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Gun Violence, Mental Illness, And Laws That Prohibit Gun Possession: Evidence From Two Florida Counties

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Abstract

Gun violence kills about ninety people every day in the United States, a toll measured in wasted and ruined lives and with an annual economic price tag exceeding $200 billion. Some policy makers suggest that reforming mental health care systems and improving point-of-purchase background checks to keep guns from mentally disturbed people will address the problem. Epidemiological research shows that serious mental illness contributes little to the risk of interpersonal violence but is a strong factor in suicide, which accounts for most firearm fatalities. Meanwhile, the effectiveness of gun restrictions focused on mental illness remains poorly understood. This article examines gun-related suicide and violent crime in people with serious mental illnesses, and whether legal restrictions on firearm sales to people with a history of mental health adjudication are effective in preventing gun violence. Among the study population in two large Florida counties, we found that 62 percent of violent gun crime arrests and 28 percent of gun suicides involved individuals not legally permitted to have a gun at the time. Suggested policy reforms include enacting risk-based gun removal laws and prohibiting guns from people involuntarily detained in short-term psychiatric hospitalizations.

Every day in the United States more than 230 people are injured by gunfire, and about ninety of them die.[1] The circumstances range from suicide to drug-fueled gang disputes, domestic violence incidents, unintentional shootings, random rampages, and arguments gone bad between intoxicated young men carrying handguns. Beyond the toll of human tragedy measured in wasted and ruined lives, the annual monetized cost of American gun violence has been estimated lately at $229 billion.[2] Any other commercial product implicated in such a large number of preventable injuries and deaths would surely rank as a high-priority public health problem.[3]

The response of many federal lawmakers in Washington, D.C., who are wary of the powerful gun lobby[4] and how it plays on public fears of deranged killers, has largely been to implicate mental illness as the chief cause of gun violence and thus to avoid the topic of gun regulation.[5,6] If untreated mental illness is the root of the problem, then the logical solution would seem to be to “fix the mental health system” and put more gun-disqualifying mental health records into the National Instant Criminal Background Check System (NICS) database[7] to stop dangerous people from buying guns. But will this response have a significant impact on firearm violence?

Major psychiatric conditions such as schizophrenia and mood disorders, by themselves, contribute relatively little—about 4 percent—to the overall risk of interpersonal violence in the population, and most perpetrators of commonplace violent acts do not have serious psychopathology.[8] The landmark MacArthur Violence Risk Assessment Study, conducted between 1992 and 1995, found a low absolute risk of gun violence among 951 patients with serious mental illnesses who were followed for twelve months in the community after an acute psychiatric hospitalization: Twenty-three (2 percent) of the discharged patients used a gun to threaten or attack someone during the follow-up year, and 928 (98 percent) did not.[9] However, national data show that more than 60 percent of gun deaths are suicides, and mental illness is a major underlying cause of suicide, with rates of population-attributable risk between 47 percent and 74 percent.[10] (This rate represents the proportion of suicides that would be avoided if the higher-risk subgroup had the same level of risk as the rest of the population without mental illnesses.)

Thus, the link between gun violence and mental illness is complex, with a seemingly mixed message for policy:[11] If gun violence is thought of mainly in terms of homicide, mental illness is a red herring and should not be the primary focus of gun violence prevention efforts. But if gun violence is thought of more broadly as a public health problem that includes suicide,[12] then people with serious mental illnesses—and the actions of the behavioral health systems in which many are served—become quite relevant in designing and targeting strategies to reduce injury and mortality involving firearms.

Following the US Supreme Court’s interpretation of the Second Amendment right as articulated in the 2008 *District of Columbia v. Heller*[13] and the 2010 *MacDonald v. City of Chicago*[14] decisions, the role of law is limited in preventing gun violence mainly to keeping guns out of the hands of dangerous individuals. An important task for research is thus to evaluate the criteria used to classify such individuals—those who pose a high enough risk of harming others or themselves to justify abridging their gun rights. But how dangerous,

really, are most people identified by existing gun-prohibiting rules—and how many truly risky people are not identified?

Research is lacking on the effectiveness of practical policies intended to prevent legally prohibited individuals from obtaining guns, such as the requirement that licensed gun dealers run background checks on prospective gun purchasers and states' varying practices in reporting their gun-disqualifying mental health records to NICS. How well does this system actually work to prevent gun violence and suicide in particular states?[15] How could the policies be improved to promote public safety, while safeguarding civil rights and without reinforcing the stigma of dangerousness linked to mental illness in public opinion?[16] This article presents new research evidence to inform such policy considerations.

