems**

Many specific problems exist with the Kleck-Gertz survey (e.g. the surveyors tried to speak to the male head of the household, which does not yield a representative sample of the population; the survey is randomized by dwelling unit, but the extrapolation is by individuals, etc). Yet Kleck & Gertz never discuss many of the methodological issues or limitations of their survey, in either their original article or in their rebuttal.

**The Claim**: The one thing they do, concerning these issues, is to accuse me of libel. In a section entitled "Libelling Our Interviewers" they write "The unmistakable innuendo is that some of our interviewers faked or altered interviews to create phony accounts of defensive gun uses." (p. 1459)

**The Truth**: As one of many examples of the survey limitations I wrote: "For example, the survey was conducted by a small firm run by Professor Gertz. The interviewers presumably knew the purpose of the survey and the staked-out position of the principal investigator regarding the expected results" (p. 1433). I wrote nothing else about the interviewers.

The issue, of course, is not one of deliberate falsification, but one of "blinding." Good science requires that individuals collecting information be blinded to the expected or hoped-for results of the investigation, to eliminate the possibility of subtle bias. Kleck's position on self-defense gun use was well known. In the Kleck-Gertz paper, we have the unusual instance of the head of the independent survey firm which did the interviewing being both from the same school (Florida State) as the principal investigator and being co-author of the resulting publication. The survey instrument was entitled "National Self-Defense Survey," and the surveyors began with a "Hello, my name is \_\_\_ with Florida State University." The Kleck-Gertz result is on the high side of the one-shot survey estimates.

As Kleck knows, this very issue was brought up at the National Institute of Justice Advisory Committee. As he writes, "Kleck was principle (sic) consultant on the Police Foundation survey, wrote most of the associated grant proposal and most of the questionnaire, and participated in numerous meetings (--it was actually one meeting--) with Hemenway and Cook" (p. 1460). At that meeting Kleck pressed strongly that the Police Foundation survey be performed by Gertz. It was the opinion of everyone else at the meeting, including the representative of the National Institute of Justice, that having Gertz perform the survey would be inappropriate, because, at minimum, it could give the perception of bias.

Kleck and Gertz never describe what steps, if any, they took to ensure that their interviewers and their supervisor were indeed blinded.

**4. Survey Overestimates of Rare Events**

**The Claim**: "Hemenway's claim that our results are 'extremely sensitive' to small changes in the specificity rate is another example of argumentation that relies on assuming the conclusion. The main reason that his example estimates in Table 2 are so sensitive to the specificity rate is because Hemenway assumes extremely low actual defensive gun use rates, i.e. he assumes the very conclusion he is pushing" (p. 1456).

**The Truth**: The paragraph is complete nonsense. There is no question but that the Kleck-Gertz results are extremely sensitive to small changes in the specificity rate. The only thing I took as given was the actual Kleck-Gertz result, that 1.33% of their sample reported a self-defense gun use in the past year (about 66/5000). Since all surveys have some misclassification, I then examined what the true rate of self-defense gun use would be under various assumptions about the specificity and sensitivity rates. Under most reasonable assumptions, their 2.5 million is a wild overestimate.

Kleck claims the 2.5 million might actually be a small underestimate and provides a statistical example (a 50% test sensitivity and a 99.7% test specificity). The question is whether that example is at all plausible. It would mean that (a) if 1,000 people were called who actually had a self-defense gun use in the past year, 500 would deliberately lie and say "No," they didn't, even though almost all defended themselves successfully. (Kleck argues that none of them would have forgotten this gun event). In addition, (b) if 1,000 people were called who did not have an actual self-defense gun use in the past year, 3 or fewer would say "yes they did." Remember that these 1,000 respondents include people who may have had self-defense gun uses 13-18 months ago, or might have inaccurately thought they scared away someone with their gun. It is useful to realize that in a random 1,000 people, about 90 say that they personally have seen something they believe was a spacecraft from another planet.

