Article

Is It a Dangerous World Out There? The Motivational Bases of American Gun Ownership

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Abstract

Americans are the world's best armed citizens and public polling suggests protection/self-defense is their main reason for gun ownership. However, there is virtually no psychological research on gun ownership. The present article develops the first psychological process model of defensive gun ownership—specifically, a two-component model that considers both the antecedents and consequences of owning a gun for protection/self-defense. We demonstrate that different levels of threat construal—the *specific* perceived threat of assault and a *diffuse* threat of a dangerous world—independently predict handgun ownership; we also show how utility judgments can explain the motivated reasoning that drives beliefs about gun rights. We tested our model in two independent samples of gun owners (total N = 899), from just before and after the Orlando mass shooting. This study illustrates how social-cognitive theories can help explain what motivates Americans to own handguns and advocate for broad rights to carry and use them.

Keywords

motivated cognition, gun-related beliefs, threat perceptions, self-defense motives

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Wickenburg, Arizona, was recently ranked among the safest small towns in Arizona (ValuePenguin, 2015). Yet here is an excerpt of an interview with a local gun owner about his reasons for carrying daily:

> It's a situation just like getting up in the morning and putting your shoes on or your boots on . . . I'm carrying it because I want people to know that if there is an incident somewhere, that I am there to defend myself or my family. (Hwang & Murphy, 2014)

There are an estimated 270 to 310 million guns privately owned in the United States, which makes Americans the world's best armed people (GunPolicy.org, 2016). A recent Gallup Poll suggests that the main reason for owning a gun—mentioned by 60% of gun owners—is protection/self-defense (Gallup, 2014). From a psychological perspective, it seems likely that defensive gun ownership is motivated by subjective factors such as *perceived* risk of victimization rather than a person's objective risk of attack. Yet research and theorizing on the need for guns—the reasons for owning them—have been almost completely neglected by psychologists. The need for theory in this area is emphasized by criminologists, who suggest that, "Understanding the factors that lead people to obtain guns for self-protection is important for both theoretical and policy reasons" (Kleck, Kovandzik, Saber, & Hauser, 2011, p. 312); they also note, "Studies assessing the effect of fear/risk and criminal victimization on gun ownership have obtained wildly varying results" (p. 313). Yet some fears and perceived risks are so diffuse or generalized in one's mind that they do not necessarily pertain to any one specific crime in particular and may thus be more subjective than objective per se. Although psychologists have long considered the role of perceived threat in motivated behavior and reasoning, they have yet to apply it to the psychology of gun ownership.

In this article, we develop and test the first psychological theory of the motivational bases of gun ownership. There are three reasons why a psychological theory is needed. First, as we will argue, there appears to be little objective justification for this prevalent need of a gun for self-defense. Second, as

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public health researchers have demonstrated repeatedly, there is little evidence that gun owners are able to use their guns in situations that might demand and justify defensive gun use. A third reason is that there is a fierce debate over the proper role of guns in American society, yet there exists virtually no explanation for what motivates some Americans to advocate for broad gun rights under the Second Amendment of the Constitution.

Our goal is to provide a starting point for readers to consider American gun ownership to be a social-psychological phenomenon, wherein our theories can be applied in a meaningful, societally relevant way. Thus, after we provide a brief primer on the current literature on American gun ownership, we develop a motivational model of defensive gun ownership. We take a social-cognitive perspective to explain how two components—antecedent *perceptions of threat* and consequent *utility judgments*—can predict the motivation that leads to the purchase of a handgun (a defensive firearm) and also endorsement of broad rights to carry and use one's gun. The antecedent component pertains to the various types of threat that may trigger a goal for protection/self-defense; the consequent component pertains to the *utility judgments* that motivate ownership of defensive firearms and a desire to maximize one's affordances to obtain, carry, and use them.

Our model is rooted in the idea that the need for safety and security is fundamental and that the mere perception of threat can frustrate this need. This in turn activates a search for a means of protection/self-defense. In American culture, the gun has a special place in this regard—It is enshrined in the Constitution and made salient in popular culture. Thus, higher levels of perceived threat may intensify beliefs that gun ownership and availability are important. We test our two-component model via surveys of male gun owners and nonowners.

Are Guns Used—or Useful—for Self-Defense in the United States?

Why do millions of Americans feel the need to own a gun for protection/self-defense? The most common theoretical explanation from criminologists is a specific "fear of crime" or "perceived risk of victimization" (Cao, Cullen, & Link, 1997; DeJong, 1997; Kleck et al., 2011; Williams & McGrath, 1976). Yet there appears to be little relationship between subjective and objective risk, which makes it difficult to understand the widespread need for guns for protection/self-defense. Homicide rates in the United States have decreased over the last few decades, to a rate of 4.5 per 100,000 people killed (Federal Bureau of Investigation [FBI], 2014). Furthermore, if gun ownership were purely driven by the objective risk of victimization, one would expect that the people most likely to get murdered are also the ones most likely to own a gun—But this is not always the case: "While blacks are significantly more likely than whites to be gun homicide victims, blacks are only about half as likely as whites to have a firearm in their home (41% vs. 19%)" (Pew Research Center, 2014). Accordingly, whereas young men are more likely to be murder victims, old men are more likely to own a gun (General Social Survey, 2015).

One could argue that, although the objective risk of homicide victimization is low, the fact there is any risk at all suffices to justify owning a gun and even carrying it on a daily basis. This raises the second question—namely, whether guns are reliably used in assault scenarios. It is easy to imagine that this is the case when an assault comes from strangers who attack them on the street or break into their house—the prototypical self-defense scenarios described in a regular column in the *American Rifleman*, the flagship magazine of the National Rifle Association (NRA). These stories often portray a heroic armed citizen who defends himself or herself against armed strangers, be it burglars or violent maniacs (O'Neill, 2007).

Yet a study of homicides in the United States, between 1980 and 2008, found that strangers commit only a fifth of all homicides (Siegel et al., 2014); four fifths are committed by the victim's family, friends, or acquaintances. Furthermore, actual defensive gun use is rare: In ≤1% of reported incidents of violent crime did the would-be victim exercise resistance via firearm, according to the 1987-1990 National Crime Victimization Survey (NCVS; McDowall & Wiersma, 1994; Planty & Truman, 2013). Similar results were reported by Hemenway and Solnick (2015): In only 127 of 14,145 (<1%) crime incidents in which victims were present was a gun used as a means of armed resistance. Hemenway and Solnick (2015) concluded,

> The NCVS data provide little evidence that self-defense gun use reduces the likelihood of victim injury during crime. The data do suggest that using a gun may be useful at preventing property loss, but not more effective than protective action using other weapons. (p. 27)

What about defense against terrorist attacks? Given that mass shootings, such as the 2016 Orlando nightclub attack, are homicides in which some stranger kills several people in a single attack, one might think guns are effective for self-defense in such situations. However, despite the fact that mass shootings have increased in recent years (A. P. Cohen, Azrael, & Miller, 2014), the chance of being involved in such a shooting is extremely small (Bagalman, Caldwell, Finklea, & McCallion, 2013). Furthermore, John P. Blair, the coauthor of a book *Active Shooter Events and Response* (Blair, Nichols, Burns, & Curnutt, 2013), warns against drawing a gun in an active shooter event, because the police—or other concealed-carry gun owners—might mistake such individuals for the active shooter and kill them (Achenbach, 2016).

To summarize, there is no clear case that gun ownership corresponds with objective risk of attack. The people at most risk of homicide victimization are among the least likely to

own guns, and guns rarely get used in the very assault scenarios for which they are intended. Yet the main reason that people say they own guns is for protection/self-defense. This suggests—in line with a long history of psychological theorizing (e.g., Koffka, 1935; Lewin, 1917)—that it is people's *perceived* risk and not their *objective* risk of attack that explains their need to own a gun for self-defense. It further suggests that—in addition to the *specific* threat of victimization—some *diffuse* or generalized threats might contribute to people's fears.