Study Data And Methods

Population

The study population comprised 81,704 adults diagnosed with schizophrenia, bipolar disorder, or major depressive disorder who were receiving services in the public behavioral health systems in two large Florida metropolitan counties, Miami-Dade and Pinellas (the Tampa, St. Petersburg, Clearwater region) from 2002 to 2011. Deidentified administrative records pertaining to these individuals were matched and merged to form a comprehensive longitudinal database with variables originating from behavioral health information systems (psychiatric diagnoses, hospitalizations, demographic characteristics); civil and criminal courts (gun-disqualifying adjudications); corrections (incarcerations); vital records (date and cause of death, gun involvement in suicide); and public safety (arrests, gun involvement in crime). The study was approved by the Institutional Review Boards at the University of South Florida and Duke University Medical Center.

Variables

Outcome variables were suicide, arrest for violent crime, and whether guns were involved in these events. Violent crime included homicide, simple and aggravated assault, sexual battery, robbery, and kidnapping/abduction. Gun involvement in suicide was obtained from cause-of-death information in vital records. Gun involvement in violent crime was ascertained by a text search for mention of a firearm in the arresting charge descriptions. Violent crime charges with no mention of a gun were also classified as gun-involved crimes if accompanied by a separate nonviolent gun charge, such as illegal gun possession, occurring in the same month.

The key independent variables of interest were as follows: whether a person was legally prohibited from possessing firearms in a particular month because of mental health adjudication, and whether Florida was reporting gun-disqualifying mental health records to NICS at the time. Under federal[17] and Florida state law,[18] an individual is permanently disqualified from purchasing firearms following any of four mental health–related adjudications (unless the prohibited person applies for and receives restoration of gun rights): involuntary civil commitment (a court order for inpatient hospitalization or mandatory outpatient treatment resulting from a judicial proceeding with an opportunity for

representation by counsel), a finding of not guilty by reason of insanity, a finding of in competency to stand trial, or a finding of mental incapacity to manage one's affairs.

Suicide, not homicide, should be the crux of gun violence prevention efforts focused on people with serious mental illnesses.

Data

The Florida Department of Law Enforcement serves as the point-of-contact state agency for the Federal Bureau of Investigation's NICS database. Prior to 2007, enforcement of the Brady Law's restrictions on firearm purchases by people with a history of a mental health adjudication relied on voluntary disclosure on an application by a potential gun buyer; legal barriers to data sharing between state agencies prevented the Florida Department of Law Enforcement from receiving gun-disqualifying mental health records from other state entities and reporting them to NICS. However, effective February 1, 2007, the law was changed to authorize the Florida Department of Law Enforcement to "review any records available" to determine whether a potential firearm purchaser is a prohibited person.[19] Several state agencies also worked together to streamline the process of data gathering, entry, and retrieval. As a result, since 2007 the department has been capable of providing accurate mental health background information on potential firearm purchasers.[20]

Analysis

Longitudinal regression analysis was conducted to estimate the adjusted statistical effects of legal gun restrictions and NICS reporting on the likelihood of violent crime arrest or suicide in any given month. Categorical regression coefficients were estimated to compare the risk of violent crime associated with four possible combinations of individual gun disqualification and NICS reporting status. Additional results are reported from difference-in-differences regression analyses (full models not displayed), which were conducted to estimate the statistical interaction effect of gun-prohibited status with the NICS reporting period. These models tested whether observed changes in outcomes coinciding with the policy period were significantly greater among those legally affected by the policy. Separate models were estimated for violent crime, as well as violent gun crime and suicide (with key results summarized but not fully illustrated).

Limitations

Our study had several limitations. It would have been informative to include data on behavioral health treatment in the community, to test whether treatment participation moderates the preventive effect of gun restrictions on violence by reducing underlying risk. Such treatment data were not available. Measures of symptom severity were also unavailable, which limited the study's ability to examine the impact of gun restrictions on the most severely ill versus those less severely ill.

The incidence of gun-involved suicide was too rare in the study population to provide a sufficient number of events for a separate multivariable analysis. Instead, descriptive statistics and an analysis of all-cause suicide are presented.

The available measure of gun involvement in violent crime was limited to whether the individual was arrested and charged with a violent crime in which firearms were specifically mentioned in the description of the arrest. This is a crude measure of gun involvement, insofar as there might have been crimes committed in which guns played at least an indirect role but did not result in specific gun-related criminal charges being filed.

