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Shoot first and ask questions later: the interplay of social science research and firearms policy and use

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Abstract
This paper examines the context within which research and policy have developed by tracing the historical development of gun research across decades and topics. While the journey is not necessarily linear, nor is it always clear, the work done by researchers on gun issues offers some hope for improving both the debate and outcomes associated with this area. Identifying seminal moments in gun research and policy history aid in the exploration of this issue and offer directions for the future. Research has addressed many of the challenges of firearms in society. The purpose of this paper is to note the failure of the research to recognize the role of guns in America even as it attempts to bring change within the volatile arena of guns in America. This disconnect between the research and the social problems and harm associated with guns is clear in the literature and the policy that attempts to respond.

Keywords Firearms · Guns · Policy · Violence

Introduction

Initially we thought this paper should simply expound upon the ways that criminological research contributes to policy on firearms related issues. The story would be that research builds upon research and ultimately finds its way into meaningful policy and change. Those sterile value free endeavors lead to obvious policy choices that are implemented and then the world becomes a better place. At times the undertaking does work this way but not related to firearms. The landscape of gun research is such that there are pitfalls and landmines filled with emotion, politics, and a true struggle to step away from those to objectively evaluate the harm of guns in America. The story of

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firearms policy and research in the United States is one of general failure to capture the dream of research realized. The American process of policy related to firearms is not unique but it is outside of that idealized linear manner of addressing societal ills.

Since the establishment of the President's Commission on Crime and Administration of Justice in 1967 and the later National Violence Commission in 1968, researchers have sought to contribute to building research knowledge about crime and justice, including the role of firearms. And, some policy has been implemented based on findings from research and changed due to findings from research. However, firearms research also responds to public policy in other numerous ways. Research can provide the factual basis that initiates and evaluates the outcomes of policy and law related to firearms. It can also enlighten legal, both criminal and civil, challenges to policy. Research is driven by and drives public opinion, and it responds to horrific high profile events in the society that it studies. Much of what happens in this arena is reactive to the game other players are playing. After all, what led to those presidential commissions? And events have unfolded over the years that have profoundly changed society and social scientists' responses to it?

Unlike for almost any other area of criminological inquiry, firearms have a legal constituency with deep cultural roots that is skeptical about motives and usefulness of firearms control and infringement upon their rights (Yamane 2017; Kalesan, Villarreal, Keyes, & Galea, 2016). However, similar to other areas of criminological study, research and policy are frequently driven by significant death and injury or high profile dreadful events that capture the attention of the nation. In 2016, there were 38,658, firearm related deaths, including 22,938 suicides (CDC 2018). Early in 2018, this controversy escalated as young people marched out of their schools demanding governments do something to respond to firearms violence. The role of these issues in setting the agenda for policy is well documented in that area of research and is not the focus of this paper. However, these tragedies also influence research and the role of research in understanding these and the broader areas encompassing firearms policy and violence. When our community calls out for answers both in policy and knowledge, researchers are bound to respond.

In our minds the process of writing this piece loomed so large that we realized that we could only sketch the broadest outlines of how criminological research has contributed to this area and how it has been morphed by the flow of ongoing research, culture, public opinion, public policy, political debate, legislation, court cases and high profile events. So, what follows is not meant to be an exhaustive discussion of the impact of all of the firearm related research in the realm of public policy. Rather, we hope that it shows the ways that this research has impacted the society and how it has in turn been shaped by it. We neglect many important areas that excellent research has addressed, focusing instead on the dimensions that have sparked our interest, that make the points about the diverse ways that research impacts public policy, and that we are most familiar with.

For a number of reasons we pay more attention to the earlier years of research on firearms ownership and use and its impact on public policy. We do not want this history to be lost. Also, during this time both research and policy were in their infancy and therefore, in flux and extremely dynamic. Political battle lines were being drawn and institutions were created to respond to the new political dynamics and scientific information. This developmental process is instructive of how we have arrived at our

current state. By comparison, more recently we seem to be at a political stalemate. One political player recently told one of the authors of this paper that: "Research doesn't matter anymore." The implication was that politics and perceptions, whether real or imagined (fake), matter. For us, this makes our task within this paper and the research upon which we build this discussion even more important. At any rate, we will try to traverse some of the past fifty years or so of research.

We scarcely knew where to begin. Back in the day and even now a lot of stuff in the realm of guns and gun control was going on all at once. Once research was in play, the implications bounced around in many different realms. It occurred to us that the impact of gun research in the society is not unlike an old school game of pinball, especially from the perspective of an outsider looking in. It looks chaotic. There's lots of commotion, it's flashy and loud, and seemingly unpredictable with some rough play, but not too rough or you lose. To begin, we can do what is the best strategy with pinball, step up to the machine and begin to survey the field in front of you. For us, that means going back in time. Hopefully, our efforts here provide some examples and direction for future thinking and research.

