

What Do CDC's Surveys Say About the Frequency of Defensive Gun Uses?

Gary Kleck

College of Criminology and Criminal Justice

Florida State University

Tallahassee, FL 32306-1273

February 14, 2018

## Introduction

The Centers for Disease Control and Prevention (CDC) has often been criticized by gun owner organizations like the National Rifle Association as being “antigun” and for awarding research grants on firearms and violence only to researchers with strong anti-gun or pro-gun control publication records (see remarks of the NRA chief lobbyist - Cox 2017). Belief in this anti-gun bias was so strong among pro-gun forces that the NRA got Congress to slash CDC’s budget by an amount exactly equal to the budget for its program that studied firearms violence, and to insert a rider in the funding bill that read: “Provided further that none of the funds made available for injury prevention and control at the Centers for Disease Control and Prevention may be used to advocate or promote gun control.” Of particular relevance to the present topic, CDC has helped finance surveys on defensive gun use (DGU) by David Hemenway and others that the authors interpreted as indicating that DGU was rare (Hemenway and Azrael, 2000, p. 272; Hemenway Azrael and Miller, 2000, p. 267).

It is less widely known that CDC itself conducted surveys in which huge nationally representative samples of the U.S. adult population were asked about DGU, as part of their Behavioral Risk Factor Surveillance System (BRFSS). CDC never reported the results of those surveys, does not report on their website any estimates of DGU frequency, and does not even acknowledge that they ever asked about the topic in any of their surveys.

I only recently discovered that CDC had indeed asked about DGU in their BRFSS surveys, stumbling across the DGU question while searching through the questionnaires used in the surveys for questions on other topics. Once I found the key question in the questionnaire for one year’s BRFSS, I searched through the questionnaires for all the other years, from 1984 through 2016, and found the DGU question had been asked in the 1996, 1997, and 1998 surveys.

## **CDC's Behavioral Risk Factor Surveillance System Surveys**

The BRFSS surveys are high-quality telephone surveys of enormous probability samples of U.S. adults, asking about a wide range of health-related topics. Those that addressed DGU asked more people about this topic than any other surveys conducted before or since. For example, the 1996 survey asked the DGU question of 5,484 people. The next-largest number questioned about DGU was 4,977 by Kleck and Gertz (1995), and sample sizes were much smaller in all the rest of surveys on the topic (Kleck 2001).

The wording of the DGU question in the BRFSS surveys was also excellent, addressing many problems with the wording of the DGU questions used in other surveys. The exact wording was:

“During the last 12 months, have you confronted another person with a firearm, even if you did not fire it, to protect yourself, your property, or someone else?”

Respondents had previously been instructed not to report firearm uses associated with an occupation that “requires and authorizes you to use a firearm.” Thus, the question excluded uses by police and others with firearm-related jobs. Further, the question appropriately excluded uses against animals (“...another person...”), asked about a specific, recent recall period (“during the last 12 months”), covered uses by any type of firearm (not just handguns), covered uses regardless of where they occurred (not just uses in the home), and explicitly told respondents that they should report uses even if they did not fire a gun. In sum, the surveys used an excellent, carefully worded DGU question, in contrast to the wordings used in so many other surveys (Kleck 2001).

The most important shortcomings of these surveys regarding DGUs was that (1) they asked the DGU question only of Rs who had reported guns in their household at the time of the

survey, and (2) they did ask any follow-up questions about details of the purported DGUs to assess whether the reported uses really were DGUs.

The timing of CDC's addition of a DGU question to the BRFSS is of some interest. Prior to 1996, the BRFSS had never included a question about DGU. Kleck and Gertz (1995) conducted their survey in February through April 1993, presented their estimate that there were over 2 million DGUs in 1992 at the annual meetings of the American Society of Criminology in November 1994, and published it in the Journal of Criminal Law and Criminology in the Fall of 1995. CDC added a DGU question to the BRFSS the very first year they could do so after that 1995 publication, in the 1996 edition. CDC was not the only federal agency during the Clinton administration to field a survey addressing the prevalence of DGU at that particular time. The National Institute of Justice (NIJ) financed a national survey devoting even more detailed attention to estimating DGU prevalence, which was fielded in November and December 1994, just months after preliminary results of the 1993 Kleck/Gertz survey became known.

Neither CDC nor NIJ had ever financed research into DGU before 1996. Perhaps there was just "something in the air" that motivated the two agencies to suddenly decide in 1994 to address the topic. Another interpretation, however, is that fielding of the surveys was triggered by the Kleck/Gertz findings that DGU was common, and that these agencies hoped to obtain lower DGU prevalence estimates than those obtained by Kleck/Gertz. Low estimates would have implied fewer beneficial uses of firearms, results that would have been far more congenial to the strongly pro-control positions of the Clinton administration.