Under Florida law in effect during the study period, gun rights were not lost if a short-term involuntary "hold" for evaluation stopped short of a longer-term involuntary civil commitment in a judicial proceeding. The law was recently changed to define these short-term involuntary psychiatric hospitalizations as gun-disqualifying events. However, since the available study data do not extend to the period after the new law went into effect, the study analysis could not test the effectiveness of the new law.

Involuntary commitments for substance abuse treatment under Florida's Substance Abuse Impairment Act of 1993[21] confer gun prohibition in the state, but data were not available for these commitments. There were very few such commitments in the study period, according to legal experts in the counties of Pinellas (Bob Dillinger, public defender, Sixth Judicial Circuit Court, personal communication, March 29, 2016) and Miami-Dade (Steven Leifman, associate administrative judge, Miami-Dade County Court, Eleventh Judicial Circuit of Florida, personal communication, March 29, 2016).

Study Results

Exhibit 1 shows the demographic characteristics of the sample population and the characteristics and prevalence of conditions that would lead to gun ownership disqualification. The population as a whole is majority female and diverse in racial and ethnic makeup. The leading mental health diagnosis was major depressive disorder, followed by schizophrenia and bipolar disorder. Fifteen percent also had a substance use disorder.

Gun-prohibited people were significantly more likely than others to be younger than age forty-four, to be African American, to have schizophrenia, and to have a co-occurring substance use disorder. The characteristics of those disqualified from possessing guns because of a mental health record versus a criminal conviction were quite similar, except that the former group was more likely to have schizophrenia.

Prevalence And Patterns Of Adjudications And Convictions

Almost three-quarters of the study sample remained legally eligible to purchase a firearm (Exhibit 2). Many who retained their gun rights (26 percent of the total sample) had a history of a short-term involuntary hold without being committed. The majority of the sample population who lost their gun rights (about one-fifth of the total population) lost them as a result of a felony criminal record. Fewer people were disqualified because of mental health adjudication.

Prevalence Of Violent Crime

The average annualized arrest rate for violent crime in the study population was 1,687.5 per 100,000— somewhat less than double the average violent crime arrest rate of 906.3 per

100,000 for the general adult population in the same Florida counties over the same period.[22] The annualized arrest rate for gun-involved violent crime in the study population was 213.9 per 100,000—virtually the same as the estimated general population rate of 217.4 per 100,000. Guns were involved in 13 percent of violent crime arrests in the study group (study analysis not shown), compared to 24 percent of such arrests in the general population.[22]

Prevalence Of Suicide

A match with death records from the Florida Department of Health identified 254 individuals who died by suicide; of these, 50 (20 percent) used a firearm. The average annualized rate of suicide for the study population was 64.4 per 100,000—approximately 3.8 times higher than the average suicide rate of 17.7 per 100,000 reported for the general adult population of Florida over the same period.[1] However, the study group was less than half as likely as the general Florida population to use firearms in suicide (20 percent versus 48 percent).[1]

Disqualification From Firearm Possession And Gun-Related Crime And Suicide

Sixty-two percent of violent gun crime arrests and 28 percent of gun suicides involved individuals not legally permitted to have a gun at the time—mostly because of prior criminal conviction (Exhibit 3).

Conversely, 38 percent of violent gun crime arrests and 72 percent of gun suicides involved individuals who were legally eligible to purchase and possess a gun. However, about one-third of arrests for violent gun crimes committed by gun-eligible individuals (11 percent of violent gun crime arrests) involved people with a record of a short-term involuntary hold under the Florida Mental Health Act of 1971, commonly known as the Baker Act. Three-quarters of gun-eligible individuals who used a gun to complete suicide (54 percent of all gun suicides) had an involuntary hold record.

Exhibit 4 compares average violent crime arrest rates among subgroups prohibited and not prohibited from possessing guns, for the periods before and after mental health NICS reporting began in Florida. Observations for people already prohibited from possessing guns because of a felony conviction were removed for this analysis. For the general population and those not prohibited from firearms, there was no statistically significant change in violent crime arrests from the period before to after NICS reporting began (Exhibit 4).

In contrast, the group with a gun-disqualifying mental health adjudication record had an elevated risk of violent crime before NICS reporting, and the rate was reduced thereafter to a level similar to the general population rate (Exhibit 4). Of note, the outcome variable here included violent crimes committed with and without guns, according to the arresting charges. When the same analysis was limited specifically to the (much smaller number) of gun-involved violent crime arrests (data not shown), the same clear pattern was not seen.