The Beginning

There were certainly significant events and research that shaped policy on firearms in the U.S. prior to the 1960s. For example, because of use by gangsters during Prohibition, the Firearms Act of 1934 required the licensing of fully automatic firearms, restrictions on silencers, and a ban on very short shotguns. However, the assassination of President John F. Kennedy in Dallas, Texas on November 22, 1963 is often viewed as a turning point in American gun policy history. The photos of a Dallas police officer holding up the 6.5 × 52 mm Carcano Model 91/38 infantry rifle are unforgettable. It was that rifle and the photo of Lee Harvey Oswald with one like it that are indelibly linked to the death of President Kennedy in the American cultural psyche. According to Kukla (1973), this is one of the first times that the weapon became as infamous as the man wielding it. The focus shifted to how Oswald obtained the gun and mail order firearms specifically. Within five days of this assassination, amendments were introduced to expand the focus of gun control legislation as the country struggled to deal with the aftermath of the assassination.

The firearms assassinations of Martin Luther King on April 4, 1968 and Robert F. Kennedy on June 5, 1968 foreshadowed the formation of the U.S. National Commission on the Causes and Prevention of Violence (Kukla 1973) by President Lyndon B. Johnson on June 10, 1968. This was a key step in attempting to examine issues related to violence, particularly those related to firearms. The Violence Commission's report in general and Newton and Zimring's (1969) report on "Firearms and Violence in American Life." in specific were groundbreaking early examinations documenting the broad parameters of both legal and illegal firearms ownership and use. Those nineteen chapters ranged from descriptions and correlates of firearms acquisition, ownership and use of legal and illegal guns, and firearms laws and control. Findings within that report cataloged the number of firearms in civilian hands, identified the patterns of firearms ownership and acquisition, to described trends in firearms sales. The harm done by firearms, including gun accidents, suicides, crime, and violence were

also part of this investigation, ultimately concluding that firearms posed a significant risk to American lives. The report went on to acknowledge that the use of firearms for self-defense of home and business was a deeply held tradition but the authors questioned the effectiveness of guns kept for protection and ultimately argued that more guns result in more gun violence. Newton and Zimring (1969) concluded that that gun control was necessary and began to lay out strategies for firearms violence reduction. The report set the stage and raised the standard for all future research on the topic. It also spawned the public policy debate and legislation for decades to come. Since that point, the struggle to investigate the role of firearms in violence and harm in the United States has continued.

Culture, Subculture, Violence, and Guns

The identification of patterns of gun ownership sparked interest for sociologists and criminologists. Additionally, the inconsistent patterns of ownership in American society and the regional variations in gun ownership patterns opened many theoretical avenues of understanding. One finding emanating from the Newton and Zimring's work was that the southern part of the U.S, had disproportionately high rates of firearms ownership and of violence. Reed (1972) noted how southern culture featured firearms ownership and chivalry. And of course, the violence in the civil rights movement and the assassinations of President Kennedy and Dr. King in southern states brought a focus to that region. Researchers took on this task and embarked on work to understand why some Americans seek out their own means of protection and the willingness of some to wield lethal violence moved researchers in interesting directions.

Hackney (1969) and Gastil (1971) provide early attempts to offer a theory of a Southern subculture and its relation to violence (and, indirectly, gun ownership). They independently hypothesized that high rates of homicide in the South were an inherent part of its culture and history. They examined this. Within models that considered other structural and cultural measures as controls and concluded that high rates of homicide in Southern states are due to some function of Southern subculture and cultural transmission of violence partly because of ready access to firearms there (1969 p. 919). One important problem for both of these studies is that the southern cultural explanation will wrongly be attributed to drive homicide when the structural controls are poorly or inadequately measured. Loftin and Hill (1974) show just that to be the case. Rigorously and properly measuring and controlling for the structural correlates of homicide wipe out the spurious impact of "southern violence" culture on states' homicide rates. In particular, indicators of structural poverty account for the difference in homicides rates between the north and the south. So, it is poverty and not southern culture that is responsible for the difference. Similarly, O'Connor and Lizotte (1978) and Dixon and Lizotte (1987 and 1989) find that southerners are no more violent minded than northerners and that violent mindedness is not related to legal gun ownership. All of this is important for policy because if firearms violence is cultural, it implies that structural fixes such as reducing poverty, improving health care, and education will not reduce violence in general or firearm violence in particular. Rather, incapacitation or more punitive measures might be in order. In addition, a culture of violence explanation implies that guns in general are the problem and not necessarily just illegal ones.

This is not to say that there is no gun culture in the U.S. As early as 1970, Hofstadter (1970) had documented the historic nature of the legal gun culture in the U.S. in general and Reed had done so regarding the South in 1972. These were quickly followed by a series of examinations of the cultural underpinnings of legal firearms heritage in the U.S.: Kennett and Anderson (1975), Bordua and Lizotte (1979), Lizotte and Bordua (1980), Lizotte, Bordua and White (1981), Tonso (1982), and Kopel (1992). Kleck (1997) meticulously documented the cultural determinants of gun ownership in his review of the literature and noted the role of rural hunting culture. He later noted that these cultural causes may hinder efforts to reduce gun ownership (Kleck 2009). These studies show how thematic research builds upon itself to create new knowledge. It also showed that spatial and situational factors combine in the long run to produce opportunities that can be incorporated into culture. While there may be no southern subculture of violence, there is definitely gun culture, particularly in rural areas where firearms are plentiful and crime is relatively low. Much of this centers around the ideas of guns as related to rural living. For example, the hunting of small game in the South may have precipitated the high rates of long gun ownership there (Brennan, Gasdow, Lizotte, & McDowall, 1993). Explicating how culture works led to a deeper understanding of what sport and protection ownership look like and how chivalry plays into southern culture and attitudes regarding protecting women and children as opposed to violence for violence sake (O'Connor and Lizotte 1978; Dixon and Lizotte 1987, 1989; Brennan et al., 1993). A culture of legal firearms ownership and use suggests deep rooted intergenerational behavior that is difficult to change due to its spiritual and social motivation. So as is the case with religion, national identification, and other cultural facets we learned that giving up the gun is not easy (Perrin 1979) and that public policy must be sensitive to the cultural aspects of firearms ownership and use.