Note how sensitive Kleck's estimate is to small changes in the specificity rate. If the specificity rate were 98.7% (13/1,000 negatives misclassified) instead of his incredibly high 99.7% specificity rate (only 3/1,000 negatives are misclassified), then his 2.5 million figure would be 17 times too high (even assuming a low 50% sensitivity rate)! The reason for this result is that self-defense gun use is a rare event. Even if 1% of the population were true positives, for every 1,000 people who used a gun in self-defense, there would be 99,000 who did not, and could be miscategorized as self-defense gun users.

Kleck argues his 2.5 million figure is correct, by assuming the unusual combination of both an extremely high specificity rate and an extremely low sensitivity rate.

**5. False Positives and False Negatives**

To claim such extreme sensitivity and specificity rates, Kleck is forced to argue that there is little positive about self-defense gun use and much that is negative.

a) Social Desirability Bias

**The Claim***:* Hemenway "insists that the predominant bias surrounding defensive gun use reports is a 'social desirability response bias' with respondents making false reports of defensive gun uses to present themselves as 'heroic.' Hemenway ignores the information we provided in our article on the distinctly unheroic character of the defensive gun use accounts provided. What was most striking about the reported events was their banality." (p. 1455).

**The Truth**: The social desirability bias doesn't have to be predominant for most people. Given the rare nature of the event, it just has to be predominant for some small percentage of respondents. And all the available evidence indicates that self-defense gun use is perceived by most people as beneficial, socially desirable and often heroic. For example, in the Kleck-Gertz survey, over 46% of respondents claim that their gun use might have saved--or probably would have saved, or almost certainly did save--someone from dying. Saving someone from death seems pretty heroic. If their respondents' claims are correct, over 1 million murders a year may have been directly prevented by self-defense gun use (yet there were only 27,000 total murders in 1994). Also note that Kleck's self-defense gun users are almost always defending themselves against serious crimes.

Another piece of evidence about social desirability comes from the fact that for pro-gun researchers and organizations, and of course for Kleck himself, self-defense gun uses are seen as a very good thing. Every issue of the American Rifleman includes a column entitled "The Armed Citizen" with examples of self-defense gun incidents, of "decent law-abiding-citizens fending off the "bad guys." Not surprisingly, Kleck's 2.5 million figure is cited continually by pro-gun advocates. As Kleck writes, "To acknowledge high defensive gun use frequency would be to concede the most significant cost of gun prohibition (p. 1447)." His statement makes sense only if self-defense gun use is perceived as beneficial.

b) The Illegality of Self-Defense Gun Use

**(i) The Claim**: Kleck argues repeatedly that "most of the reported defensive gun uses involved illegal behavior" (p. 1455)

He bases his entire claim to a huge percentage of false negatives on this issue.

**The Truth**: Kleck offers no evidence about the legality of the self-defense gun use ["We made no effort to assess either the lawfulness or morality of the respondents' defensive actions" (Kleck & Gertz, p. 163)]. If illegal, it would be the possession, or carrying, or actual use that was illegal. Yet Kleck and Gertz oversample men, in the West and the South, where gun household gun ownership is over 50%, and both ownership and carrying laws are quite permissive. Who, then, are these individuals who can't legally obtain guns and/or carry them? If Kleck is right about the illegality, most of his so-called self-defense gun use may be detrimental to society--an illegal act (so criminal that most respondents are afraid even to begin to report it on an anonymous telephone interview) in what would otherwise have been a "banal" event (1455). Note too that while Kleck claims that less than 10% of the incidents were "mutual combat" incidents (1450), 100% were armed, hostile confrontations.

**(ii) The Claim**: Kleck implies that asking about self-defense gun use is equivalent to "requiring respondents to report their own illegal behavior." (1458)(1447)

**The Truth**: Respondents were not asked to report on their own illegal behavior. Neither the NCVS nor the Kleck-Gertz or any of the other one-shot surveys ask directly about illegal behavior. Tens of millions of Americans own guns legally, millions carry guns legally, tens to possibly hundreds of thousands use guns legally in self-defense. Admitting to owning or carrying or using a gun admits to nothing about unlawful activity, just as responding that one was the driver in a car crash admits to nothing about illegal behavior.