Mental Health Restriction And Background Check Effects On Suicide And Violent Crime

Exhibit 5 shows the results of a multivariable time-series regression analysis of the predictors of arrest for violent crime in two groups: people who had a gun-disqualifying mental health adjudication, and people who had a non-gun-disqualifying short-term involuntary hold under Florida's Baker Act.

Among those with a gun-disqualifying mental health adjudication record, the odds of arrest for violent crime were reduced by more than half in the period after Florida's NICS reporting policy went into effect (odds ratio: 0.47; 95% confidence interval: 0.38, 0.58; $p < 0.0001$). An additional difference-in-differences regression analysis (not shown) confirmed that the gun-disqualified group experienced a significantly greater decline in violent crime arrest than the comparison group coinciding with the NICS reporting policy. Specifically, the interaction between legal disqualification and NICS reporting was associated with significantly lower odds of violent crime arrest (OR: 0.62; 95% CI: 0.50, 0.76; $p < 0.0001$).

Similar models (not shown) were estimated for gun-involved violent crime and nonviolent gun crime as predicted outcomes, and these results were not significant: Gun-disqualified individuals were no less likely to be arrested for these specific types of crimes after NICS reporting than before.

The regression analysis shown in Exhibit 5 also produced adjusted estimates of demographic and clinical predictors of arrest for violent crime: being male (OR: 1.77; $p < 0.0001$), being younger (OR: 1.03 increased odds of violent crime arrest for each one-year reduction in age; $p < 0.0001$), being African American (compared to white, OR: 1.44; $p < 0.0001$), having bipolar disorder (compared to major depressive disorder, OR: 1.22; $p < 0.0001$), and having co-occurring substance use disorder (OR: 1.63; $p < 0.0001$).

Additional regression models (not shown) were estimated for the suicide outcomes: all suicide and gun-involved suicide, specifically. No significant associations were found between legal disqualification from possessing firearms and suicide risk with either version of the outcome variable. This finding is consistent with the descriptive results: Twenty-eight percent of people who died from suicide with a gun were legally prohibited from possessing guns yet obtained a gun anyway or already had access to one.

These regression models also produced adjusted estimates of predictors of suicide risk. Males were about twice as likely as females to die from suicide (OR: 1.92; $p < 0.001$) and from firearm-related suicide in particular (OR: 2.12; $p < 0.01$). A similar but more pronounced gender difference was seen in the general Florida adult population over the same period, in which the average suicide rate for men was about four times higher than for women (28.4 versus 7.7 per 100,000). Within the study population, African Americans were significantly less likely than non-Hispanic whites to die from gun-involved suicide (OR: 0.41; $p < 0.001$) or any suicide (OR: 0.18; $p < 0.001$). Hispanics were also less likely than non-Hispanic whites to die from gun-involved suicide (OR: 0.26; $p < 0.001$) or any suicide (OR: 0.41; $p < 0.001$). These patterns were also found for the general Florida adult population.

Discussion

Since the turn of the twenty-first century, the total age-adjusted mortality rate in the United States has declined 17 percent,[1] and the overall crime rate has fallen 30 percent.[23] During the same period, the death rate from firearms has remained virtually unchanged, and the gun-related suicide rate—an increasing component of firearm-related mortality—was actually 6.4 percent higher in 2014 than in 1999.[1,24]

Policy Implications

Other advanced countries have dramatically reduced gun violence by broadly limiting legal access to firearms.[25] In the United States, policy makers must craft legal strategies to identify individuals who pose a sufficiently high risk of harming themselves or others to justify suspending their Second Amendment rights. This prospect is complicated because violence and suicide are low-base-rate events associated with multiple nonspecific risk factors.

Understanding the relationship between gun violence and mental illness in context is an important step in developing policies for prevention that will be both effective and fair. Epidemiological studies have shown that a diagnosis of mental illness alone contributes very little to the overall risk of interpersonal violence but is strongly linked to suicide.[8] People with serious mental illnesses who receive services in public systems of care might have other risk factors for violence, including poverty and social disadvantage, unemployment, residential instability, substance use problems, history of violent victimization, exposure to neighborhood violence, or involvement with the criminal justice system. These factors might combine and interact in complex ways to increase risk for both interpersonal violence and suicide.