From the late 1960s to the early 1980s work began to emerge detailing the rules and parameters of the game and showing just what the gun worlds look like: the culturally situated world of legal firearms owners; the more shadowy world of illegal gun ownership and use, and the intersection of the two. Researchers stepped up to examine these complex areas and offer their expertise to shine a light on nature of firearms in America and find ways to move our understanding further about how we might reduce harm associated with firearms. This research gradually became much more detailed and fine grained in its portrayal of the role of firearms in American life. This is just what is necessary to pinpoint specific policies.

The Illegal Gun World

In the twenty-third volume of Social Problems in 1975, "two papers on guns" were published. The first by Douglas R. Murray explored "the relationship between access to handguns, gun control laws, and the incidence of violence associated with firearms" (Murray 1975). The second focused on the private ownership of firearms and laid the groundwork with descriptions of basic characteristics and patterns of ownership and highlighted the two (at least) gun worlds. This article was entitled "The Ownership of the Means of Destruction: Weapons in the United States" (Wright and Marston 1975). Both studies conceptualized firearms as harmful and offered perspectives on the role of firearms in American society. In the case of Murray, the focus was on violence as an

outcome of gun ownership and for Wright and Marston, it was the characteristics of those who own the means of violence. Wright and Marston offer the first examination of the legal ownership of firearms, identifying characteristics and patterns of gun behaviors. The research delved into the idea that owning a firearm was a social problem, including the connection between firearms and personal injury and harm from crime generally. The connections made between general crime injury and death and gun ownership by Wright and Marston reflected the looming cultural debate about the role of privately held weapons in the broader society. Focusing on legal gun ownership, including that by the social majority reframed the harm as not merely a byproduct of crime, therefore not merely a criminal problem. Rather, firearms and the private ownership and use of these in our society was defined as a significant problem and the cause of significant harm (Wright and Marston 1975 106).

In 1978, a large grant from the National Institute of Justice funded a comprehensive review of the literature on firearms, crime, and violence in the United States. *Under the Gun* by James Wright, Peter Rossi, and later Kathleen Daly was the first attempt to evaluate the evidence in what the authors describe as the "Great American Gun War". The first edition of the book was published in 1983. These authors examined every major study that had been undertaken through 1982. The focus was on legal ownership of firearms and the description of the typical gun owner that sharply contrasted with the then held perceptions of a gun crazed individual seeking violence. Instead, Wright, Rossi, and Daly found that most owners possessed guns for sport and recreation and that sport guns were owned at a rate of three to one compared to defensive guns. The authors found that the research identified gun owners as predominantly rural, Southern, male, Protestant, affluent, and middle class. Like other researchers, the book noted that most owners owned firearms early in their childhood and found no research supporting the idea that they were violent or unstable. These findings remain true, even today — with one significant caveat. Gun ownership over the past decade seems to have turned more toward defensive ownership with rates of handgun ownership increasing significantly (Azrael, Hepburn, Hemenway, & Miller, 2017). Azrael and colleagues (2017) found that nearly two out of three gun owners in their survey reported owning their guns primarily for protection against other humans with only 40% indicating hunting as a reason for owning firearms. Of course, there could be overlap between various primary and secondary reasons for owning.

Wright and colleagues also examined the role of guns in American crime and violence, and identification of implications of what is known on policy. The authors end with an assessment of the then most current gun control measures, ultimately stating their doubts that "the appropriate mechanisms for effective gun control have ever been developed." (Wright, Rossi, & Daly, 1983, 319). While that book made its way to press in the same year that John Hinckley shot President Reagan, Jim Brady, and two police officers, Wright and Rossi (1986) began a study of how criminal offenders obtain firearms. Their study using Federal funds relied on self-reports by a nonprobability sample of incarcerated felons and investigated the characteristics of armed criminals. This was groundbreaking stuff and gave us a view of the dynamics of illegal gun acquisition and use by those who perpetrate those offenses. Much of what Wright and Rossi (1986) and Wright, Rossi, and Daly (1983) found suggested that there were pathways to reduce harm from firearms by focusing on how legitimate weapons find their way into the criminal arena. The identification of cultural

antecedents to the involvement of firearms in criminal activity illuminated the role of legally owned firearms in criminal activity involving firearms. This further encouraged researchers to investigate legal gun ownership for ways to inform policy and identify ways to reduce death and injury involving firearms and pushed beyond description of the state of guns in America to questioning the causal role of guns in violence and crime.

