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American preferences for "smart" guns versus traditional weapons: Results from a nationwide survey

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ABSTRACT

This study examines Americans' preferences regarding smart guns. The study builds on prior research by including previously unexamined factors, specifically victimization and comfort sharing gun ownership status with a doctor. Further, this study examines differences in preference patterns among gun owners and non-owners. Data were obtained from a nationwide online survey with 524 respondents in February 2016. The study finds that, among non-owners, older respondents and those with pro-gun attitudes are less likely to prefer smart guns to traditional firearms. Among gun owners, those with moderate political views, those with a history of victimization, and those residing in the Northeast are all more likely to prefer smart guns. Males and those with progun attitudes are less likely to prefer smart guns. Education, income, race, marital status, presence of children in the home, and comfort discussing gun ownership with a doctor had no significant association with smart gun preference. Practical implications of these findings are discussed.

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1. Introduction

Across the United States, more than 30,000 individuals are killed by firearms each year; a further 67,000 are injured (Fowler et al., 2015). Although the annual count of unintentional firearm injuries has declined since the early 2000s, the number of nonfatal firearm assaults increased 52% between 1999 and 2012 while firearm suicides increased 17% between 2006 and 2012 (Fowler et al., 2015). Hospital costs alone totaled nearly \$700 million in 2010 for these events (Howell et al., 2014). Firearm related injuries and deaths are not isolated to adults. In 2014, suicide and homicide were the second and third leading causes of death, respectively, for teens ages 15 to 19; more than 80% of these homicides were committed with firearms as were 41% of suicides (Child Trends, 2015). In 2009, an average of 20 U.S. children and adolescents were hospitalized each day due to firearm injuries (Leventhal et al., 2014).

Much debate has centered on how to prevent gun violence, particularly among youth. In January of 2016, President Barack Obama called for more advanced research into "smart" gun technology (Itkowitz, 2016). Smart guns are weapons equipped with a safety feature that allows the weapon to be fired only by an authorized user. The development of this technology has focused on handguns. The Armatix Company, for example, manufactures the iP1 handgun, a weapon that will only fire when held within 10 in. of a matching wristwatch. The wristwatch itself is pin number controlled, allowing the wearer to remotely activate and deactivate the weapon (Armatix, 2015). Firearms like these are only just beginning to enter the gun sales market, though the technology has been in development for some time.

Legislators and special interest groups have pushed for greater availability of smart guns as a safety and crime-reduction mechanism. New Jersey, for instance, passed a Childproof Handgun Law in 2002, specifying that all handguns sold in the state must be smart guns within three years of the weapons becoming available on the market (State of New Jersey, 2002). The law has not yet been implemented, as slow entry into the market and political pressure on gun dealers have prevented the weapons from being sold in New Jersey (Marcus, 2016). Groups including the National Rifle Association (NRA) have opposed laws like these, arguing that the laws may limit availability and accessibility of firearms for consumers (NRA-ILA, 2016). Unfortunately, little is known about the American public's willingness to purchase smart guns over traditional firearms, nor about the types of Americans who favor one firearm type over another. This paper presents results from a nationwide survey of more than 250 current gun owners and more than 250 current non-owners to address this need in the literature.

2. Brief history of smart gun development

Although debate has recently surged, smart guns are not a new concept. In the 1970s, Magna-Trigger launched. This add-on feature for revolvers was a magnetic attachment inserted into the revolver's frame. This addition prevented the trigger from returning far enough to fire unless the user was wearing a specially-designed magnetic ring (Giles, 2015). In the 1990s Congress and the National Institutes of Justice funded several gun manufactures and the New Jersey Institute of Technology to support research aimed at developing advanced safety features that would prevent unauthorized use of police-issued handguns

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(Borrup et al., 2014; Giles, 2015). In 1998, Colt Industries developed the Z40, a handgun equipped with an RFID chip and matching wristband, similar to the Armatix model in concept (Giles, 2015). The model was so controversial that the project was shelved. By year-end 1998, how-ever, there were more than 100 patents on smart gun related technology (Borrup et al., 2014).

3. Controversy

While prototypes like those noted above have been in existence or in development for decades, controversy has prevented smart gun technology from emerging into the mainstream. Debate has centered on several key questions. First, will smart guns fire as reliably and quickly as traditional firearms? One concern is that the delay involved in identifying the bearer as an authorized user may put some individuals at greater risk of death or physical injury. An example would be a police officer, who may need to fire a weapon quickly to protect self or others. A study by Sandia National Laboratories in the 1990s found that the speed of RFID technologies was satisfactory, while biometric-based systems (i.e. fingerprint recognition) did present some speed challenges (Kimberly, 2014). Unfortunately, there has been little systematic study of smart guns otherwise (Kimberly, 2014).