This empirical study was conducted in such a population and found that violent crime arrest was about twice as prevalent among study-group members as in the general population. However, the proportion of violent crimes involving guns was less in the study group than in the surrounding population (13 percent versus 24 percent). The correlates of violent crime arrest in the study group included characteristics that commonly describe justice-involved individuals in the general population: being male, being of a younger age, being African American, and having a substance use disorder. Also confirming recent research,[26] having a diagnosis of bipolar disorder was a significant predictor of violent crime arrest in the study population. Policies to reduce the risk of violence in this population must take into account the multiple factors involved and the social context in which they occur; addressing only mental illness is insufficient.

The research found, on the one hand, that nearly two-thirds of arrests for violent gun-related crimes in the study population involved suspects who were already prohibited from legally accessing guns—mostly because of a disqualifying criminal record. This finding highlights the need for better enforcement of existing laws against illegal gun sales and possession. On the other hand, the research also found that 38 percent of violent gun crime arrests involved individuals who were not prohibited from possessing firearms at the time. Thus, while the criteria might be too broad in identifying many non-dangerous people with a history of civil

commitment, the rules are, in other ways, too narrow: They fail to identify many individuals who are at elevated risk of harming others with a gun.

The results of our quasi-experimental analysis show that violent crime in the study population was significantly reduced after 2007, when the NICS reporting policy went into effect, consistent with an overall decline in crime rate,[23] and that this reduction differently affected those who were legally prohibited from possessing firearms. This finding is basically consistent with previous research done in Connecticut.[15] However, the same pattern was not found to be significant when the outcome variable was specified to include only violent crime involving guns. This more specific finding is difficult to interpret and could be an artifact of imprecision in the measure of whether guns were, or were not, involved in the identified criminal offenses. It might also be the case that the gun restrictions and the NICS reporting policy had no direct impact on violent gun crime in the study population. After all, nearly two-thirds of arrests for violent gun crimes involved suspects who were already legally prohibited from possessing firearms: They acquired a gun anyway, or already had access to one.

It is clear, however, that violent crime with guns is a multifaceted problem affecting a segment of people with serious mental illnesses who are seen in public behavioral health systems; that the existing criteria for restricting guns need to be made more precise; and that legal restrictions and background checks, as currently implemented, are insufficient to prevent gun violence.

Our research found that suicide was nearly four times as prevalent in the study population of adults diagnosed with a serious mental illness as among adults in the general Florida population (64.4 versus 17.7 per 100,000). This would seem to suggest that suicide, not homicide, should be the crux of gun violence prevention efforts focused on people with serious mental illnesses in public systems of care. However, as was the case with violent crime arrests, study members were less than half as likely as the general Florida population to use a firearm as a means of suicide (20 percent versus 48 percent). The reason for this difference might again have to do with the social context of serious mental illness: Many such individuals live in poverty and cannot afford to buy a gun from a licensed dealer. Moreover, they might tend to be socially isolated and disabled by a psychiatric disorder, and thus might be less able to avail themselves of illegal gun markets. It is still the case that 20 percent of suicides in the study population involved firearms—an extremely lethal means of self-harm that seldom affords a second chance at life.

72% Of suicides The large majority (72 percent) of gun suicides in the study involved people who were legally able to obtain a gun.

An Opportunity For Prevention

Do legal restrictions from possessing guns and background checks, as currently implemented, prevent suicide? Here the findings are important, if disappointing. The large majority (72 percent) of gun suicides in the study involved people who were legally able to obtain a gun. This suggests that the prohibiting criteria do not apply to many people likely to die from suicide. One reason is that people who are clinically evaluated during a suicidal

mental health crisis typically are released without a (gun-disqualifying) involuntary civil commitment. The study found that the majority of gun-eligible people who died from suicide had records of (one or more) previous short-term involuntary holds that were not reportable legal events. This represents an important opportunity for prevention. Prohibiting guns from people involuntarily detained in short-term holds, at least temporarily, is a feasible policy reform that does not unduly infringe on Second Amendment rights—and it could save lives.

Future research should evaluate directly whether applying gun-access restrictions to all involuntarily detained psychiatric patients would meaningfully reduce the incidence of gun-related suicide and violent crime in this population at risk.[27] Without waiting for the results of such research, Florida has subsequently amended its laws to extend firearms restrictions to people subjected to short-term involuntary holds under the Baker Act.

