

Discussion of “Suicide, and Violence Towards Others”

David Hemenway
Harvard School of Public Health
Means of Violence Workshop
IOM Forum on Global Violence Prevention
December 18, 2014

1. Suicide and Firearm Access
2. Homicide and Firearm Access
3. Gun Laws effect on
 - Suicide and Homicide

I will focus on relevant literature that Andy wasn't asked to examine, particularly populations-level studies.

1. Suicide



- Overwhelming evidence that gun access increases suicide in the U.S

Gun-Suicide Connection

Not only the dozen case control (individual-level) studies

But in addition:

Gun-Suicide Connection

A. Ecological (population-level) studies

Little worry about possible ecological fallacy

Gun suicide victims use household guns

It is the gun which is the agent of suicide

Gun-Suicide Connection

Ecological studies:

Across regions

Across states

Across cities

Gun-Suicide Connection

- Strong relationship between household gun ownership levels and GUN suicide
- No relationship between household gun ownership levels and non-gun suicide
- Strong relationship between household gun ownership levels and overall suicide rates

Gun-Suicide Connection

Ecological studies control for:

- Poverty
- Alcohol Consumption
- Unemployment
- Urbanization
- Divorce
- Education
- Violent Crime

- Major Depression
- Suicidal Thoughts
- Suicide Attempts (Hospitalized)

Gun-Suicide Connection

- Ecological studies find that everyone at higher risk
 - Both genders
 - All age groupings (12-85)

Risks are substantial

Violent Deaths, 2001-2007, U.S. Women

(excluding the 9/11/01 terrorism attacks)

	High-Gun States	Low-Gun States	Mortality Rate Ratio (High Gun : Low Gun)
Total population, Female (2001-2007)	134.1 million	144.4 million	
Homicides			
Gun homicides	1978	780	2.5
Non-gun homicides	2305	2240	1.0
Total	4283	3020	1.4
Suicides			
Gun Suicides	2926	406	7.2
Non-gun Suicides	3621	3638	0.9
Total	6547	4044	1.6
Unintentional firearm deaths	205	29	7.0

Gun-Suicide Connection

Indeed what mainly explains variations in suicide across areas in the US is not differences in: clinical depression or mental health or suicide ideation, or suicide attempts,

What mainly explains the variations are differences in levels of household gun ownership

Gun-Suicide Connection

- And at the individual level, compared to non-gun owners, gun owners do not have higher rates of mental health problems (e.g., depression), suicide ideation or suicide attempts
- Reason for the gun-suicide connection is that guns are more lethal than other methods (case fatality rate 85%-90%) compared to 2% for the more common methods of suicide attempts

Gun-Suicide Connection

- In addition to the cross sectional ecological support, also some time series evidence

For example, the one era when household gun ownership levels fell dramatically—in the 1990s

Gun-Suicide Connection

- B. Very strong theoretical and empirical underpinnings

Gun-Suicide Connection

Evidence that:

1. many suicides are impulsive
2. risks are transitory

Less than 10% of nearly lethal suicide attempters do not eventually die from suicide

Nearly Lethal Suicide Attempts (Houston)

N=153 (ages 13-34)

Time between thinking about suicide and taking action:

<5 minutes	24%
<20 minutes	48%
<1 hour	70%
<8 hours	86%

Gun-Suicide Connection

- Recognized by Experts
 - National Action Alliance for Suicide Prevention
 - American Foundation for Suicide Prevention
 - American Association of Suicidality
 - National Suicide Prevention Council

- Gun researchers: “In the United States having a gun in the home increases the risk of suicide”
84% agree, 8% disagree (n = 150)

Gun-Suicide Connection

Additional insights from the studies

1. Everyone in the family at higher risk—not only the gun owner, but the spouse, and the children
2. A gun increases the risk not only for those at highest risk of suicide but for those who are not
3. **Handgun** access may be more important than long gun access (handguns account for 70+% of gun suicides)

2. Homicide



- Very strong evidence that higher levels of household gun ownership leads to higher levels of gun homicide and overall homicide

Gun-Homicide Connection

- In suicide the shooter and victim are the same
- In homicide the shooter and victim are different people

Gun-Homicide Connection

Case-control (individual-level) studies focus on victims.

Show that a gun in the home is a risk factor for the homicide victimization of the woman in the household

Gun-Homicide Connection

But the rationale for believing that owning a gun might increase the risk that the owner will be murdered has not been carefully spelled out

There is a rationale for believing others in the community own guns will increase the risk of homicide victimization

[And this latter effect is what the ecological (population-level) studies show]

Gun-Homicide Connection

A decade ago we reviewed the literature (Hepburn & Hemenway. *Aggression & Violent Behavior*, 2004) and concluded:

“The available evidence is consistent with the hypothesis that increased gun prevalence increases the homicide rate”

Evidence is stronger now.

Violent Deaths, 2001-2007, U.S. Children (aged 5-14)

	High-Gun States	Low-Gun States	Mortality Rate Ratio (High Gun : Low Gun)
Total population, 5-14 Year Olds (2001-2007)	36.7 million	37.5 million	
Homicides			
Gun homicides	184	79	2.3
Non-gun homicides	141	130	1.1
Total	325	209	1.6
Suicides			
Gun Suicides	117	10	11.7
Non-gun Suicides	178	119	1.5
Total	295	129	2.3
Unintentional firearm deaths	112	12	9.3

The 15 States with the highest average levels of household gun ownership (based on the 2001 Behavioral Risk Factor Surveillance System) were WY, MT, AK, SD, AR, WV, AL, ID, MS, ND, KY, WI, SC, UT, and LA. The 6 States with the lowest average gun levels were HI, MA, RI, NJ, CT, and NY.