Researchers inched closer and acknowledged the role of socialization in criminal involvement, particularly by juveniles. Joseph Sheley and James Wright (-1995) examined the role of guns in male youth violence in *In the Line of Fire* (1995). Their 1991 study surveyed youth living in correctional facilities and in urban high schools that had experienced gun related violence and crime. The youth were asked about their use of firearms, experiences with victimization, criminal histories, drug use, and gang involvement. The findings highlight what many researchers before them had found. Guns and gangs and guns and drugs are not simple topics to investigate. Rather, Sheley and Wright came to the conclusion that the involvement of youth with guns, gangs, drugs, and violence is far more complex than any simple gun control measure could address. So, by interviewing felons for the first time researchers were able to examine the reasons they did or did not go armed and their preferences for doing so. Understanding this was an important first step in determining how to potentially shape public policy to control this behavior without necessarily impinging upon the lives of legal gun owners. The best example of this behavior may be the confiscation of firearms by individuals who have been named in protective orders. This policy initiative seeks to protect victims of domestic violence by removing firearms from the household. However, it is not without controversy and includes concerns from many sides, most namely the potential for infringing on the rights of gun owners while also protecting victims. (Lynch and Jackson 2018). This tradition of seeking innovative ways to address gun violence in the research for potential policy implications continues today.

Later, studies like the Rochester Youth Development Study (RYDS) and the Monitoring the Future study considered the role of youth experiences on involvement in crime and gun carrying and use. For example, the RYDS project documented the role of firearms in the lives of at risk youth, following them into adulthood and examining the implications of socialization and growing up in the urban environment of Rochester. The findings from that study help to highlight the manner in which guns were a part of the fabric of their lives and how these patterns morph rather quickly over the adolescent - young adult life course (Lizotte, Krohn, Howell, Tobin, & Howard, 2000). This detail could help inform dynamic strategies for reducing illegal gun use among this population in specific. For example, they found that juveniles who were illegal gun carriers moved in and out of gun carrying rather quickly (Lizotte, Howard, Krohn, & Thornberry, 1997; Lizotte et al., 2000). They were more likely to have used and sold illegal drugs (Lizotte et al., 2000), to commit much more of all types of delinquency when carrying guns than when not carrying, and to be in gangs (Bjerregaard and Lizotte 1995; Lizotte, Bonsell, McDowall, Krohn, & Thornberry, 2002; Thornberry, Krohn, Lizotte, Smith, & Tobin, 2003; Emmert and Lizotte, 2015; Emmert, Hall, & Lizotte, 2017). Furthermore, they shared their illegal guns with other gang members (2003). So, one illegal gun could be accessed by many highly motivated offenders to commit many more crimes. In other words, there are more crimes with guns than there

are people committing those crimes and there are more people committing gun crime than there are guns available. This means that interdicting one illegal gun removes access for many offenders and stops many crimes. This suggests several things about adolescent gun carriers. First, they are not deeply committed to gun carrying since they move in and out quickly (Lizotte et al., 1997). So, they may be deterred from it. Second, the market for illegal guns for adolescents is rather fluid and this could have implications for interdiction (1997). Third, since the youths are compared to themselves over time personality is held constant (Lizotte, Tesoriero, Thornberry, & Krohn, 1994; Emmert et al., 2017). This means that the gun facilitates committing more (1995; Emmert et al., 2017) and a different character of crime than no weapon or other weapons (Lizotte et al., 1994; Schmidt, Kierkus, & Lizotte, 2016). So, in a sense guns really do "cause crime." However, we are not aware of any programs or policies that use this set of facts to address the problem. It is more likely that gun policies are a part of broad programs to reduce delinquency but not employing this kind of specific information. Furthermore, research by Braga and Hureau (2015) point to secondhand markets as avenues for successful interdiction as is discussed in more detail later. This might be particularly effective for keeping firearms away from juveniles.

Political Advocacy

The mid to late 1970s were politically active time for gun and gun control enthusiasts. At the time criminological research was seeking evidence of the role of firearms in violence and harm. Zimring's groundbreaking research in 1975 on the effectiveness of the Gun Control Act of 1968 identified many challenges for federal level policy and change. It was becoming clear that scientific research would play an important role in defining the direction of public policy and political battle lines were being drawn.

The role of the National Rifle Association (NRA) in modern firearm politics is undeniable, the history is a bit murkier. Started as a hunting and sport shooting enthusiasts organization with support from the New York State government, the NRA has emerged as the loud and powerful voice in the political debate on gun rights (McDowall and Lizotte, 2001). This role is not new. In fact, as early as 1934 with the creation of the Legislative Affairs Division, the NRA was focused on Second Amendment issues and by 1958 leaders from the NRA were testifying before Congress about proposed gun control legislation (Walden, 2015; Feldman 2011). In 1975, just one year after the founding of National Council to Control Handguns (NCCH) the NRA established the Institute for Legislative Action (NRA-IL) with Harlon Carter as the first director, a controversial figure who helped propel the NRA into the political big leagues. The implementation of a political action committee (PAC) in the following year allowed the NRA to become a player in the 1976 election. At the 1977 NRA annual convention a seismic swing away from sport and hunting shooting to focus more on the protection of Second Amendment rights took place. The NRA-ILA successfully lobbied Congress to pass the Firearm Owners Protection Act (FOPA). This legislation altered many of the most controversial provisions of the Gun Control Act of 1968, many focused on transport and sales of firearms. The Act did include a ban on sales of machine guns to private citizens (Kruschke 1994). Concerns about the shifting political landscape and the increasing attention paid to firearms harm and

ownership seems to have propelled a move in the political focus of the NRA. (Walden, 2015; Feldman 2011) At this point the NRA courted and monitored researchers and research on firearm related topics. The NRA became the best, most adept, and meanest player in the game.