A Two-Component Theory of Defensive Gun Ownership

The starting point for the present research is the evidence that the need for protection/self-defense is indeed a main motivator of gun ownership. Our two-component theory refers to the antecedent threat perceptions that give rise to the need, followed by the consequent utility judgments that motivate specific types of gun ownership as well as beliefs about how to use guns for self-defense. Our theory differs from criminological "fear of crime" theories in two key ways (e.g., Cao et al., 1997; DeJong, 1997; Kleck et al., 2011; Williams & McGrath, 1976). The first key difference is that our theory predicts that the need for protection/self-defense is driven by more than just a *specific* threat—the perceived risk of lifetime assault victimization—but also by a *diffuse* threat emanating from the belief that the world is a dangerous and unpredictable place. This generalized belief is not linked to any single objective threat in particular and has been found to be associated with a conservative worldview and prejudice against minorities (Altemeyer, 1988; see also Duckitt, 2001). The second key difference is that our theory predicts that the same perceived threats that motivate people to purchase a handgun also shape their beliefs about defensive gun use and the fundamentality of their Second Amendment rights. This belief system includes not just the right to shoot to kill in a threatening situation but also opposition to laws that could interfere with their gun rights.

Antecedents of a Need for Protection/ Self-Defense: A Threat-Construal Theory

A direct test of the fear of crime hypothesis would relate gun ownership to *perceived* risk of victimization. Although criminological studies have found mixed support for the fear of crime interpretation, Kleck and colleagues (2011) blame the lack of support on weaknesses in the research, such as failure to find out whether a respondent is actually the owner of a gun (rather than being a household member) and whether the gun is actually a handgun (rather than some other type of gun). When Kleck et al. assessed the association between personal ownership of a handgun for protection and self-defense, they found a significantly positive association with perceived risk of crime. This suggests that, in line with the fear of crime explanation (Cao et al., 1997; DeJong, 1997; Kleck et al., 2011; Williams & McGrath, 1976), the Perceived Lifetime Risk of Assault (PLRA)—the *specific* threat that one might at some point become a victim of a crime—is one of the factors that contribute to a person's need for protection/self-defense. Yet if this were the only reason, one would assume gun ownership to be much more reliably associated with homicide rates, with homicide being the life-ending crime. This has not been the case: Gun ownership has continuously decreased from 49% in 1960 to 42% in 2014 (Gallup, 2014) even though there had been fluctuations in homicides over the same time period—including a steep increase in homicide rates between 1960 and 1992 followed by 49% decline from 9.3 homicides in 1992 to 4.7 in 2011 (U.S. Department of Justice, 2013).

In a departure from previous theorizing, we therefore postulate that there also exists a nonspecific and diffuse threat feeding the need for protection and self-defense—namely, the belief that the world is a dangerous place. Altemeyer (1988) argued that the "Belief in a Dangerous World" (BDW) reflects a "worldview," or a system of beliefs about the nature of the social world, specifically about what people are like. Altemeyer (1988) developed a scale measuring the "Belief in a Dangerous World," ranging from one extreme—the view that the world is inherently dangerous, unpredictable, and threatening—to the opposite extreme—that the world is a secure, stable, and basically safe place. A modified BDW scale was developed by Duckitt (2001); example items include the following: "There are many dangerous people in our society, who will attack someone out of pure meanness, for no reason at all." "Any day now, chaos and anarchy could erupt around us. All signs are pointing to it" (Duckitt, 2001, p. 69).

BDW is closely associated with right-wing authoritarianism, with the idea that "High RWAs are scared. They see the world as a dangerous place, as society teeters on the brink of self-destruction from evil and violence" (Altemeyer, 1988, p. 52). BDW is also correlated with negative attitudes toward minorities (r = .39; Duckitt, 2001), and data from the American Election Study suggest symbolic racism correlates with U.S. Whites having a gun in their homes (O'Brien, Forrest, Lynott, & Daly, 2013), as well as with U.S. Whites' opposition to gun control policies (Filindra & Kaplan, 2016; O'Brien et al., 2013). Thus, the BDW may be a useful indicator of a range of concerns that indirectly link to gun ownership but are not necessarily focused on the fear/perceived risk of attack.

Our threat-construal theory of the need for protection/self-defense postulates that two independent construals of threat—the diffuse BDW and the specific PLRA—independently induce a need for protection/self-defense. The notion that threat can be construed at different levels is consistent with social-cognitive theories on how objects, ideas, or events can be construed either in low-level and specific terms or in abstract and generalized terms (e.g., Trope & Liberman,

2010; Wegner & Vallacher, 1986). One could perceive a specific threat of criminals and violent maniacs, or a generalized threat of a dangerous world and a society at the brink of collapse. Our main objective, in distinguishing levels of threat construal, is to demonstrate how social-psychological theories may be uniquely equipped to show that threat perceptions need not be grounded in objective reality to trigger a need for self-defense—They need only make one feel threatened.

Consequences of a Need for Protection/ Self-Defense: Motivated Reasoning

With regard to connecting American gun ownership to a general motivational theory, beliefs in diffuse and specific threats undermine individuals' need for physical security—which is among the most basic human needs (e.g., Maslow, 1943). In a dangerous world where one's own risk of victimization is perceived to be high, the goal of preventing harm to oneself and one's family may loom large. Under these circumstances, the more individuals value the goal of protection/self-defense, the more they are likely to search for means that are effective for attaining it (Kruglanski et al., 2002). This search may include the acquisition of firearms as well as a desire to maximize their instrumentality.

There are many ways to protect oneself against a possible attack, such as attending a course on self-defense techniques or buying pepper spray. People should only buy a gun if they perceive it as an effective means for self-defense. Given that handguns are generally perceived as the most utilitarian weapon for self-defense (Cook & Ludwig, 1996; Kleck et al., 2011), the need for protection/self-defense should mainly be associated with handgun ownership. Long guns are instead purchased for reasons such as hunting or target/sport shooting.

The type of motivated reasoning we propose is rooted fundamentally in a utility judgment—a desire to maximize the instrumentality of their chosen means of self-defense. Therefore, the need for self-defense is likely to promote not just handgun ownership but also beliefs about how handguns can and should be used by their owners—namely, that gun owners have a right to shoot or kill other people in self-defense and that a well-armed society is a safe society. Given that work on motivated reasoning suggests that people's needs and desires affect their beliefs (Bélanger, Kruglanski, Chen, & Orehek, 2014; Bélanger, Schori-Eyal, Pica, Kruglanski, & Lafrieniere, 2015; Dunning, 1999; Kunda, 1990), we predict that the strength of the need for self-defense could also shift one's reasoning to be more supportive of broad Second Amendment rights—the element of the U.S. Constitution that guarantees a right to bear arms. This could lead many gun owners to take more adversarial positions on gun control laws and oppose restrictive government policies with respect to guns—the reason being that gun control laws may reduce individuals' ability to avail themselves of a means perceived as effective to attainment of the goal of personal security. We further propose that the extent to which the need for protection/self-defense predicts these downstream beliefs about gun use and gun rights will be mediated by perceptions that guns are indeed *effective* means of protection/self-defense. If the need does not relate to perceptions that gun possession has utility for protection/self-defense, the gun owner may not be as motivated to advocate for Second Amendment rights.

These gun-related beliefs are of considerable interest because federal officials (mostly Democrats) started to push gun control legislation after the unconscionable 2012 mass shooting at Sandy Hook Elementary in Newtown, Connecticut, in which 20 young children and six of their caretakers were murdered by a 20-year-old gunman (Crabtree, 2012; Stroebe, 2016). To date, no federal legislation has passed—and gun rights advocates instead maintain that the best means of defense is for more people to be armed and to scrap laws imposing "gun free zones" in places. As the Executive Vice President of the NRA—Wayne LaPierre—argued, after the Sandy Hook shooting, the only thing that stops a bad guy with a gun is a good guy with a gun (Memmott, 2012).[1] In his opinion, shared by many gun owners, it is the *presence* of guns that deters crime and thus gun free zones only attract criminals. We will test whether such advocacy ultimately stems from the pursuit of protection and self-defense and a desire to maximize the perceived utility of guns.