### **What Did CDC's Surveys Indicate About the Frequency of Defensive Gun Use?**

I downloaded the BFRSS datasets for 1996, 1997, and 1998 from the BRFSS website (CDC 2018) and obtained frequencies on the DGU question, for each year separately and all three years combined. Table 1 displays both the unweighted frequencies and the frequencies

weighted by FINALWT. The weighted results are more meaningful because FINALWT adjusts for different probabilities of selection of cases into the sample (CDC 2018).

As a point of reference, Kleck and Gertz (1995) estimated that 1.326% of U.S. adults used a gun for self-protection against another person in 1993. The weighted percent who reported a DGU in the BRFSS was 1.3% in 1996, 0.9% in 1997, 1.0% in 1998, and 1.07% in all three surveys combined. These figures are fairly consistent with each other from year to year, but are not quite comparable with the Kleck/Gertz results because the BFRSS only covered DGUs by people living in households that reported guns at the time of the interview. This excludes (1) DGUs by people who used a household gun that was no longer in the household by the time they were interviewed in the BRFSS, and (2) DGUs by people who used a gun belonging to a person who was not a member of their household. This is not a trivial matter, since Kleck and Gertz (1995, p. 187) found that only 79.0% (weighted) of persons reporting a DGU had also reported a gun in their household at the time of the interview. To adjust for this difference, the 1.07% DGU prevalence found in the combined BRFSS surveys needs to be multiplied by 1.266 ( $1/0.79=1.266$ ). This yields an adjusted DGU prevalence of 1.35%.

This is virtually identical to the 1.326% figure obtained by Kleck and Gertz (1995). The figures, however, are still not completely comparable because Kleck and Gertz asked a detailed series of questions about claimed DGU incidents, to assess whether they actually fit the definition of a DGU. Did the person claiming a DGU either attack or threaten another person with their gun? Could they state a crime they believed was being committed against them? Was there an actual confrontation in which the defender could see the offenders? Of 202 initial claims of a DGU against another person, 16 were disqualified as DGUs, based on answers to subsequent questions about the details of the purported DGU. Thus, only 186 of the 202, or 92.1% of claims, could be tentatively regarded as genuine DGUs. To adjust for this difference,

the BRFSS DGU prevalence needs to be multiplied by 0.921. This yields a final adjusted DGU prevalence estimate of 1.24%.

This final adjusted estimate can be legitimately compared with the Kleck/Gertz prevalence estimate of 1.326%. The BRFSS estimate is very close to the Kleck/Gertz estimate, and provides strong confirmation for it. What little difference there is between the Kleck/Gertz estimate for 1992 and the BFRSS estimate for 1996-1998 can be attributed to declining rates of violent crime, which accounts for most DGUs. With fewer occasions for self-defense in the form of violent victimizations, one would expect fewer DGUs.

A prevalence of 1.24% may seem quite small at first, but it implies enormous numbers of DGUs. The adult (age 18+) resident population of the U.S. in 1997 was 198,108,000 (U.S. Bureau of the Census 1998, p. 17). The final adjusted prevalence of 1.24% therefore implies that in an average year during 1996-1998, 2.46 million U.S. adults used a gun for self-defense. This estimate, based on an enormous sample of 12,870 cases (unweighted) in a nationally representative sample, strongly confirms the 2.5 million past-12-months estimate obtained Kleck and Gertz (1995). As a point of comparison, the National Crime Victimization Survey estimated that there were 680,391 violent crimes committed by offenders possessing (though not necessarily using) firearms in 1997 (U.S. Bureau of Justice Statistics 1999). CDC's results, then, imply that guns were used defensively by victims about 3.6 times as often as they were used offensively by criminals.

### **What About the “Missing” Responses?**

I have presented an intentionally conservative interpretation of the BRFSS results, but it should be noted that the implied DGU prevalence could be considerably higher than indicated in Table 1, depending on how one interpreted “don't know” and “refused” responses to the DGU question. Given CDC's clearly worded question about a pretty dramatic kind of experience, it is

hard to believe that adults would not know whether, in just the past 12 months, they had defended themselves with a gun. The “don’t know” response seems more reasonable as an evasive response by someone uncomfortable with discussing such a controversial behavior with a stranger over the phone.

Refusals to even answer the question even more clearly seem to be responses by people who had in fact used a gun defensively. If a person had *not* engaged in such an action, responding “No” would be not only be the accurate response, but also the least contentious one. Many respondents surely recognized that a refusal to answer would be likely to excite suspicion among interviewers and researchers that the respondent *had* in fact experienced a DGU. If the truthful answer was the totally uncontroversial “No,” why not just say so?