Handgun Control, Inc. was founded in 1974 as the National Council to Control Handguns (NCCH) by a victim of armed robbery, Dr. Mark Borinsky (Carroll in Carter 2002). This organization grew in the early 1980s to become Handgun Control, Inc. and ultimately the Brady Campaign to Prevent Gun Violence, named after President Ronald Reagan's press secretary who was shot during an assassination attempt in 1981. While the Brady Campaign would become equally vocal about gun issues and build its own team of researchers and policy agenda items, it would also seem to be a few plays behind.

Evaluating Law and Policy

The attempted assassination of President Reagan and shooting of Brady on March 30, 1981 sparked widespread discussion of federal firearms policy and resulted in passage of the Brady Handgun Violence Prevention Act in 1987 (Chermak and Weiss, 1997). This bill came at a time when a great deal of public attention was being paid to gun issues and policy solutions specifically. At the time of the shooting, there was a push to ease restrictions on gun owners. In fact, as Chermak and Weiss (1997) note, Reagan had been elected on a platform that supported gun owners and sought relief to what many saw as unwieldy federal regulations. States across the nation were struggling to address local and state level crime involving drugs and firearms. Researchers began to investigate the effectiveness of these policies but it was challenging. Examining the effectiveness of attempts to control firearms related violence had its own problems to overcome. The quality of available data and the ability of state or regional level data to address the issues resulted in limited findings. The research examining the effect of these laws is challenging to summarize in a single paper. As documented and reviewed by Kleck (1997), there were notable successes. In particular, licensing and permit laws seem to reduce homicide and suicide. Possession restrictions on those with mental illness seem to have an effect on homicide and suicide as well. However, the attempt to reduce violence and harm through the implementation of gun control policies was a bit more volatile and inconsistent. The evidence was not clear and fed the political and social debate across the United States, rarely giving clear answers or directions for future policies.

Studies by Geisel and colleagues (1969), Murray (1975), and DeZee (1983) found that state level laws had little effect on state level rates of crime and violence. Later research by McDowall and Loftin and others found some significant effects of state gun laws on reductions in firearms related crime and violence when examined broadly, though their work on mandatory sentencing suggested the outcome of these could include the lowering of homicide rates (Loftin et al. 1983; Loftin and McDowall 1984; Loftin and McDowall 1981; McDowall et al. 1992). Much of that research helped to identify the inconsistent application of laws, a challenge in the criminal justice system generally. Lizotte and Zatz (1986) pushed further to determine if implementation of sentencing improved for offenders with multiple gun offenses. The findings of that study of California mirrored previous studies of Michigan and other states (Heumann and Loftin 1979; Loftin et al. 1983). The laws were not substantially or consistently

implemented. Other researchers examined the role of other measures of gun control and how changes in access to guns for legal owners might affect gun violence. Researchers also examined the role of carry permits in multiple cities and found significant effects on total homicide rates (McDowall et al. 1995a, 1995b). Those findings and the results of many others often leave the image of firearms related policy looking more like a chaotic mess (McDowall et al. 1991). These studies further highlighted the challenge of examining criminal behavior associated with firearms but kept pushing what is known in ways that improved our understanding if not settling the social and political debate.

The research on firearms, like other areas that are politically and socially complex, has its own controversies far outside the role of policy but which contribute to the mercurial nature of the landscape of guns in America. Many of these have revolved around the interpretation of data but the most fantastical of these involved accusations of data fabrication. Possibly the most notorious case of falsifying gun data can be found in the work by Michael Bellesiles published in his book *Arming America: The Origins of a National Gun Culture* published in 2000. The original research was also part of an article published in the Journal of American History in 1996. Bellesiles (2000) findings challenged the long standing belief that the majority of Early Americans possessed firearms. The research published by Bellesiles indicated that only 15%, compared to the previously found 40 to 79%, of probate records indicated gun ownership of the decedent). (Winkler, 2011) As a result of the ensuing controversy about the book scholar John Lindgren (2002) attempted to replicate Bellesiles findings from probate court records and found systematic and egregious mistakes. The prestigious Bancroft Prize from Columbia University Board of Trustees that was awarded to the book was ultimately rescinded due to the controversy and the game was up. While Bellesiles is perhaps the most widely known scandal within the world of firearms research, he is not alone. John Lott also came under scrutiny for being unable to produce the data that his book, *More Guns, Less Crime* (2000) rely upon. There were allegations of a fabricated research assistant and questionable research practices. (Winkler 2011).