Testing the Two-Component Theory of Defensive Gun Ownership

In the empirical section of our article, we test our proposed model using data from two surveys of male gun owners and nonowners. Study 1 used the survey data to compare gun owners with nonowners to tap possible differences in their gun-related beliefs. Studies 2 and 3 focused exclusively on the gun owner survey to test the predictions derived from our two-component theory. Specifically, Study 2 focused on predictions about gun ownership, whereas Study 3 tested predictions about gun owners' beliefs. Study 4 was a replication of Studies 2 and 3 using new data. New surveys were conducted because a horrific mass shooting happened in Orlando just as we finished collecting data for the initial surveys. We thus sought to assess the potential impact of the mass shooting on gun-related beliefs and evaluate the stability of our model in a replication.

Study 1: Assessing Gun-Related Beliefs of Male Gun Owners and Nonowners

Participants

In total, 839 men in the United States were recruited via the market research firm Qualtrics Panels to complete the study online (May 31-June 11, 2016). We focused on men because they are much more likely to be gun owners than women (Gallup, 2013). Participants were recruited on the basis of gun

ownership (n = 404 gun owners, n = 435 nonowners) and also by region of country, age, education, and income. Regions included Midwest (n = 208), West (n = 118), Northeast (n = 158), and South (n = 355); region did not differ by gun ownership ($F < 1$). Median age category was "35-44," education was "some college," and income was US$35,000 to US$50,000 per year. Education did not differ by gun ownership ($F < 1.8$), but gun owners tended to report slightly higher age and income categories ($F_{age} = 21.95$, $p < .001$, $\eta_p^2 = .026$; $F_{income} = 23.78$, $p < .001$, $\eta_p^2 = .028$).

Among the gun owners, 82.2% (n = 332) owned a handgun and 77.2% (n = 312) owned a long gun. Of the owners of long guns, 82.4% (n = 257) owned a shotgun, 60.6% (n = 189) owned a precision rifle, and 24.7% (n = 77) owned a modern sporting rifle (AR-15 or AK-style, "MSR"). The mean number of guns owned was 4.06 (SD = 4.37; range = 1-30); 25.1% owned one gun, 24.5% owned two guns, and the rest (50.4%) owned three guns or more. Seventeen did not report the number of guns owned.

Procedure

Participants first self-reported their demographics, above, to screen them for gender (males only) and gun ownership ("Do you own a gun?"), and to also ensure a wide range of demographics (based on region, age, education, and income). The informed consent explicitly stated the purpose of this research was to assess beliefs, attitudes, and experiences regarding gun ownership and the use of firearms. To minimize biased language or terminology, the questionnaires were designed with feedback from two professionals in gun sales and manufacturing. Participants then reported their threat-related beliefs and gun ownership in counterbalanced order.

BDW (diffuse threat). To assess participants' belief in a dangerous and threatening social world, we used the 10-item version of Altemeyer's (1988) BDW scale developed by (Duckitt, 2001).[2] Items were rated from 1= *strongly disagree* to 7= *strongly agree* (α = .84).

PLRA (specific threat). To assess participants' perception of their lifetime risk of assault, they were asked, "What do you estimate is the likelihood the following will happen in your lifetime (in your future)?" There were three items: "You will be mugged," "You will be violently attacked," and "Your home will be invaded by an armed burglar" (rated 1= *not likely at all* to 7 = *very likely*, α = .90).

Type of gun owned (defensive gun ownership). Gun owners were asked about the different guns they owned, whereas nonowners were asked which type of gun they would buy if they would ever purchase a gun. Below the question were four labeled images of guns representing our main categories of interest: *Handgun*, *Precision rifle*, *MSR (AR-15, AK-style)*, *Shotgun*; they could also select: *Any other class III/National Firearms Act weapons* and *not applicable/none of the above*.

Main reasons for owning a gun (e.g., need for protection/self-defense; value rating). Gun owners reported the extent to which each of the following was a reason they owned a gun: *Protection/Self-Defense*, *Hunting*, *Target/Sport Shooting*, *Constitutional Right/Second Amendment*, *Collecting Guns/Hobby*, and *Other*. Participants gave their ratings on a scale ranging from 1 (*not important/not applicable*) to 7 (*very important*). The questions were reframed for nonowners to be about the main reasons they might consider buying a gun.[3]

Perceived effectiveness of gun possession (utility judgment). Both gun owners and nonowners were asked, "How effective is gun possession as a means of . . ." and were first presented with our motivation of interest, "Protection and Self-Defense" (rated 1 = *not effective at all* to 7 = *extremely effective*).

Justification to shoot an intruder. Next, we assessed various beliefs about gun rights, starting with justification for when a gun can and should be used. Participants were presented with a vignette to examine in which type of situation they would feel justified to shoot an intruder: "If a person encounters an intruder, in his home, in the middle of the night, how justified is it for him to . . ." and on separate screens, participants rated the justification of five actions ". . .fire a warning shot to scare off the intruder"; ". . . shoot and wound the intruder"; ". . . shoot and kill the intruder"; ". . . shoot the intruder, even if the intruder is already trying to flee the home"; and ". . . shoot the intruder, even if the homeowner is otherwise alone and can get out safely" (rated 1 = *not at all justified* to 7 = *totally justified*, α = .84). The last two items represent a belief one does not have a duty to avoid violence (retreat) if assaulted in one's home—a key feature of "Stand your Ground" and "Castle" laws (also referred to as "Make my day law").

Right to kill. The next set of questions focused directly on situations in which participants felt that a man has the right to kill another person: "A man has a right to kill another man in a case of self-defense," "A man has a right to kill a person to defend his family," and "A man has a right to kill a person to defend his home" (rated 1 = *strongly disagree* to 7 = *strongly agree*, α = .74; Cohen & Nisbett, 1994).

Gun rights advocacy. Five items assessed support for a well-armed citizenry free from government regulation. The first three items assessed opposition to various forms of governmental gun control that were under national debate at the time this study was conducted: "In general, do you believe the laws covering the sale of firearms should be made more strict, less strict, or kept as they are now?" (rated 1 = *much less strict* to 7 = *much more strict*, [reverse-coded]); "Do you

support or oppose some kind of registry of all guns, at least at the state government level?" (rated 1 = *strongly oppose a gun registry* to 7 = *strongly support a gun registry*, [reverse-coded]); "Do you support or oppose laws that create 'gun free zones' at schools and other public places?" (rated 1 = *strongly oppose "gun free zones"* to 7 = *strongly support "gun free zones,"* [reverse-coded]). The next two items assessed a belief that mass gun ownership promotes order in society, "In general, if more people had guns, there would be less crime," and an adversarial view of the current federal government, "In general, the federal government wants to take people's guns away" (rated 1 = *strongly disagree* to 7 = *strongly agree*, $\alpha = .70$).

Experience with victimization. We included additional measures to provide discriminant validity for the specific and perceived risk—namely, PLRA may be more associated with actual incidents of victimization, whereas the diffuse risk (BDW) may not be. Participants completed a series of questions related to their personal experience with guns and crime, including whether they knew a specific instance in which someone close to them was the victim of violent crime (coded 1 if they selected "family member," "close friend," "neighbor," "someone else close [text-entry option]," or coded 0 for "no" or "not sure"). Each participant also answered whether he had ever been a victim of a violent crime himself (coded 1 for "yes" and 0 for "no").

Political orientation. Participants also reported their political orientation (rated 1 = *extremely conservative* to 9 = *extremely liberal*), and whether they identify with any particular political party (coded 1 for *Republican*, *Libertarian*, or if they gave a text entry of any other pro-Second Amendment party, for example, *Constitutionalist*, and 0 for other types of party identification, for example, *Democrat*, *Socialist*, *No*).

Preliminary Analyses—Effects of Questionnaire Order

We had counterbalanced the gun ownership and perceived threat questionnaires, and initial one-way ANOVAs indicated small but significant main effects of questionnaire order on both BDW, $F(1, 837) = 5.23$, $p = .022$, $\eta_p^2 = .006$, and PLRA, $F(1, 837) = 9.04$, $p = .003$, $\eta_p^2 = .011$. Irrespective of gun ownership, merely asking about gun ownership before asking about threats slightly increased BDW ($M = 4.38$, $SD = 1.14$ vs. $M = 4.21$, $SD = 1.08$) and PLRA ($M = 3.60$, $SD = 1.53$ vs. $M = 3.28$, $SD = 1.59$). There were no main effects of order on any of the other variables (Fs < 3.3, ps ≥ .07). Apparently, simply asking questions about personal gun ownership increased subsequent perceptions of specific as well as diffuse threat.