**(iii) The Claim**: Respondents were afraid that if they reported an illegal self-defense gun use, they could get into trouble

**The Truth**: Not only were respondents not asked to report illegality, but the NCVS and the one-shot interviews have never used any information received to identify or punish any individual’s illegal behavior. The Census Bureau assures respondents that all information is confidential, and it would be illegal for the interviewers to provide individual information to the authorities; it should be impossible for the interviewers in the one-shot surveys to do so.

**(iv) The Claim**: Kleck claims to present relevant evidence that "self-report studies underestimate illegal behavior." (p. 1459)

**The Truth**: All the studies cited by Kleck are irrelevant--they do not deal with rare events for the population studied, and the surveys were conducted on vulnerable individuals, who were asked directly about illegal actions by people who could penalize them. For example, Kleck cites a study that found among juvenile arrestees, over two thirds of whom tested positive for cocaine, only 23% reported using cocaine in the past 90 days (p. 1149). Is anyone surprised? Is that finding at all relevant to an anonymous self-report telephone survey of the general population of a rare event (self-defense gun use), an event should generally be legal and has positive social desirability?

Much evidence actually exists which demonstrates that on anonymous telephone interviews people willingly report a large amounts of minor and not-so-minor criminal behavior, even behavior that has little possibility of positive social desirability bias. For example, in a telephone study of California motorists, 20% reported running a red light in the past month and 8% reported driving after they thought they had too much to drink in the past year (Hemenway D, Solnick SJ. "Fuzzy Dice, Dream Cars and Indecent Gestures: Correlates of Driver Behavior?" Accident Analysis and Prevention, 1993; 25:161-170). In one of the earliest self-report studies, a suggestive if non-random survey of 1,000 adult males, 64% of respondents effectively admitted to being unarrested felons, having engaged in such activities as grand larceny (13%), auto theft (26%), assault (49%) and burglary (17%) (Wallerstein JS, Wyle CJ. "Our Law-Abiding Law-Breakers," in Probation (New York: National Probation Association, 1947). More recent self-report studies find the well over 70% of adolescents aged 12-19 admit to having engaged in delinquent behavior for which they could have been arrested (Many study results are summarized in Fagan J, Weis JG, Cheng Y-T, "Delinquency and Substance Abuse among Inner City Students," Journal of Drug Issues 1990; 20:351-402).

**6. Validity**

a) Accuracy of Other Sources of Information

(i) Victimization

**The Claim**: Kleck argues, in effect, that it impossible to check his 2.5 million figure against any other results (e.g. estimates of crimes, bullet wounds), because no other measure is any good. For example, he says that Hemenway makes "the erroneous assumption that the National Crime Victimization Surveys (NCVS) provides correct estimates of the absolute frequency of crime."

Kleck argues that the NCVS misses many crimes because the victim may have used a gun illegally during the crime, and thus is afraid to report his attempted victimization to interviewers. "A large share of the incidents covered by our survey are probably outside the scope of incidents that realistically are likely to be reported" to the NCVS because "defensive gun uses typically involve criminal behavior, such as unlawful gun possession by the gun-using victim, who is therefore often unwilling to report the incident" (p 1452).

**The Truth**: The National Crime Victimization Surveys provide good estimates of serious crime, such as burglary and robbery. As himself Kleck writes: The NCVS "survey instrument has been carefully refined and evaluated over the years to do as good a job as possible in getting people to report illegal things which *other* people have done *to* them" (Kleck & Gertz, p. 156). Kleck has often used and accepted as good estimates the NCVS victimization data.

The NCVS asks first about the crime. It never directly asks about gun use, but only asks what the victim did. The victims do not have to report gun use if they don't want. Indeed, Kleck previously claimed (not persuasively) that the overwhelming majority of respondents who used a gun in self-defense deliberately lied to the surveyors about their self-defense gun use. Now he claims that the vast majority don't even report the incident in the first place. Even if these wild claims were true, his burglary self-defense use figures would still imply an implausibly high percentage of self-defense gun use (virtually always successful) in cases of burglary of occupied homes.