A second question concerns the purpose of smart guns: Do they truly prevent unauthorized users from firing guns? Will they prevent crime or child use? Currently, there are about as many guns as there are people in the U.S. (Hepburn et al., 2007). Smart gun technology will only affect newly purchased weapons. However, the majority of adolescent firearm suicides occur with the weapons of parents and other family members. Smart gun technology may prevent at least some of these adolescents from being able to fire these weapons. Further, between 2005 and 2010, more than 1.4 million guns were stolen from their owners (Bureau of Justice Statistics, 2012). If effective, smart gun technology has the potential to prevent stolen guns from being used in crime. Some smart gun advocates also argue that smart guns will prevent police officers from being killed or injured by their own weapons, a number argued to be roughly one out of every six officers killed in the line of duty (Kimberly, 2014). More research is needed, however, before the effectiveness of smart gun technology is clear. For instance, if a smart gun only requires that an authorized user be close to the weapon, the possibility remains that an unauthorized user may be able to grab and fire the weapon in a close struggle.

A remaining source of debate is cost. Since smart guns, by definition, have to incorporate special technology to match guns and users, smart guns are more costly than traditional weapons. Some sources state that smart guns will cost about twice as much as traditional handguns, when they are available on the market (Kimberly, 2014). The NRA has opposed laws mandating smart guns partially for this reason, arguing that the cost burden for consumers may be unreasonable and bar consumers from purchasing weapons (NRA-ILA, 2016).

Unfortunately, little is known about how today's public perceives smart guns, how demand varies across demographic groups, or whether Americans would truly choose a smart gun over a traditional firearm. A recent study by Wolfson et al. (2016), for instance, asked respondents about their willingness to purchase a "childproof gun that fires only for authorized users" if they were purchasing a new handgun. Results indicated that most Americans were willing to buy this type of gun, with high interest expressed by liberals, non-owners, and those with children in the home (Wolfson et al., 2016). A previous study by the National Shooting Sports Foundation (NSSF) asked respondents "How likely would you be to purchase a gun with smart gun technology that prevented it from firing except for specific authorized users?" The NSSF study determined that Americans were largely against purchasing smart firearms (Bazinet, 2013). The NSSF poll included more than 1200 Americans, nationwide, as respondents with a margin of error of +/-4.1%.

However, the Wolfson (2016) study did not ask whether respondents would choose a smart gun over a traditional firearm. Though many may be willing to consider a smart gun, how many would opt for one if traditional guns remained available? Also, how do factors like victimization affect this choice? Would potential gun owners be willing to discuss the issue with doctors and pediatricians? Does wording of the question make a difference? The NSSF study (Bazinet, 2013) may have inadvertently grouped those unwilling to buy any gun with those unwilling to buy a smart gun. Unlike the NSSF study, the Wolfson (2016) survey included the term "childproof." More examination is needed to address these important issues. Specifically, this paper examines the views of current gun owners and non-owners, with particular attention to differences in what factors affect the attitudes of each.

4. Methods

This study is based on analysis of a 45-question, online survey with responses collected in February 2016. The survey addressed topics including gun ownership, opinions about guns and their owners, basic demographics, as well as comfort discussing gun ownership with others.

In 2015, the Qualtrics survey research company was contracted to locate a nationwide sample of at least 250 gun owners and 250 nonowners to complete this survey. The only other requirement was that respondents be age 18 or over. Qualtrics maintains and contracts with active market research panels consisting of more than six million English-speaking, non-institutionalized adults able to give consent. Typically, respondents join a panel through one of three different processes including a double opt-in process, recruitment, or voluntary sign-up. When an individual qualifies for a survey, they are notified via email and invited to participate. Panelists typically receive small incentives given on a point system; these points can be pooled and later redeemed in the form of gift cards, sky miles, credit for online games, etc.

Qualtrics sent 3003 potential respondents an email invitation in February 2016, informing them that the survey was for research purposes, the title of the study, and how long the survey was expected to take. To avoid self-selection bias, the survey invitation did not include specific details about the contents of the survey. The survey invitation included a link to participate. Potential respondents who clicked this link were asked whether they had a gun in their household and if they were age 18 or older. If eligible (and the target of 250 respondents for a given ownership category not yet met), the respondent was then directed to the survey itself, electronically. Due to budget constraints, the survey was limited to a sample size of approximately 500 valid responses. Survey questions were presented in the same order to all respondents. Respondents took 8.2 min to complete the survey, on average.

From the 3003 survey invitations, 1228 responses (40.89%) were received before quotas were met. Of these, 524 were considered valid and complete responses (17.45% of total invitations). Eleven responses were excluded because the respondent was under age 18. Another 37 responses were excluded because the respondent did not agree to the terms of the informed consent document. Other responses were excluded from analysis because respondents failed data quality checkpoints (i.e. questions asking the respondent to select a specific response to indicate attentiveness) or because respondents completed the survey too quickly (<1/3 of the median response time) to suggest an attentive response. As a result of the low response rate and quotas for gun ownership, the sample is not nationally representative. Descriptive statistics will be used to compare the sample to the overall U.S. population. Due to the budget-required quota of approximately 500 valid responses, survey collection stopped when these responses were attained. Response rates would likely be higher had the survey been allowed to continue, since more individuals would have time to review the survey invitation and participate.

The primary outcome for this study, preferences for smart guns versus traditional guns, can be operationalized as either dichotomous (if undecided answers are excluded) or trichotomous. For this reason, Download English Version:

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