We also tested for interactions between questionnaire order and gun ownership. Separate 2 × 2 ANOVAs on each variable, in a 2 (gun owner vs. nonowner) × 2 (questionnaire order) design, yielded only one interaction on the variable Gun Rights Advocacy, $F(1, 835) = 5.00$, $p = .026$, $\eta_p^2 = .006$; this interaction was above and beyond the main effect of gun ownership, $F(1, 835) = 53.76$, $p < .001$, $\eta_p^2 = .060$. The interaction was driven by a slight widening of the main effect of gun ownership on Gun Rights Advocacy when participants were asked about gun ownership first ($M_{\text{gun owner}} = 4.01$, $SD = 1.28$ vs. $M_{\text{nonowner}} = 3.12$, $SD = 1.33$), as opposed to when asked about threat first ($M_{\text{gun owner}} = 3.79$, $SD = 1.40$ vs. $M_{\text{nonowner}} = 3.32$, $SD = 1.39$).

Main Analysis and Discussion

Study 1 compared gun owners and nonowners on our survey questions to assess the extent to which the two groups differ. Table 1 presents the means of the responses of these two groups and whether the differences are significant. Except for political orientation (i.e., self-ratings on the conservative–liberal dimension) and firing a warning shot to scare off an intruder, all differences are highly significant. Gun owners perceive more threats than nonowners: They report higher BDW and PLRA. They also report protection/self-defense as a stronger reason for gun ownership than nonowners and believe more strongly that gun possession is an effective means of self-defense. They report higher justification to shoot an intruder, higher right to kill, and they advocate greater gun rights in society in general. Gun owners are also more likely to identify with Republican, libertarian, or constitutionalist parties.

A closer look at the data indicated it was specifically *handgun owners* who reported these high levels of self-defense motivation: A one-way ANOVA comparing handgun owners to long gun only owners, as well as nonowners, suggested a significant difference, $F(2, 830) = 30.76$, $p < .001$, $\eta_p^2 = .07$. Handgun owners reported higher *Reason: Protection/Self-Defense,* $M_{(n=332)} = 6.18$ (95% confidence interval [CI] = [5.98, 6.38]), than both the owners of long guns only, $M_{(n=68)} = 4.84$ (95% CI = 4.40, 5.28]), and the nonowners, $M_{(n=433)} = 5.24$ (95% CI = [5.06, 5.41]). The exact same pattern was observed for *Effective: Self-Defense*, ANOVA: $F(2, 833) = 30.95$, $p < .001$, $\eta_p^2 = .07$.

Handguns are the weapons of choice for defensive gun ownership. But how can we explain these differences? Studies 2 and 3 used the survey data to test whether a two-component model of defensive gun use can explain both handgun ownership and gun use in self-defense.

Study 2: Identifying the Motivational Determinants of Gun Ownership

To test our two-component theory of defensive gun ownership, Study 2 focuses exclusively on respondents who owned a gun. To establish whether handguns were in fact

Table 1. Mean Differences by Gun Ownership Status.

Variable	Gun owners *M* (*SD*)	Nonowners *M* (*SD*)	*F* statistic	η_p^2
Belief in a Dangerous World	4.43 (1.07)	4.16 (1.14)	11.73***	.01
Perceived Lifetime Risk of Assault	3.75 (1.58)	3.14 (1.50)	32.41***	.04
Reason for gun ownership				
Protection/self-defense	5.96 (1.67)	5.24 (2.03)	31.29***	.04
Effectiveness of gun possession for				
Protection/self-defense	6.12 (1.26)	5.42 (1.68)	46.40***	.05
Justified to shoot an intruder (five items)	5.12 (1.51)	4.49 (1.57)	34.89***	.04
. . . Fire a warning shot	6.07 (1.68)	5.96 (1.61)	1.08 (*ns*)	.00
. . . Shoot and wound the intruder	5.82 (1.68)	5.34 (1.82)	15.98***	.02
. . . Shoot and kill the intruder	5.30 (1.95)	4.33 (2.18)	45.49***	.05
. . . Shoot even a fleeing intruder	3.71 (2.23)	3.06 (2.05)	19.21***	.02
. . . Shoot even if one can escape	4.71 (2.14)	3.78 (2.15)	39.63***	.05
Right to kill (three items)	6.07 (1.12)	5.32 (1.56)	63.19***	.07
A man has a right to kill another man in a case of self-defense	6.11 (1.29)	5.36 (1.76)	49.12***	.06
A man has a right to kill a person to defend his family	6.43 (1.05)	5.77 (1.60)	49.19***	.06
A man has a right to kill a person to defend his home	5.66 (1.66)	4.83 (1.93)	44.92***	.05
Gun rights advocacy (five items)	3.89 (1.35)	3.21 (1.36)	52.67***	.06
Agree more guns leads to less crime	4.59 (1.96)	3.46 (2.00)	67.68***	.08
Agree government wants to take guns	4.57 (2.09)	3.86 (2.12)	23.60***	.03
Support stricter laws on gun sales (r)	4.67 (1.54)	4.89 (1.59)	4.00*	.01
Support state or federal gun registry (r)	4.47 (2.16)	5.23 (1.88)	29.65***	.03
Support presence of "gun free zones" (r)	4.55 (2.13)	5.14 (2.03)	16.75***	.02
Political orientation (→ liberal)	4.60 (2.25)	4.70 (2.16)	0.43 (*ns*)	.00
Right Political Party ID (e.g., Republican, libertarian)	40.3%	27.1%	Wald: 16.27***	Exp(*B*): 1.35

Note. Results were unchanged when controlling for demographic variables. (r) = reverse-coded item.
*$p < .05$. **$p < .01$. ***$p < .001$.

bought mainly for protection/self-defense, survey respondents were asked to indicate the main reasons for owning a gun. Although most gun owners owned several guns (M = 4.06, SD = 4.37), we had asked for the main reasons they owned a gun and were offered five alternatives (*Protection/Self-Defense*, *Hunting*, *Target/Sport Shooting*, *Constitutional Right/Second Amendment*, and *Collecting Guns/Hobby*). We expected handgun owners in particular to report higher Protection/Self-Defense motivation. A comparison of the small group of gun owners, who either owned *only* a handgun or *only* a long gun, supports this assumption: Fully 45.6% of "long gun only" owners gave their highest rating to something other than *Reason: Protection/Self-Defense*, but only 12.4% of handgun owners did the same. This pattern was also supported in a multiple regression analysis on all gun owners, showing that, when simultaneously regressing ownership of all four types of guns (handgun, shotgun, precision rifle, MSR; ownership coded 1 = "yes" and 0 = "no"), over *Protection/Self-Defense*, only handguns were positively associated with defensive gun ownership, B = 1.25 [95% CI = 0.83, 1.67], $t(398) = 5.88$, $p < .001$. Thus, as expected, handgun ownership was mainly associated with self-defense. This was less the case for long gun ownership.

Main Analysis

We then tested the first part of our two-component theory of defensive gun ownership. We conducted a path analysis with structural equation modeling (SEM) using Mplus software (Muthén & Muthén, 1998-2011). The covariance matrix for the SEM was based on 399 gun owners (n = 5 had missing data); bivariate correlations are in Table 2. We used maximum likelihood parameter estimates with a Satorra–Bentler correction to address nonnormality in the data (MLM scaling correction factor = 1.05). The model provided close approximate fit to the data: comparative fit index (CFI) = 1.00/Tucker–Lewis index (TLI) = 1.03; root mean square error of approximation (RMSEA) = 0.00 (95% CI = [0.00, 0.05]); standardized root mean square residual (SRMR) = 0.02; $\chi^2(5) = 3.03$, $p = .70$ (see Hoyle, 1995; Kline, 2005).

Figure 1 shows the standardized path coefficients for our model. In line with predictions, the paths of BDW and PLRA to need for protection/self-defense (Reason: Protection/Self-defense) were significant, with the link from BDW being stronger than the link from PLRA. Notably, the indirect path from BDW → *Protection/Self-Defense* → handgun ownership was not only significant, b = 0.08, SE = .03, p = .002, but also larger than the indirect path for PLRA, b = 0.04, SE =

Table 2. Correlations Between Type of Gun Owned and Reasons for Gun Ownership.