The Courts, Legislature, and Executive Branches of Government

Research on firearms and gun violence were included in legal cases that challenged the constitutionality of gun control laws and in civil cases that asserted liability of gun manufacturers, municipalities, and individuals in gun deaths across the country and social scientists were deposed and testified in many of these cases. Social scientists have frequently testified as experts in civil cases on behalf of both plaintiffs and defendants. This directly affects outcomes and case law. For examples see, Gaffney v. City of Chicago et al., 1991 L16289, Illinois Sporting Goods Association v. County of Cook, No. 93 C 7403, and Hamilton v. Accu-Tek, et al. 95 Civ 49 (JBW).

In the landmark case that challenged the constitutionality of the District of Columbia's stringent gun laws, District of Columbia v. Heller (554 U.S. 5702008), the majority opinion of the Supreme Court acknowledges the research shared in the 47 amici briefs provided by academics and criminologists on both sides of the issue. This research focused on the risk of firearms and the role of firearms in violence and crime. The briefs raised debates that have fueled conflict within the literature that very much mirrored the divides seen in the broader society.

The justices writing on behalf of both the majority and dissenting opinions relied on legal scholars, historians, and social scientists to support their perspectives on the complex and controversial legal questions posed in the Heller case. Within the majority opinion, Justice Scalia relied heavily on the legal history and Constitutional analysis completed by those experts. However, he acknowledged at the very end, the research on handgun violence described in the amicus briefs. It was Justice Breyer writing for the dissent who laid out the existing knowledge and research on the risks of guns and the manners in which firearms results in crime, death, and injury as an attempt to explain the support for the DC handgun ban. The research presented in those amici briefs is expansive and pertinent to the Heller case decision and identifies the role this research can have in monumental policy determinations like those in Heller. From evaluating research by Loftin, McDowall, Wiersema, and Cottey from the New England Journal of Medicine (1991) that considers the effects of restrictive licensing of handguns on homicide and suicide in Washington, DC to studies examining the role of guns in femicide cases by Campbell et al. (2003) and suicides by Zwerling, Lynch, Burmeister, and Goertz (1993) published in the American Journal of Public Health, this application of social science findings gives insight into how these might fuel policy and broader societal responses. The justices were presented with the most compelling and pertinent information known regarding the effect of access to firearms on injury and death, though this included the challenging nature of connecting the presence of guns to death and injury. The brief authors argue that the failure to find significant reductions in gun violence and harm are attributable to the larger issues plaguing the city, most notably gang and drug activity. In evaluating the research, the brief authors highlight many of the larger issues that have posed as challenges to the research examining the efficacy of policy related to firearms and violence and attempt to explain the complex relationship between guns and drugs and crime to help persuade the Court to their perspective on the ban.

Research conducted by Lott (2000) and Lott and Mustard (1997) on the effects of gun control on violence found little positive effect of this type of policy and were used to challenge the findings. This research was presented and pulled the Supreme Court very much into the debate about the role of guns in crime, particularly the effects of gun bans like those in the District on homicide and violence rates. This application of the research to the harm, injury, and death associated with firearms was especially poignant given the role of doctors to help those in our society who are injured or sick. Epidemiological research focused on improving public health and had become the focus of much of the most innovative research at the time.

Social scientists and their research on firearms ownership and use have also been used in testimony before legislative bodies for locales, states, and the federal government to address the political debate and to craft legislation and policy. For example, when the California Legislature's Committee of the Whole considered and eventually adopted an assault weapons ban Lizotte and Wintemute were called as witnesses. (Agenda, 1989). Similarly, on July, 30, 1998 following a spate of school shootings including at Columbine high school in Colorado Janet Reno, the Attorney General of the U.S. convened a focus group of "25 - 30 prominent criminologists, police, judges, and prosecutors." There charge was to "provide local law enforcement, elected officials, and other local policymakers with practical information about a range of prevention, intervention, suppression, legislation, and other strategies to reduce gun violence" (Reno, 1998). These are just a few examples of this type of impact of scientific research on firearms policy and legislation but the effects are limited and

the landscape ever changing. In fact, the politics seem to ramp up around this time and the research seems to lose ground to the political chaos.

Public Health Research

Also in the early 1990s, gun researchers attempted to declare violence, and specifically gun violence, a public health emergency. David Hemenway, one of the pioneers in this area of gun research, gives a great historical description of this in his book, *Private Guns, Public Health* (2017). He and Garen Wintemute, along with others working in this area focused attention on the harmful consequences of guns in America outside of the legal or criminal contexts. This new approach examined the role of education, access to health providers, and medical intervention as potential pathways to reductions in harm and violence (Hemenway 2017). The findings from numerous studies helped fuel public awareness about risks of firearms and the role of gun safety in reductions in harm (Koop and Lundberg 1992; Zwerling et al. 1993). Gun safety education programs in schools and the community expanded. The risks of guns in the home were examined (Miller and Hemenway 1999; Miller et al. 2002; Kellerman et al., 1993). Pediatricians began talking to patients and their families about guns in the home and safety issues that might be present. The American Academy of Pediatrics (AAP) recommended decades ago that that pediatricians discuss firearm safety with patients and families to help reduce injury and death of children. This also proved controversial as challenges from the pro-gun side of the social debate challenged the legitimacy of these questions and involvement of doctors in family issues (Barkin et al., 1998; Barragan et al., 2015). Numerous articles were written about the role of pediatricians in the politically charged and often controversial area of guns in the home and several states considered legislation like the law that passed in Florida that restricted the ability of doctors to discuss gun safety with their patients. (Wintemute et al., 2016; Weinberger et al., 2015) Once again, the path for change was blocked by politics and misleading public rhetoric about firearms.