Kleck appears to imply that Gertz' little survey, which does not account for the well-known overestimation problems due to telescoping (reporting an event outside the time frame) is better than the large expensive sophisticated National Crime victimization surveys at getting good estimates of crime. The Kleck-Gertz robbery victimization estimates, for example, are three times higher than the NCVS figures.

(ii) Medical Treatment

**The Claim**: Kleck claims that most people are not treated medically for gunshot wounds "If one more plausibly assumes that substantial numbers of less serious gun shot wounds are not treated (in emergency rooms)..." He also claims that only a small percentage of criminals who are wounded ever seek medical attention: "Almost all of the defensive gun use-linked woundings of criminals probably lie outside the universe of gunshot wounds treated in emergency rooms and other medical facilities" (1454).

**The Truth**: No one before has ever argued, and all of the many ER physicians and surgeons whom I have questioned are incredulous about the claim, that most or even a sizable percentage of gunshot wound victims do not seek medical treatment. There is no evidence of large number of cases of infection and sepsis caused by untreated wounds, which would be expected if most people did not seek professional treatment. Kleck as usual provides no evidence for his strange conjecture.

b) Disaggregation:

**The Claim**: Kleck claims it is inappropriate to examine the implications of his estimates for any particular crime because the results will be less reliable. "Hemenway's reductio ad absurdum logic is equivalent to arguing that Gallup presidential election polls cannot accurately estimate the share of the entire electorate voting for the Democratic candidate...because they sometimes yield implausible estimates for small subsets of the electorate, such as rural Hispanic Jews" (p. 1453)

**The Truth**: Over one third of Kleck's respondents who reported a self-defense gun use claimed the crime being committed was burglary. Thus the analogy with rural Hispanic Jews, who probably make up less than 0.1% of the population, seems

farfetched. Kleck's respondents are almost always defending themselves against serious crimes (less than 15% involve non-NCVS crimes). It thus seems quite reasonable to compare Kleck's results against each NCVS crime.

**7. Reliability**

**The Claim**: "The claim that there are huge numbers of defensive uses of guns each year in the United States has been repeatedly confirmed, and remains one of the most consistently supported assertions in the guns-violence research area" (1461).

**The Truth**: One-shot telephone surveys, which typically have one gun self-defense question, do give large estimates of self-defense gun use, ranging from 700,000 to many million of uses per year. But each National Crime Victimization survey, performed semi-annually or twenty times a decade, give results an order of magnitude lower. Thus every six months a very large and highly sophisticated survey gives completely different results than Kleck's estimates. Kleck's self-defense estimates are therefore not "one of the most consistently supported assertions" in the gun field. And while the NCVS is far from a perfect measure, because of the false positive problem with rare events, the NCVS undoubtedly provide a more reasonable ballpark estimate than one-shot surveys.

Reliability is different from validity. One-shot telephone surveys can consistently give wild overestimates about rare events with some socially desirability response bias. For example, we could extrapolate the current membership of the National Rifle Association from any of a half dozen recent national telephone surveys which ask a question like "Are you yourself currently a dues-paying member of the NRA?" The results are roughly consistent, indicating between 8-18 million members. Yet we know there are only 3 million NRA members. These one-shot surveys give "only" a 3-4 fold overestimate because being an NRA member is less of a rare event than having a self-defense gun use, and undoubtedly elicits far less socially desirability response bias.

Reproducing the same result over and over with the same flawed survey instrument does not provide much information about anything.

**8. Original Evidence**

**The Claim**: Kleck concludes both his introduction and conclusion with the argument that my critique cannot be useful because I provide no new data. "In all of Hemenway's commentary, he does not one cite one thing that could legitimately cast doubt on our estimates--better empirical evidence" (1461).