Variable	1	2	3	4	5
1. Belief in a Dangerous World (BDW)	—				
2. Perceived Lifetime Risk of Assault Perceived (PLRA)	.45***	—			
3. Reason: Protection/self-defense	.32***	.25***	—		
4. Reason: Hunting	.07	.07	−.03	—	
5. Handgun ownership	.10*	.13*	.29***	−.07	—
6. Long gun ownership	−.02	−.02	−.10*	.42***	−.21***

*$p < .05$. **$p < .01$. ***$p < .001$.

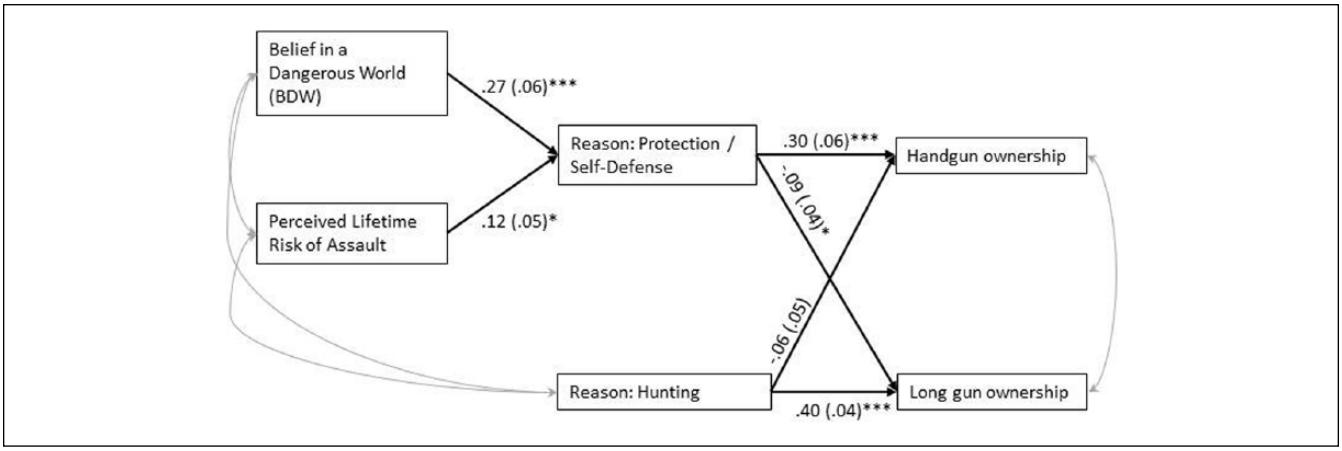


Figure 1. Study 2: Path diagram for *gun ownership* model.
Note. Values are standardized coefficients (and standard errors in parentheses). Gray lines are covariances (automatically generated in Mplus).
*$p < .05$. **$p < .01$. ***$p < .001$.

.02, $p = .024$. There was no reliable path from self-defense to long gun ownership. Long gun ownership was instead predicted by *Hunting*. This supports the antecedent *threat construal* part of our two-component theory of gun ownership.

Note that we also tried other models: Adding *Target/Sport Shooting* did not predict handgun or long gun ownership when *Protection/Self-Defense* and *Hunting* were already included in the model. We also explored *Effectiveness: Self-Defense* as a mediator in the gun owner model, but including it worsened model fit: CFI = 0.94/TLI = 0.90; RMSEA = 0.07 (95% CI = [0.04, 0.10]); SRMR: 0.05; $\chi^2(10) = 26.77$, $p < .001$; though, there were still indirect paths from handgun ownership to BDW, $b = 0.04$, $SE = .01$, $p = .008$, and handgun ownership to PLRA, $b = 0.02$, $SE = .01$, $p = .044$.

Discriminant Validity Analyses

The two types of threat (BDW and PLRA) were only moderately correlated ($r = .45$, $p < .001$), but we nevertheless conducted discriminant validity analyses to ensure that PLRA and BDW indeed represent independent types of threat. We specifically assessed whether the better predictor of PLRA was a *specific* experience with victimization and whether the better predictor of BDW was a general worldview. We thus regressed BDW on the variables *political orientation*—rated on a 9-point scale from *conservative* to *liberal*, and their personal experience with victimization—namely, whether they personally *know a victim* of a violent crime or whether they had ever *been a victim* of a violent crime (note that 59.2% of gun owners reported knowing a victim and 22.8% reported having been a victim). First, we regressed BDW on *political orientation*, *know a victim*, and *been a victim*. Results indicated that *political orientation* was the strongest predictor of BDW, $B = -0.10$ (95% CI = [−0.15, −0.06]), $t(398) = -5.43$, $p < .001$. Politically conservative gun owners reported higher BDW. Although *know a victim* and having *been a victim* also predicted BDW—knowing a victim: $B = 0.24$ (95% CI = [0.02, 0.46]), $t(398) = 2.11$, $p = .035$; been a victim: $B = 0.13$ (95% CI = [0.002, 0.26]), $t(398) = 1.99$, $p = .047$—hierarchical regression indicated *know a victim* and *been a victim* explained only a combined 2.2% of variance in BDW, $\Delta F(2, 399) = 4.51$, $p = .012$, whereas political orientation explained a further 4.6%, $\Delta F(1, 399) = 19.60$, $p < .001$. Next, we regressed PLRA on *political orientation*, *know a victim*, and *been a victim*, and found only the victimization items to be significant predictors—know a victim: $B = 0.52$ (95% CI = [0.19, 0.85]), $t(398) = 3.10$, $p = .002$; been a victim: $B = 0.24$ (95% CI = [0.05, 0.43]), $t(398) = 1.99$, $p = .015$. In a hierarchical

regression, the victimization items accounted for a combined 6% of the variance in PLRA, $\Delta F(2, 399) = 12.79$, $p < .001$, whereas *political orientation* did not predict a significant amount of variance ($\Delta R^2 = .005$, $\Delta F = 2.07$, $p = .151$). In line with our assumptions, the better predictor of PLRA was a *specific* experience with victimization; in turn, the better predictor of BDW was the person's general political orientation.

Discussion

The reasons given for gun ownership were consistent with expectations. Although some long gun owners also gave self-defense as a main reason for owning a gun, only handguns were positively associated with defensive gun ownership when simultaneously regressing ownership of all four types of guns over *Protection/Self-Defense*. That nearly all gun owners own several guns is consistent with the fact that although there are enough guns to arm every American, only 30% of Americans actually report owning a gun (Gallup, 2014).

The path analysis supports our reasoning for the antecedent *threat-construal* component of our two-component theory. The need for protection/self-defense is driven by two kinds of perceived threats: one diffuse and abstract (BDW), the other specific and concrete (PLRA). The diffuse threat derives from the belief that the world is a dangerous and unstable place, populated by bad people, and that society is at the brink of collapse. The specific threat is reflected by people's estimate of their risk of becoming the victim of some kind of violent assault during their lifetime. We also observed that BDW and PLRA are independent: PLRA was more strongly associated with knowing or having been the victim of violent crime, whereas BDW was more strongly associated with political conservatism. It is worth noting that experience with victimization explained only 6% of the variance in PLRA, which suggests that even perceived risk might stem from sources other than direct personal experience. Mass media are likely to have a powerful impact in shaping people's worldviews. Exposure to stories involving deceit, crime, and violence might foster learning that the world is a hostile, mean, and violent place (Saleem & Anderson, 2012). There is also evidence that frequent exposure to television news, particularly local news, is associated with an increased perception of crime risks on both personal and societal levels (Romer, Hall Jamieson, & Aday, 2003).