The notoriety of several cases of accidental death and injury by children was also a focus within the public health area. Researchers had identified firearms as a leading cause of preventable injury and death (Watkins and Lizotte, 2013; Palfrey and Palfrey, 2013). Attempting to address risks posed by firearms in the home to children led researchers to examine safety and storage practices and conclude that millions of guns were kept loaded and accessible (Leventhal et al., 2014; Johnson et al., 2008; Connor, 2005; Okoro et al., 2005). Other researchers turned to examinations of how children responded when they found an unsecured firearm and perceptions of parents of these potentially dangerous situations (Obeng and Bowman, 2013; Obeng, 2010; Connor and Wesolowski, 2003, Jackman et al., 2001; Farah et al., 1999). None of the news was good. Children were at significant risk from these weapons (Gatheridge et al., 2004; Down et al., 2012). Other studies considered the role of education in many venues in reducing gun injury and death but found little effect (Kelso et al., 2007; Howard, 2005; Price et al., 2005; Hawkins et al., 1998; Himle et al., 2004).

The focus on legal gun ownership by researchers happened at a time when the NRA was shifting to a more politically focused organization. The findings of studies about gun ownership had led to a broader discussion about limiting access for some individuals (felons, mentally ill, etc.) and to specific types of firearms. These policies had ignited a political firestorm and fueled the public and political debate about the utility of these types of legislation. Additionally, those policies had not led to significant decreases in injury and

death. The combination of a failure to identify strong relationships between these policies and reductions in harm and an increase in controversy led to a changing game within the research. Scientists turned to focus on the public health approach to reducing harm by examining gun violence using epidemiology or disease models. David Hemenway and others sought solutions to the death and injury by thinking about guns and the associated harm as we had with any other public health issue and used the model of car safety to think about creative ways to reduce harms associated with gun (Hemenway, 2017). Findings from these studies pointed to numerous areas for reductions in injury and death related to firearms and researchers investigated these with hopes to add new directions for policy (Hemenway, 2017; Kellerman et al., 1993). Unfortunately, the approach taken by the Centers for Disease Control would result in a swift and harsh response from politicians and the National Rifle Association. Funding for gun research was cut and limits were placed on how gun death and injury could be counted and characterized. The results of the lobbying efforts of the NRA had significant effects on how public health researchers moved forward and on the public perceptions of the futility of attempts to reduce gun harm and violence.

Gun Acquisition and Trafficking

Researchers and policy makers have long focused on curbing illegal firearms trafficking. The most recent policies have relied on cutting edge research studies and even implemented research as they sought to reduce the illegal gun markets and violence associated with gang and drug activities. Researchers including Kennedy, Braga, Pierce, Skogan, and many others worked to identify ways that law enforcement and prosecutors could use their resources to discourage the criminal use of firearms in cities like Chicago and Boston. The research on programs like Exile and Ceasefire demonstrated that targeted criminal justice actions could reduce harm by disrupting illegal gun markets (Braga and Hureau, 2015; Skogan, 2008; Rosenfeld et al., 2005; Braga and Pierce, 2005; Braga et al., 2001). The challenges lie in how to restrict illegal access and trade of firearms while maintaining legal access and use. Work by Hureau (2018) has noted the complexity of the gun markets and challenges in interrupting those in attempts to understand how we might influence outcomes related to illegal guns. He wrote in personal correspondence that much of what is being done in this area is about "studying particular guns and the prices paid for them, in particular networks, among particular kinds of users, in particular cities, with particular supply lines." He went on to note that "gun markets are likely to be embedded within, and fragmented along, the axes of social networks, suggesting that prospects for illicit gun acquisition will be a function of where you live, who you are, and especially who you know" (Hureau 2018, 1). This conundrum has served as a barrier to progress for decades but the work being done on the front lines of this area of research will move this forward and forge new pathways for harm reduction. So, gun research has had at best a modest impact on gun policy, a greater impact on the debate and may show promise for a more substantial impact in the future.

What can we take away from this?

We are an armed nation. There can be little doubt about that with more than 310 million guns in civilian hands in the U.S., possibly 80 million of those are handguns (Krouse, 2012). More

recent estimates by news outlets put this number far over this mark and argue that there are now more guns than people in the U.S. (Ingraham, 2015). As a comparison, there were about 256 million registered cars and light trucks in the U.S. in 2013 (Bureau of Transportation, 2015). If we include junkers in your neighbor's yards, it might equal the number of privately owned firearms. Because of this, it is as important to know the parameters of legal gun ownership and use to inform our study of illegal patterns of firearms ownership and use. In other words, if one wants to regulate any behavior it's nice to know how it works. Imagine trying to write vehicle and traffic law without knowing the fundamentals of how automobiles work and how they are used. Of course, history of the firearms debate and regulation is replete with just that – no real knowledge of the phenomenon both legal and illegal.