Also important is the study's finding that 28 percent of gun suicides involved people who were already legally prohibited from accessing guns. This part of the problem involves the existing saturation of guns; too-easy access, perhaps, to illegal and secondary gun markets not requiring background checks; and the lack of legal mechanisms to remove existing guns from people who become prohibited from possessing firearms. Better enforcement of illegal gun trafficking laws and preemptive gun removal laws that provide family members and police with a legal tool to separate dangerous people from guns[28–30] might also be important policies to pursue, in combination with health care strategies.[12]

Conclusion

In sum, meaningfully reducing the problem of gun violence and suicide in the United States will require comprehensive solutions, including instituting more precise, risk-based criteria for prohibiting certain people from possessing firearms; requiring universal background checks at the point of purchase; adopting "dangerous persons" gun removal laws (such as California's new Gun Violence Restraining Order); better community-based prevention efforts targeting violence risk factors such as early-life trauma and victimization; and improved screening and access to evidence-based interventions for mental health and substance use disorders.

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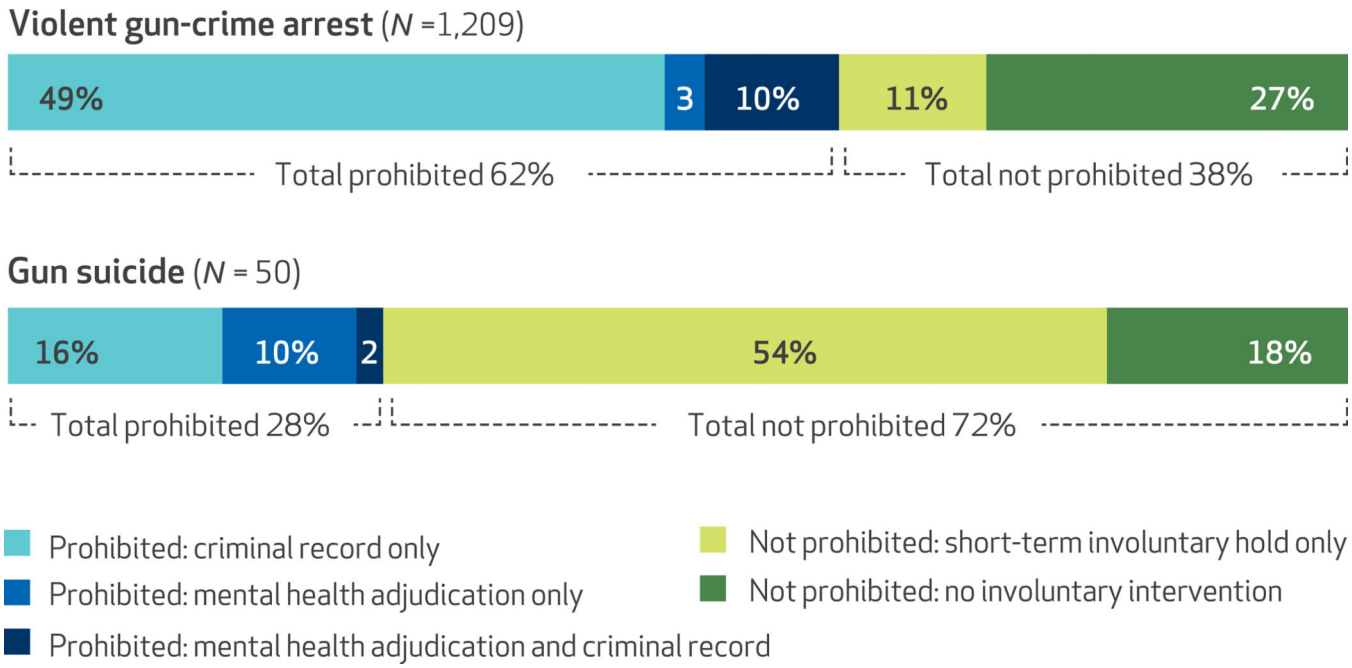

Exhibit 3.

People who were legally disqualified (prohibited) from purchasing or possessing firearms, by type of disqualification, at the time they were arrested for a violent crime with a gun or died by suicide with a gun

Source Florida administrative record data assembled for this study, 2002–11.