Our path analysis indicated BDW was the stronger predictor of need for protection/self-defense. This could make it difficult to conduct persuasion campaigns aimed at dissuading handgun owners of the need to own a gun for self-defense. There are strong arguments to be made that for most people, guns are neither needed for self-defense nor very useful when the need arises. If the need for protection/self-defense had mainly been driven by specific risk perception, persuasion campaigns could be aimed at reducing the perceived risk. In contrast, the BDW is a broader system of beliefs about the nature of the social world and what people are like. Such worldviews are extremely difficult to influence because they are based on childhood socialization (Altemeyer, 1988; Duckitt, 2001). Worldviews are also coherent belief systems—so changing any one specific belief would make it inconsistent with many other beliefs (Kruglanski & Stroebe, 2005).

That the need for protection/self-defense predicts only handgun ownership and not long gun ownership is to be expected, but it nevertheless provides several advances for understanding the motivational bases of gun ownership. First, this possibility is often overlooked: As Kleck and colleagues (2011) argued, the failure of many studies to observe a link between gun ownership and fear of crime or perceived risk of victimization could be due to such studies trying to connect this fear to gun ownership generally and not ownership of a handgun in particular. Second, our threat-construal theory further suggests that fear of crime should not simply be assessed by the specific threat of becoming the victim of violent crime but also by tapping the diffuse threat that the world is a dangerous place. That said, it is worth noting that our threat-construal theory may still not capture the full range of perceived threats: The correlations between BDW and PLRA and Protection/Self-Defense, though significant, are only small to medium (see Table 3; J. Cohen, 1977). This suggests that there must be other threats, not assessed in our study, that make people feel they need to own a gun for self-defense.

Could protection/self-defense just be a pretense? We considered the possibility that men did not want to admit that the real reason they bought a gun was that owning a gun made them feel powerful. We did ask our respondents how effective gun ownership was as a means of empowerment—but the correlation of this variable with handgun ownership was not significant: $r_{(n=404)} = .032$, $p = .520$. Subsequent research should use more subtle measures to probe more thoroughly the relation between the sense of empowerment and gun ownership.

Study 3: Need for Protection/Self-Defense and Motivated Reasoning

Next we tested how the need for protection/self-defense could extend beyond handgun ownership to affect beliefs about how they can and should be used. Based on data from the original survey of gun owners, we examined whether the strength of handgun owners' need for protection/self-defense motivates the type of reasoning that justifies shooting and killing another person and for having broad rights to acquire and carry guns. More specifically, given that handgun ownership is itself only a means to an end, we consider whether gun rights advocacy is itself motivated by a utility judgment regarding the effectiveness of guns for satisfying one's goal of security. Handgun owners have chosen gun ownership as a means of attaining security, but they may nevertheless differ in perceptions of utility—that is, whether they believe that guns are actually effective means of

Table 3. Correlations Between Handgun Owners' Beliefs About Gun Use and Ownership.

Variable	1	2	3	4	5	6
1. Belief in a Dangerous World (BDW)	—					
2. Perceived Lifetime Risk of Assault (PLRA)	.43***	—				
3. Reason: Protection/self-defense	.27***	.26***	—			
4. Effectiveness: Protection and self-defense	.25***	.21**	.53***	—		
5. Justify shoot	.13*	.13*	.28***	.34***	—	
6. Right to kill	.20***	.15**	.27***	.42***	.63***	—
7. Gun rights advocacy	.13*	−.02	.10	.33***	.18***	.29***

*$p < .05$. **$p < .01$. ***$p < .001$.

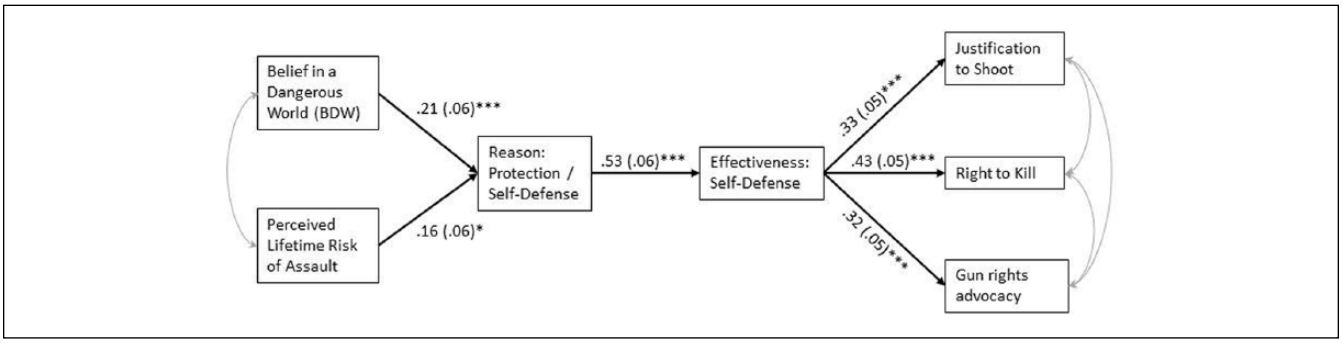


Figure 2. Study 3: Path diagram for the *motivated reasoning* model.
Note. Values are standardized coefficients (and standard errors in parentheses). Gray lines are covariances automatically generated in Mplus.
*$p < .05$. **$p < .01$. ***$p < .001$.

protection/self-defense. Based on classic expectancy-value theory (e.g., Feather, 1982), values and expectations combine to predict behavioral tendencies. We thus tested whether the relationship between need for protection/self-defense and gun rights beliefs is mediated by the extent to which gun owners perceive guns as *effective* means of protection/self-defense. If the need does not relate to perceptions of utility, the person might only nominally own guns for protection/self-defense and may not be especially motivated to advocate for broad rights to carry and use them.

Given that the need for protection/self-defense predicted only handgun, but not long gun ownership, the present study focused on the 330 handgun owners from the survey (n = 2 had missing data). The study focused on three dependent measures, namely, (a) the handgun owners' responses to the questions about how to deal with an intruder, (b) the type of situation that would give a man the right to kill another person, and (c) the individual's advocacy of societal rights to gun ownership and use. The mean responses to the five intruder questions were used for the "Justification to shoot" dependent measure. Similarly, the mean responses to the three right to kill items constituted the "Right to kill" dependent measure and the mean responses to the five gun advocacy beliefs represented the "Gun rights advocacy" measure. Bivariate correlations are in Table 3.

Main Analysis and Discussion

The SEM path analysis used maximum likelihood parameter estimates with a Satorra–Bentler correction (MLM scaling correction factor = 1.12). The model provided reasonable fit to the data: CFI = 0.96/TLI: 0.92; RMSEA: 0.06 (95% CI = [0.03, 0.10]); SRMR: 0.06; $\chi^2(11) = 21.15$, $p = .007$. All indirect paths—from BDW to *Reason: Protection/Self-Defense*, to *Effectiveness: Protection and Self-Defense*, to the dependent variables—were significant: "Justification to shoot," $b = 0.04$, $SE = .01$, $p = .009$; "Right to kill," $b = 0.05$, $SE = .02$, $p = .007$; and "Gun rights advocacy," $b = 0.04$, $SE = .01$, $p = .006$. All the indirect paths of PLRA were also significant: "Justification to shoot," $b = 0.03$, $SE = .01$, $p = .032$; "Right to kill," $b = 0.04$, $SE = .02$, $p = .027$; and "Gun rights advocacy," $b = 0.03$, $SE = .01$, $p = .028$.

Figure 2 presents the motivated reasoning model for handgun owners. Consistent with our expectation based on expectancy-value theory (e.g., Feather, 1982), the same variables that predicted handgun ownership also predict justification to shoot and right to kill. In this model, effectiveness of self-defense mediated the link between need for protection/self-defense and the dependent variable. It is possible that the instrumentality of handguns, as a means for self-defense, becomes more salient when gun owners are asked about their gun use in self-defense situations. In line with our

predictions, handgun owners, who perceived a greater threat (BDW, PLRA), not only felt a greater need for protection and self-defense but also saw guns as a more effective means of self-defense. The perceived effectiveness of guns as a means for self-defense was positively associated with justification to shoot intruders, the perceived right to kill in self-defense or defense of home and family, and gun rights advocacy. All the indirect paths were significant, from both BDW and PLRA to the various dependent measures. Thus, the factors that motivate individuals to buy a handgun are also positively associated with more extreme behavior in dealing with intruders and more extreme beliefs in the justification for killing another person.