Short of a magic magnet that hovers over the country collecting firearms, blunt policy instruments, like the idea of banning handguns called for a few short decades ago, ignore the social realities of gun ownership, the now recognized constitutional protections of individual gun ownership (District of Columbia v. Heller, 2008 554 U.S. 570), and the physical and legal impossibility of such crude action. This is not to say that there are not real benefits to some policy. However, policy must be based upon detailed empirical knowledge of how specific forms of harm are related to firearms behavior in the real world. It has become increasingly clear that research needs to address very specific problems and be tailored to the often specific and divergent forms of harm associated with guns. Unfortunately, regardless of what is being said, what is often heard in any discussions of guns and potential policies falls into two overly generalized categories: "no restrictions on firearms" or "overly arduous restrictions on firearms." These discussions often ignore perspectives about or knowledge of how guns are used in the legal and illegal gun worlds. This means that the research, the debate, and the resulting policy proposals can at times focus on elements of ownership or firearms themselves that may have little effect on the problems to be addressed. Simply put, there is no magic bullet to fix the myriad of gun problems but a systematic examination of them that respects the tradition of gun owning in America has and can offer real working solutions.

In addition, the nature and manner in which policy is proposed can create unnecessary animosity and opposition. We know a lot about legal and illegal firearms use in America and this suggests directions for research that lessens the acrimony between factions involved. Whether accurate or not, many legal gun owners see the intent of research and policy recommendations of "gun control" as impinging upon their rights and lives. Even the term "gun control" connotes infringement on gun ownership as opposed to "reducing firearms harm." Often these policies are viewed as failed attempts to control illegal gun use while ignoring the very real and meaningful ownership of firearms in American culture. And, why wouldn't legal gun owners think this? Some gun policy, whether proposed or in force, can impinge upon legal gun owners with little obvious benefit to them, little acknowledgement that firearms are an intrinsic part of our cultural and social experiences, and little documented dramatic reduction in crime. This kind of research and policy is akin to convincing ranchers in Montana that they cannot own certain types of guns in order to prevent drive-by shootings in Los Angeles. It just doesn't make sense to them and pushes them further from the table. So, there is a built in natural opposition and suspicion of "gun control" and research on it in almost any form from some people imbued in the gun culture. We might also change the focus and look for consistent incremental change that can reduce harms associated with firearms. As we will see below there is a thriving legal gun culture in America.

Schuman and Presser (1977) noted this decades ago and any issue of *Gun Mag (www.gunmag.com, 2019)* published by the Second Amendment Foundation will provide examples

of the fears and anxieties regarding "gun grabbers" at work in proposed gun policies. Schuman and Presser also found that legal gun owners are good citizens. They vote and take other political action on the issue that is dearest to them. So far they have done this disproportionately compared to gun control enthusiasts. We have seen evidence of this in multiple local, state, and federal elections. However, as we are beginning to see with the student response to more recent school shootings the political action pendulum may swing the other way. Research tells us that guns and gun violence are important to people. Ignoring these simple facts can doom uniformed policy just as it can buoy or destroy a person running for political office.

Research and resulting policy doesn't naturally have to antagonize legal gun owners. In fact, research can improve their lives as well as reduce injury and death. For example, there are more than 84,000 visits to emergency rooms for nonfatal gun injuries each year in the U.S. In 2016, there were also more than 37,000 firearm related fatalities. Of these, 22, 938 were suicides, 495 unintentional injuries, and 14,415 are homicides (CDC WISQARS 2018). It should be clear that such disparate forms of harm both across these categories and undoubtedly within them requires dramatically different policy initiatives. What may reduce gun accidents might not work so well to impact drug related firearm homicides. And, policies that might lessen drive by shootings may not work on domestic homicides with guns. While there is significant research on guns and injury, particularly focused on the pediatric population, we have less systematic, detailed national level data about the character, correlates, and causes of these injuries and fatalities in the larger, adult population. Undoubtedly, some of these injuries are the result of the illegal use of guns and, of course, many may also be related to legal uses of firearms. So, a sophisticated and detailed investigation of these incidents could lead to policies that enlighten the legal and illegal use of guns that produce harm.

So, the landscape of firearms research does look a bit like that of an old school game of pinball. The playing field is slightly tilted with various impediments to player progress. Because of the political and social drama surrounding guns, this isn't a level surface on which research is built. There is high drama and conflict about the social meaning of firearms on all sides. There are lots of high profile noise to distract from the science and to impede the building of knowledge just like the game. This influences the manner in which scientific results are interpreted and applied. The science itself is filled with obstacles that researchers hit up against (access to quality data, willingness of participants to be studied, challenges in methodology and sampling) or flips the science back when conflicting findings about the same phenomena are discovered. This all leads to an exciting but perilous field of study with few clear conclusions and a great deal of chaos and noise in the process. Researchers have persevered and continued to build a foundation of literature that pushes what is known further and steadies the base game of gun research, even amidst the confusion of such a politically and socially charged area of inquiry. This willingness to slip another quarter into the game and attempt to increase the score of what is known is imperative if we are to continue to add to what is understood about firearms, those who own and handle them, and the resulting potential harm.

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