In the combined 1996-1998 responses, 0.76% gave “don’t know” or “refused” responses. If all those providing these responses actually had DGU experiences, the unadjusted DGU prevalence implied by the BRFSS results would rise to 1.83. Even if just half of them actually had a DGU experience, the unadjusted prevalence would rise to 1.45%. Nevertheless, since we cannot be certain what these responses mean, we do not treat any of them as reports of DGUs.

### **Errors in Surveys of Defensive Gun Use**

We have no other feasible way to measure the prevalence of DGU other than surveys – certainly police data cannot provide better estimates given the unwillingness of most crime victims to even report their victimizations to the police (U.S. Bureau of Justice Statistics, 1999). All surveys are flawed, some more than others. The BRFSS surveys, however, are among the better ones, using huge probability samples, carefully crafted question wordings, and skilled interviewers.

Is it nevertheless possible that even the BRFSS yields DGU estimates that are too high? There is no evidence that the people who respond to BRFSS surveys are unrepresentative of the

U.S. adult population, so any bias in the estimate would have to come from response errors – respondents giving, intentionally or unintentionally, inaccurate answers to the DGU question. Critics of DGU surveys like David Hemenway (1997) have speculated about a long series of reasons why respondents in these surveys might give inaccurate answers, but their discussions are not very informative because they are so conspicuously one-sided. They consider only flaws that might make DGU estimates too high, while completely ignoring well-established and serious flaws tending to make estimates of controversial behaviors too low. To be sure, false positive responses do occur – some people say “yes” to the DGU question when the accurate answer would have been “no.” Nevertheless, no matter how common false positive responses might be, they cannot lead to an overestimate of DGU prevalence unless they outnumber false negative responses – people saying “no” to the DGU question when the accurate answer would have been “yes.” Hemenway and the other critics have had nothing to say about the frequency of false negative responses.

Unfortunately, there is no evidence bearing directly on response errors in reporting DGUs. There is, however, considerable evidence bearing indirectly on the issue. We can begin with the fact that most DGUs occur away from the victim’s home (Kleck and Gertz 1995, p. 185). In 1993, it was unlawful for anyone to carry a gun off their own property unless they were among the few people (under 1% back then – Kleck 1997, Chapter 6) who had a carry permit. Therefore, a survey respondent had to be willing to confess to a crime (unlawful possession of a firearm) if they wanted to report a DGU that occurred in a public place. The technical literature on self-report surveys consistently indicates that few people report crimes they did not commit, and many deny committing crimes they did commit. That is, false negatives greatly outnumber false positives, so on net surveys underestimate the prevalence of criminal offending (summarized in Kleck 2001).

In order to report using a gun for protection one obviously must be willing to admit to possessing a gun, regardless of the location of the DGU. Research on survey reporting of gun ownership has consistently found that large shares of even law-abiding gun owners falsely deny having guns, i.e. give false negative responses. On the other hand, I am not aware of any evidence of significant numbers of false positive responses (Kleck 2001).

Finally, in order for survey respondents to be willing to report using a gun to protect themselves against crime, they must be willing to report the victimization attempt. Without a crime, there can be no defense against crime. Research on the reporting of victimization likewise indicates that substantial numbers of crime victims fail to report the victimization to surveyors (Kleck 2001).

To summarize, for a person who had experienced a typical DGU to be willing to report it to a surveyor, she or he must be willing to report (1) a crime they committed (unlawful carrying), (2) possession of a gun, and (3) a crime victimization experience. Research consistently indicates that false negative responses are common in surveys asking about these topics, while false positives are rare. Therefore, as best we can tell at this point, the net effect of response errors in surveys asking about DGU is likely to be the *underestimation* of DGU prevalence.

## **Discussion**

Why didn't the CDC report their DGU results? The agency clearly regarded the topic as sufficiently important to insert DGU questions into a very expensive national survey that had never previously included any questions about self-defense, and to do so in three of the surveys. All surveys have limitations, but this cannot serve as a legitimate justification for completely suppressing important results. Accepted scholarly standards dictate reporting the findings accompanied by appropriate caveats about limitations and possible problems with the survey. This allows readers to judge for themselves whether the limitations were so severe that the

findings must be discounted altogether. Every one of the critics' claims that surveys overstate DGU prevalence have been thoroughly refuted (Kleck and Gertz 1997; Kleck 2001), but even if they had not the ethical course for CDC still would have been to release the DGU prevalence findings.

If doubts about the validity of these findings cannot justify their suppression, why did CDC personnel decide not to report them? One obvious explanation would be that they recognized that their own surveys' finding of a high DGU prevalence was unfriendly to gun control efforts - efforts repeatedly endorsed by CDC-financed researchers (Kates 2001). Such a decision could have been made at the level of administrators who supervise the BRFSS, or perhaps just lower-level personnel who understood that these findings would be unwelcome news to their bosses. Regardless of how the decision was made, it was a disservice to the American people, who paid for the survey and the information it yielded, but who were not allowed to see it and judge its worth for themselves.