Study 4: Assessing the Impact of the Orlando Mass Shooting on Gun Owners' Beliefs

Studies 1 to 3 outline our two-component theory of defensive gun ownership; in Study 4, we test our theory with new data in the context of a major mass shooting. The survey data for the initial studies were collected from May 30 to June 11, 2016. There was no data collection on June 12—the date of the horrific mass shooting at the Pulse nightclub in Orlando, Florida. As reported by the *New York Times* on June 12,

> It was the worst act of terrorism on American soil since Sept. 11, 2001, and the deadliest attack on a gay target in the nation's history . . . The toll of 50 dead is larger than the number of murders in Orlando over the previous three years. Of an estimated 320 people in the club, nearly one-third were shot. The casualties far exceeded those in the 2007 shooting at Virginia Tech, where 32 people were killed, and the 2012 shooting at an elementary school in Newtown, Conn., where 26 people died. (Alvarez & Pérez-Pena, 2016)

Given that there is usually a spike in background checks for gun sales after mass shootings (e.g., Crockett, 2016; Rojanasakul & Migliozzi, 2016), we wanted to assess whether the Orlando mass shooting was linked to an increase in PLRA or BDW.

We therefore repeated our survey with an independent sample of gun owners. Our aims were to examine the impact of the Orlando mass shooting on gun owners' belief systems and to test the stability of our two-component theory of gun ownership by replicating our models in a new sample. The post-Orlando dataset was collected in the days immediately following the Orlando mass shooting (June 13-22). For this sample, the same market research firm recruited 495 male gun owners, in the United States, with no resampling of participants from the pre-Orlando sample. The pre- and post-Orlando samples of gun owners did not differ significantly by demographics (region, age, education, or income, Fs < 1.2).[4]

Main Analyses

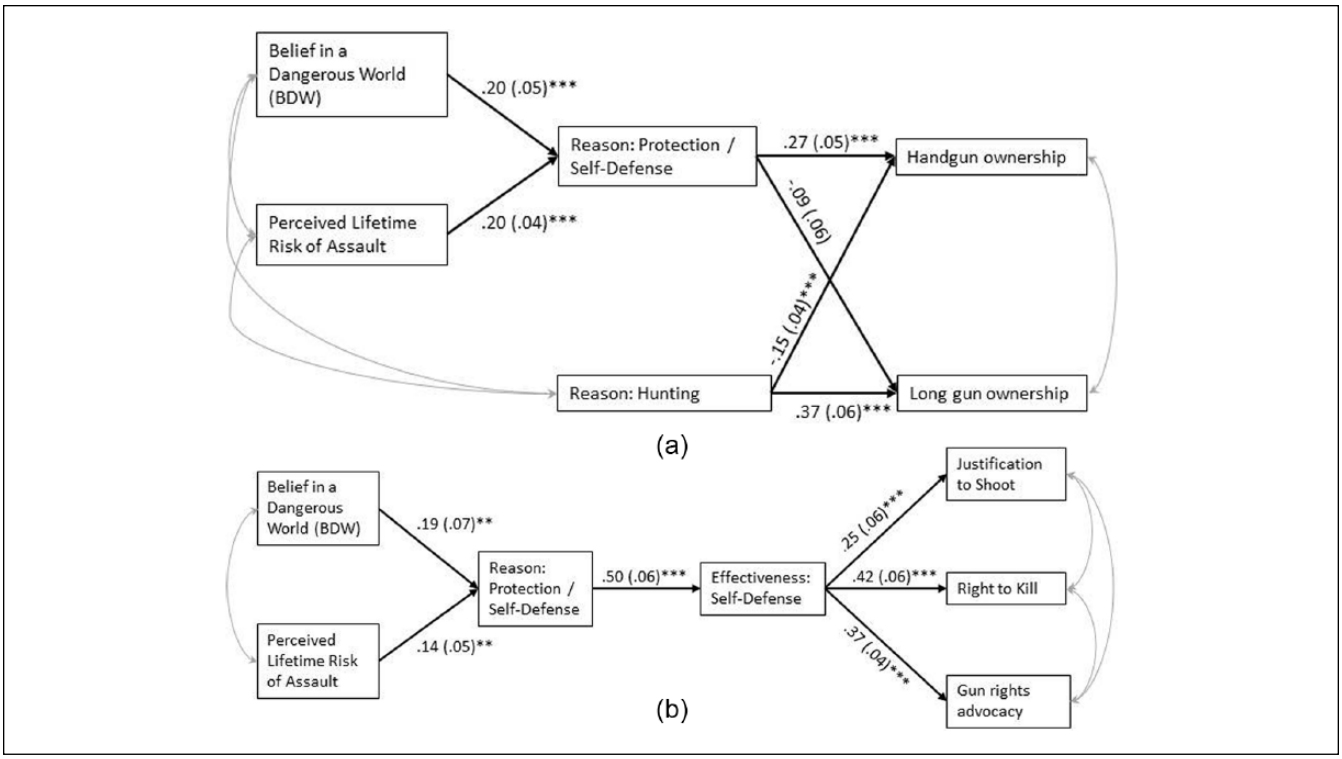
To test the impact of the news of the Orlando mass shooting on any of the threat and gun-related beliefs assessed in our surveys, we first compared the mean responses on the measures of these beliefs between the samples of gun owners assessed pre-Orlando and post-Orlando. With the exception of PLRA, post-Orlando gun owners did not differ on any of the belief dimensions. There were no significant differences for reason and effectiveness of guns for self-defense, justification to shoot and intruder, right to kill, gun rights beliefs, rates of handgun and long gun ownership, or BDW (Fs < 1.85). The negligible tendency to report lower average PLRA, $F(1, 896) = 4.42$, $p = .036$, $\eta_p^2 = .005$, is probably due to the fact that we had added a fourth item, the lifetime risk of "being present during a mass shooting" ($M = 2.70$, $SD = 1.67$) to the post-Orlando survey.

We then applied the SEMs from Studies 2 and 3 to the post-Orlando sample. Fit statistics were quite similar between the pre- and post-Orlando datasets: When the gun ownership model, from Study 2 (pre-Orlando), was applied to the post-Orlando data, it again provided close approximate fit to the data: CFI = 0.98/TLI = 0.96; RMSEA = 0.04 (95% CI = [0.00, 0.08]); SRMR = 0.03; $\chi^2(5) = 8.12$, $p = .15$; scaling correction factor = 1.32. Accordingly, when the motivated reasoning model, from Study 3 (pre-Orlando), was applied to the data of the handgun owners from the post-Orlando sample, it also provided reasonable fit to the data: CFI = 0.96/TLI = 0.93; RMSEA = 0.05 (95% CI = [0.02, 0.08]); SRMR: 0.06; $\chi^2(11) = 23.42$, $p = .015$; scaling correction factor = 1.23.

As illustrated in Figure 3, the most striking feature of the post-Orlando data is their similarity to the pre-Orlando data: The paths for the motivated reasoning model were basically unchanged; the paths for the ownership model suggested only slight strengthening between handgun ownership and *Hunting* (from $b = -0.06$ to $b = -0.15$) and between *Lifetime Risk of Assault* and *Protection/Self-Defense* (from $b = 0.12$ to $b = 0.20$). We also replicated the observation, from the pre-Orlando gun ownership model, that when we try to include *Effectiveness: Self-Defense* as a mediator in the post-Orlando gun ownership model, it only reduced model fit: CFI = 0.91/TLI = 0.83; RMSEA = 0.08 (95% CI= [0.06, 0.11]); SRMR: 0.06; $\chi^2(5) = 41.71$, $p < .001$. Altogether, in the days immediately following the mass shooting, gun owners showed no meaningful changes in defensive gun ownership tendencies, and our two-component model remained stable for both gun ownership and motivated reasoning.

Discussion

Although our post-Orlando survey was conducted in the aftermath of the deadliest mass shooting by a lone gunman to date, defensive gun ownership or gun use beliefs were virtually unaffected by it. The mass shooting did not affect gun owners' beliefs in the effectiveness of guns for



Figures 3. Post-Orlando (a) gun ownership and (b) motivated reasoning models.
Note. Values are standardized coefficients (and standard errors in parentheses). Gray lines are covariances automatically generated in Mplus.
*$p < .05$. **$p < .01$. ***$p < .001$.

protection/self-defense, nor did it change their scores on the BDW; it left hardly any impact on the PLRA and did not appear to change their belief that there would be less crime if more people had guns. Despite the apparent lack of any direct effect of the Orlando mass shooting on defensive gun ownership, this study achieved another important goal—namely, to demonstrate that our models could be replicated in a second independent sample. The fit of our models was virtually unchanged pre- and post-Orlando.