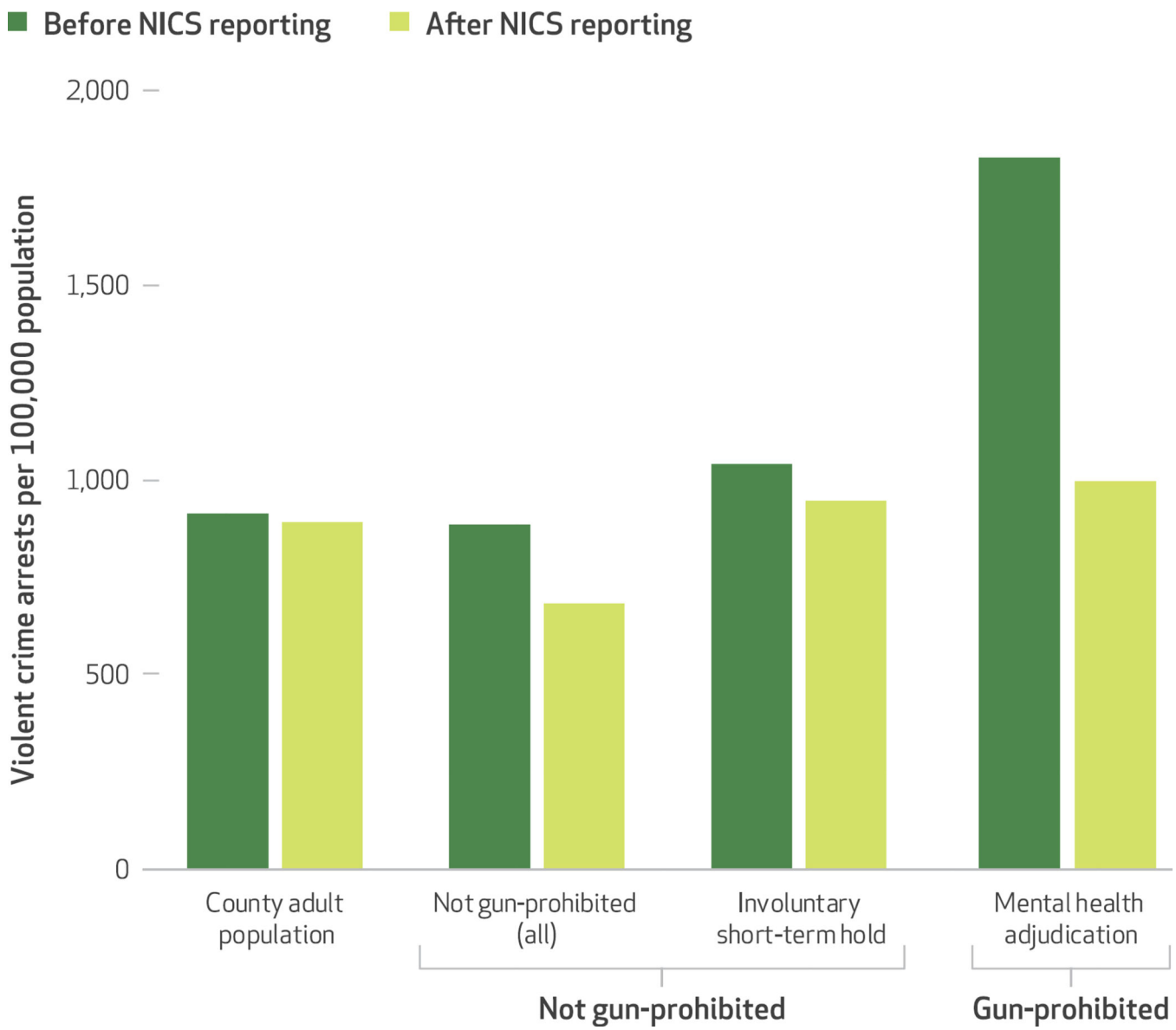

Exhibit 4.

Average annual violent crime arrest rates in the study population, by gun-prohibited status, before and after Florida began reporting gun-disqualifying records to the National Instant Criminal Background Check System (NICS)

Source Florida administrative record data assembled for this study, 2002–11.

Notes Number of arrests for any violent crime (including homicide, simple and aggravated assault, sexual battery, robbery, or kidnapping) per 100,000 individuals per year. Gun-involved arrests are included here; when separated, they did not show the same pattern. Results displayed are for a subsample with observations removed for people already disqualified from possessing firearms because of a felony criminal record; rates are higher, with different patterns, when criminally disqualified observations are included.