Source: WISQARS

3. Gun Laws Effect on Suicide, Homicide

Ecological studies: some evidence that stronger gun laws are associated with lower rates of homicide and suicide.

(Stronger gun laws are also associated with lower levels of gun ownership)

Much less strong is the evidence about any particular law

Issues about the quality of the studies



Many problems, will focus on one issue:

- Importance of disaggregating (statistical power)

- E.g., Kleck & Patterson 1993;

Cross-sectional analysis, for 1980, of major US cities (n=170)

Dependent Variables: population rates

- Total homicide
- Gun homicide
- Non-gun homicide
- Total robbery
- Total aggravated assault

Control Variables (38)

- % divorced
- % poverty
- % black
- % gun ownership
(proxy)

Gun laws (19), including

- Prohibit gun possession by drug addicts
- Ban gun purchase by minors
- Waiting period to obtain handguns

Lack of statistical POWER

- e.g. prohibiting gun possession by minors might affect gun homicide by minors

But the model tests whether law affects gun homicide by ALL people

– (about 20% of shooters are under age 21)

e.g. prohibiting gun possession by drug addicts might affect gun assault by drug addicts

But the model tests whether law affects ALL assaults by ALL people

– (gun assaults only 5% of total assaults)

Unsurprising Conclusion

“Most gun control laws show no evidence of effects on rates of crime”

Lots of studies of gun laws not included in Andy's review

E.G.

- Stand your ground laws
- Concealed carry laws (dozens of studies)

(whether or not to give police discretion to deny permits to individuals they believe to be at-risk for future violence)

Effect of Carrying Concealed Weapons (CCW) Laws:

Four Types of Laws

- a. Prohibited
- b. May-issue
- c. Shall-issue
- d. No restrictions

Natural Experiment

1985-1991: 13 states move from “may” to “shall” issue

1994-1996: 15 more states move from “may” to “shall” issue

2000-2003: 5 more states move from “may” to “shall” issue

As of 2008: (# of states)

a. Prohibited: 0

b. May-issue: 9

c. Shall-issue: 37

d. No restrictions: 4

A Problem: Little or no disaggregation

- Whether crimes occurred outside or inside the home (where carry permits irrelevant)
- Whether victims or perpetrators had concealed carry permits
- Whether victims or perpetrators were carrying guns at the time of the crime
- Whether the main groups obtaining permits were more or less likely to commit or be victims of crimes

Why disaggregation crucial

Only small % of population obtains permits.

These people low risk for crime

(non-young, non-poor, non-minority, non-urban).

Six of the Criteria for an Appropriate Econometric Evaluation

1. Are the data accurate?
2. Does the model pass the appropriate statistical tests?
3. Are the results robust to small changes in the statistical modeling?
4. Do the disaggregated results make sense?
5. Do results for the control variables make sense?
6. Does the model make accurate predictions about the future?

1997 Lott article

“More Guns Less Crime”

- Econometric fixed-effects model
- Claims shall-issue law reduces crime, save thousands of lives
- Cited continually

1. Are the data accurate? No.

Maltz & Targonski (2002): “county-level crime data have major gaps... until improved methods of imputing county-level crime data are developed, tested, and implemented, they should not be used, especially in policy studies.”

Pride more (2005): “research examining country level data... Reveals serious reporting errors... Despite these limitations, homicide studies using these small counties continue to be carried out without heeding these previous warnings.”

Martin & Legault (2005) concluded that the majority of the state-level findings “are mere artifacts of reporting error and data anomalies” and concluded “that any interferences regarding the effects of concealed carry weapons laws on crime rates drawn from analysis of the (Lott)... data are seriously flawed.”

2. Does the model pass the appropriate statistical tests?

NO

- Heckman & Hotz 1989
- Black & Nagin 1998

3. Do small changes in the model yield very different results?

YES

Black & Nagin (1998): concluded that “their results are highly sensitive to small changes in their model and sample...”

See also:

Webster et al 1998

Ludwig 2000

Duggan 2001

4. Do the disaggregated results make sense?

NO

- Should see larger effect on robbery than burglary
- Should see larger effect on people with carrying permits (e.g. older white rural males) than those not obtaining carry permits (e.g. blacks, females, urban, youth)

5. Do results for control variables make sense?

NO

- Results show that reducing by 1% the percentage of population that is black, female, aged 49-59 associated with a 50% decrease in homicide (and a 74% increase in rape)

6. Do the results predict well what happened to crime after 1996?

NO

Indeed, Ayres & Dunohue (2009): When the Lott model is extended through 2006, it “supports a broad conclusion that more guns generate more crime,”

Have been over two dozen articles analyzing the data....

National Research Council (2004) reviewed the scientific literature and did their own analyses and found “no credible evidence that the passage of right-to-carry laws decreases or increases violent crime.” This is not the same as saying the laws don’t affect crime, just that we still don’t know whether they do or not with any degree of certainty.

Another reason why CCW evaluations so problematic-

- Contagion not well modeled...
crime moves in waves.

So don't know counterfactual

Conclusion

- Gun in home major risk factor for suicide
- Gun in home risk factor of femicide
- Guns in community risk factor for homicide
- Stronger gun laws may reduce homicide, suicide
- Unclear which gun laws effective