## References

- Centers for Disease Control (CDC). 2018. Behavioral Risk Factor Surveillance System website at [https://www.cdc.gov/brfss/annual\\_data/annual\\_data.htm](https://www.cdc.gov/brfss/annual_data/annual_data.htm). Accessed 2-14-18.
- Cook, Philip J., and Jens Ludwig. 1998. Guns in America: Results of a Comprehensive National Survey on Firearms Ownership and Use. Washington, D.C.: Police Foundation.
- Cox, Chris. 2018. "Why we can't trust the CDC with gun research." Politico, online article at <https://www.politico.com/agenda/story/2015/12/why-we-cant-trust-the-cdc-with-gun-research-000340>.
- Federal Bureau of Investigation. 1998. Crime in the United States, 1997. Washington, D.C.: U.S. Government Printing Office.
- Hemenway, David, and Deborah Azrael. 2000. "The relative frequency of offensive and defensive gun uses: results from a national survey." Violence and Victims 15:257-272.
- Hemenway, David, Deborah Azrael, and Matthew Miller. 2000. "Gun use in the United States: results from two national surveys." Injury Prevention 6:263-267.
- Kates, Don B. 2001. "Guns and public health: epidemic of violence, or pandemic of propaganda?" Chapter 2 in Gary Kleck and Don B. Kates (eds.), Armed: New Perspectives on Gun Control. N.Y.: Prometheus Books.
- Kleck, Gary. 2001. "The frequency of defensive gun use: evidence and disinformation." Chapter 6 in Gary Kleck and Don B. Kates (eds.), Armed: New Perspectives on Gun Control. N.Y.: Prometheus Books.
- Kleck, Gary, and Marc Gertz. 1995. "Armed resistance to crime: the prevalence and nature of self-defense with a gun." Journal of Criminal Law & Criminology 86(1):150-187.
- U.S. Bureau of the Census. 1998. Statistical Abstract of the United States, 1998. Washington, D.C.: U.S. Government Printing Office.
- U.S. Bureau of Justice Statistics. 1999. Criminal Victimization in the United States, 1997: Statistical Tables. Available online at <https://www.bjs.gov/content/pub/pdf/cvus9705.pdf>.

Table 1. Reports of Defensive Gun Use in the Behavioral Risk Factor Surveillance System

**Unweighted Frequencies**

| Year:      | <u>1996</u>      |          | <u>1997</u>      |          | <u>1998</u>      |          | <u>1996-1998</u> |          |
|------------|------------------|----------|------------------|----------|------------------|----------|------------------|----------|
|            | <u>Frequency</u> | <u>%</u> | <u>Frequency</u> | <u>%</u> | <u>Frequency</u> | <u>%</u> | <u>Frequency</u> | <u>%</u> |
| Yes, DGU   | 55               | 1.0      | 29               | 0.7      | 33               | 1.0      | 117              | 0.91     |
| No         | 5388             | 98.2     | 4136             | 98.7     | 3132             | 98.0     | 12656            | 98.33    |
| Don't Know | 5                | 0.1      | 2                | 0.0      | 4                | 0.1      | 11               | 0.09     |
| Refused    | 36               | 0.9      | 22               | 0.5      | 28               | 0.9      | 86               | 0.67     |
| Total      | 5484             |          | 4189             |          | 3197             |          | 12870            |          |

**Weighted Frequencies\***

| Year:      | <u>1996</u>      |          | <u>1997</u>      |          | <u>1998</u>      |          | <u>1996-1998</u> |          |
|------------|------------------|----------|------------------|----------|------------------|----------|------------------|----------|
|            | <u>Frequency</u> | <u>%</u> | <u>Frequency</u> | <u>%</u> | <u>Frequency</u> | <u>%</u> | <u>Frequency</u> | <u>%</u> |
| Yes, DGU   | 69389            | 1.3      | 51975            | 0.9      | 61361            | 1.0      | 182725           | 1.07     |
| No         | 5214959          | 97.7     | 5733811          | 98.2     | 5769847          | 98.3     | 16718617         | 98.10    |
| Don't Know | 7096             | 0.1      | 1587             | 0.0      | 2918             | 0.0      | 11601            | 0.07     |
| Refused    | 44935            | 0.8      | 48599            | 0.8      | 35718            | 0.6      | 129252           | 0.76     |
| Total      | 5336380          |          | 5835972          |          | 5869844          |          | 17042196         |          |

\* Weighted by FINALWT.