Exhibit 1

Prevalence and characteristics of people disqualified from possessing firearms, by type of disqualification, 2002–11

	Total study population		Disqualified from firearm possession					
			Mental health adjudication		Criminal record		Either or both	
	N	%	*n*	%	*n*	%	*n*	%
Age (years)								
18–43	40,509	49.6	6,706	64.0	11,329	66.3	14,772	64.3
44 or older	41,195	50.4	3,767	36.0	5,749	33.7	8,201	35.7
Sex								
Female	44,513	54.5	4,000	38.2	5,881	34.4	8,415	36.6
Male	37,191	45.5	6,473	61.8	11,197	65.6	14,558	63.4
Race/ethnicity								
White	34,565	42.3	5,038	48.1	6,502	38.1	9,720	42.3
Black	17,448	21.4	3,208	30.6	6,139	35.9	7,661	33.3
Hispanic	28,569	35.0	2,071	19.8	4,241	24.8	5,292	23.0
Other	1,122	1.4	156	1.5	196	1.1	300	1.3
Diagnosis								
Schizophrenia	24,386	29.8	5,081	48.5	6,214	36.4	9,200	40.0
Bipolar	16,206	19.8	2,642	25.2	4,240	24.8	5,654	24.6
Depression	41,112	50.3	2,750	26.3	6,624	38.8	8,119	35.3
Substance use								
No	69,059	84.5	6,660	63.6	11,397	66.7	15,643	68.1
Yes	12,645	15.5	3,813	36.4	5,681	33.3	7,330	31.9
All								
Total	81,704	100.0	10,473	100.0	17,078	100.0	22,973	100.0

Source Florida administrative record data assembled for this study, 2002–11. Chi-square tests showed that individuals with any gun disqualification ("either or both") differed significantly ($p < .001$) from those with no disqualification on all demographic and diagnostic variables.

Exhibit 2

Prevalence of gun-disqualifying mental health conditions or criminal records in a sample of people with serious mental illnesses, 2002–11

Type of gun-disqualifying record	Number	Percent
Any mental health disqualification	**10,473**	**12.82**
Involuntary civil commitment	10,414	12.75
Incompetent to stand trial	1,716	2.10
Not guilty by reason of insanity	236	0.29
Criminal disqualification (permanent or temporary)	17,078	20.90
Any criminal or mental health disqualification	22,973	28.12
Both criminal and mental health disqualification	4,578	5.60
Not disqualified	58,731	71.88
Involuntary examination (Baker Act)[a,b]	**27,381**	**33.51**
Baker Act without criminal disqualification	21,343	26.12
Other not disqualified[b]	**43,850**	**53.67**
Total	81,704	100.00

Source Florida administrative record data assembled for this study, 2002–11.

Note Boldface rows sum to 100 percent of the study population.

[a]The Florida Mental Health Act of 1971, commonly known as the Baker Act.

[b]Includes criminal disqualification.

Exhibit 5

Predictors of arrest for violent crime in people with a gun-disqualifying mental health adjudication record or nondisqualifying short-term involuntary hold

Predictor	Odds ratio	95% confidence interval	*p* value
Consecutive months of community tenure	1.00	(1.00, 1.01)	0.044
Gun-disqualifying mental health adjudication/NICS reporting			
Disqualified, before NICS reporting began (ref.)	—[a]		
Disqualified, after NICS reporting began	0.47	(0.38, 0.58)	<0.0001
Not disqualified, before NICS reporting began	0.75	(0.65, 0.87)	<0.0001
Not disqualified, after NICS reporting began	0.57	(0.48, 0.68)	<0.0001
Primary psychiatric diagnosis			
Major depression (ref.)	—[a]		
Schizophrenia spectrum	1.09	(0.99, 1.19)	0.065
Bipolar disorder	1.22	(1.10, 1.34)	<0.0001
Substance use disorder			
No co-occurring alcohol or drug use disorder (ref.)	—[a]		
Any co-occurring alcohol or drug use disorder	1.63	(1.50, 1.78)	<0.0001
Age	0.97[b]	(0.97, 0.97)	<0.0001
Sex			
Female (ref.)	—[a]		
Male	1.77	(1.64, 1.92)	<0.0001
Race/ethnicity			
White (ref.)	—[a]		
Black/African American	1.44	(1.31, 1.57)	<0.0001
Hispanic/Latino	1.07	(0.97, 1.18)	0.157
Other race/ethnicity	0.87	(0.62, 1.24)	0.448

Source Florida administrative record data assembled for this study, 2002–11.

Notes Analytic model specifications: generalized estimating equations logistic regression for repeated measures with a lagged dependent variable, controlling for time and adjusting for nonindependence of intraperson observations. Excludes observation months in which individuals were incarcerated, hospitalized, or legally ineligible to access firearms because of a felony criminal conviction. Estimates are based on 3,665 arrests in 33,815 individuals over a combined 3,374,173 months of observation during 2002–11. NICS is National Instant Criminal Background Check System.

[a] Value of reference category is 1.00.

[b] This odds ratio refers to the change associated with each year of increasing age.