The Truth: It is not necessary to present new data to show that a research result is wrong. For example, assume that someone was publicly touting that he had found a tribe of aborigines who were 60 feet tall. It would be enough for a scientist to show that the yardstick that was used to measure these aborigines was closer to 3 inches long rather than 3 feet long, so that the natives were probably closer to 5 feet tall rather than the reported 60 feet tall, and to further show that people 60 feet tall would not be able to pump blood to their head. The truth could not be dismissed by the claim that the scientist had not gone out and measured the natives himself.

In the past years I have been Principal Investigator of two self-defense gun surveys. The results have been reported to the National Institute of Justice and have successfully gone through their peer-review process. A few of the main conclusions from the surveys are:

a) Criminal gun use in the United States occurs far more often than self-defense gun use. This result is completely opposite to the incorrect Kleck claim (p. 180), possibly because he did not ask about the use of guns against the respondent.

b) Self-defense gun use against an animal is more common than self-defense gun use against a person. This result is also in complete contradiction to the Kleck-Gertz results, probably because they asked about use against an animal only after asking about self-defense gun use generally.

c) Individuals without guns are not necessarily unarmed. In our survey, more people reported instances of self-defense with a baseball bat than with a gun.

d) Much reported self-defense gun use is not socially desirable. Although respondents present only one side of a confrontation, an unbiased reading of their self-defense reports indicates that in many cases, the respondent's gun use was clearly unlawful and anti-social, irrespective of whether the gun possession and carrying were legal.

**9. Summary**

In order to argue that his 2.5 million per year self-defense guns figure is correct, Kleck has to resort to making all sorts of strange assertions. He provides no evidence for any of these claims; most appear completely at odds with reality.

a) If Kleck is correct, on each National Crime Victimization Survey, some 1,200 respondents of the approximately 90,000 adults interviewed should have had a self-defense gun use. Since only about 34 report any such use, 1,166 of these 1,200 must be deliberately lying (Kleck was outraged when I implied that any respondent might have forgotten a self-defense gun use). Previously he seemed to be claiming that these 1,166 individuals just didn't tell about their gun use; now he seems to be saying that many do not even report the incidents in which they were victimized, because they might be questioned about the self-defense gun use (But of course, the NCVS does not ask a direct question about whether or not they used a gun, let alone whether or not the gun ownership, carrying or use was legal). In addition, if Kleck is correct, none of the 88,800 NCVS individuals who have not had a gun use would report having had one.

b) Kleck argues that the reason for this incredible pattern of lying about self-defense gun uses is that respondents see little that is positive about self-defense gun use. Yet most bought their gun for self-protection, and respondents claim, almost half the time, that their gun use might have saved an innocent life.

Kleck argues that most respondents do not report their gun use to interviewers because it was illegal. But (i) it is not clear why the use should be illegal, (ii) respondents are not asked about any possible illegality, (iii) it is unlawful for the Census Bureau interviewers to report individual information to any authority, (iv)there is no evidence that any such information has ever been provided to authorities, and (v) no respondent has ever been punished. On similar surveys respondents report all sorts of real crime.

c) If Kleck is correct, the National Crime Victimization Survey, the largest, most expensive, most sophisticated self-report survey on victimization in the world, misses most gun use during crimes because respondents deliberately lie to the Bureau of Census interviewers. Yet respondents largely tell the truth on other surveys conducted by the Census.

d) If Kleck is correct, the majority of people with gun-shot wounds do not seek medical attention. Yet we see virtually no one shows up in emergency rooms with the expected sequelae of untreated wounds.

e) If Kleck is correct, in serious crimes the victim is 3-4 more likely than the offender to have and to use a gun. Yet the criminal gets to determine when and where the crime occurs.

f) If Kleck's numbers are to be believed, decent-law-abiding citizens with guns should be many times safer from homicide than similar individuals without guns. But case-control studies show precisely the opposite.

Of course, none of Kleck's claims should be believed. Instead, all we have is another example of a general statistical phenomenon-- in a survey of a rare event with some social desirability bias, extrapolation will lead to extreme overestimates. All validity checks confirm that expectation. No scientist should accept Kleck's claims about the incidence of self-defense gun use.