General Discussion

Why do millions of Americans feel the need to own a gun to defend themselves and their families? There does not appear to be a great deal of evidence that gun ownership corresponds with objective risk of victimization. To illustrate this point, our article began with an interview with a citizen of Wickenburg—one of the safest small towns in Arizona—who carries a gun every day to defend himself and his family. Given that Wickenburg had only one case of murder between 2007 and 2012 (Criminal Records Database, 2016), the citizen's motivation for carrying a gun may not be rooted purely in an objective risk of attack but also perceived risk.

In developing a psychological model of defensive gun ownership, we acknowledge that threat of crime—or more specifically the perceived risk of becoming the victim of violent crime—is indeed one of the factors that motivate people to own a handgun. Beyond this, however, there is also a diffuse threat, emanating from the belief that the world is a dangerous place, that feeds the need for protection/self-defense. Our survey data suggest that these two construal levels of threat independently induce a goal to attain security, which motivates individuals to buy a handgun, but not a long gun, due to their utility as defensive weapons. We further observed that, to the extent gun owners perceive their guns as instrumental for self-defense, the same factors would motivate gun owners to maximize the instrumentality of their chosen means of self-defense through advocating for broad freedoms to use and carry them.

We compared the gun-related belief systems of gun owners to that of nonowners and observed it was specifically handgun owners who perceived more threat than nonowners. Handgun owners reported higher PLRA and higher BDW than both nonowners and owners of long guns only; these perceived threats ultimately motivate handgun owners to maximize the instrumentality of their guns by advocating for broader gun rights.

We tested our gun ownership and motivated reasoning models with two independent samples of gun owners, one interviewed before the Orlando mass shooting and one immediately afterward. Model fit was good for both samples, suggesting strong support for the validity of our two-component theory. Altogether, we observed little impact of the Orlando mass shooting on gun owners' belief systems. This could be a reflection of how belief systems anchored in basic

motivations (like the need for physical safety) are hard to change, even in the face of new information. However, it could also suggest gun owners had already accounted for the risk of mass shootings before Orlando. Although mass shootings are increasing in frequency—and this may imply that we live in dangerous times—it does not necessarily imply that our personal risk of victimization has substantially increased. Statistically, mass shootings are rare, and the likelihood to be present during such an attack is minimal. Less than 1% of gun deaths are from mass shootings. In 2013, there were 30 mass shootings, killing 137 victims (Welch & Hoyer, 2013). In the same year, 505 people died due to accidental discharge of a firearm, 11,208 due to gun homicides, and 21,175 due to gun suicides (GunPolicy.org, 2016).

Finally, consider that our research was conducted in the specific context of American culture wherein beliefs in the primary role of guns for protection are deeply entrenched and enshrined in the U.S. Constitution. It is possible that in other cultural contexts wherein guns occupy a less prominent place, beliefs that the world is dangerous and that one's personal risk of assault is high would not translate into gun ownership and gun supportive beliefs. Even within the United States, people may differ in their exposure to media violence that shapes perceptions of both specific and general threats as well as perceptions that guns are an effective and appropriate means of defense against such threats.

To summarize, the world may be a dangerous place, but based on our review of studies, there is reason to doubt that gun ownership can be predicted purely by an individual's objective risk of assault. Our data suggest handgun ownership and advocacy is, at least in part, a psychological phenomenon. Gun ownership is predicted by various levels of *perceived* risk—including a diffuse BDW, which is not tied to any single objective risk in particular. To the best of our knowledge, this study is the first to show how social-cognitive theories—in this case, different levels of threat construal and matters of perceived utility—offer useful insight into what motivates Americans to own handguns and advocate for broad rights to carry and use them.

Authors' Note

All authors contributed equally to this manuscript.

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Notes

1. This quote is a motto among many Second Amendment advocates.
2. The gun industry experts advising us on the study recommended we avoid use of the term "anarchy," in Item 2 of the "Belief in a Dangerous World" (BDW) scale, so we replaced it with "lawlessness." They also recommended use of the term "Modern Sporting Rifle" (MSR) in place of "assault rifle."
3. Participants then completed a cognitive task lasting about 5 min, wherein we manipulated its difficulty and subsequently measured state affect (anxious, hostile, and quiescent affect). This manipulation had main effects on the affect measures in the expected directions (Fs > 23.28, ps < .001), but no main effects on our variables of interest (Fs < 3.6, ps > .05).
4. In all, n = 45 completed the original survey and n = 450 completed a new version of the survey with extra questions about the mass shooting. The second survey also included one additional screening question, when assessing demographics at the beginning, designed to exclude any potential participants who were unaware the Orlando mass shooting had even occurred.

Supplemental Material

The supplemental material is available on the PSPB website.

References

Achenbach, J. (2016, June 17). How to improve your chances to survive a mass shooting like Orlando. *The Washington Post*. Retrieved from https://www.washingtonpost.com/news/post-nation/wp/2016/06/17/how-to-survive-an-active-shooting-like-orlando/?utm_term=.f24ea9dfdec9

Altemeyer, B. (1988). *Enemies of freedom: Understanding right-wing authoritarianism*. San Francisco, CA: Jossey-Bass.

Alvareze, L., & Pérez-Pena, R. (2016, June 12). Orlando gunman attacks gay night-club, leaving 50 dead. *The New York Times*. Retrieved from http://www.nytimes.com/2016/06/13/us/orlando-nightclub-shooting.html?_r=0

Bagalman, E., Caldwell, S. W., Finklea, K. M., & McCallion, G. (2013). *Public mass shootings in the United States: Selected implications for federal public health and safety policy* (Congressional Research Service, R43004). Retrieved from https://journalistsresource.org/wp-content/uploads/2013/03/MassShootings_CongResServ.pdf

Bélanger, J. J., Kruglanski, A. W., Chen, X., & Orehek, E. (2014). Bending perception to desire: Effects of task demands, motivation, and cognitive resources. *Motivation and Emotion*, *38*, 802-814. doi:10.1007/s11031-014-9436-z

Bélanger, J. J., Schori-Eyal, N., Pica, G., Kruglanski, A. W., & Lafrieniere, M.-A. (2015). The "more is less" effect in equifinal structures: Alternative means reduce the intensity and quality of motivation. *Journal of Experimental Social Psychology*, *60*, 93-102. doi:10.1016/j.jesp.2015.05.005

Blair, J. P., Nichols, T., Burns, D., & Curnutt, J. R. (2013). *Active shooter events and response*. Boca Raton, FL: CBC Press.

Cao, L., Cullen, F. T., & Link, B. G. (1997). The social determinants of gun ownership: Self-protection in an urban environment. *Criminology*, *35*, 625-650.

Cohen, A. P., Azrael, D., & Miller, M. (2014, October 15). Rate of mass shootings has tripled since 2011, Harvard research shows. *Mother Jones*. Retrieved from http://www.motherjones.com/politics/2014/10/mass-shootingsincreasing-harvard-research

Cohen, D., & Nisbett, R.E. (1994). Self-protection and the culture of honor: The role of institutions in perpetuating norms of violence. *Personality and Social Psychology Bulletin*, *23*, 1188-1199. doi: 10.1177/0146167294205012

Cohen, J. (1977). *Statistical power analysis for the behavioral sciences*. New York, NY: Academic Press.

Cook, P. J., & Ludwig, J. (1996). *Guns in America*. Washington, DC: Police Foundation.

Crabtree, S. (2012, December 19). Biden to head task force on gun violence causes. *The Washington Times*. Retrieved from http://www.washingtontimes.com/news/2012/dec/19/biden-to-head-task-force-on-gun-violence-causes/

Criminal Records Database. (2016). *Wickenburg, Arizona criminal records*. Retrieved from https://www.instantcheckmate.com/criminal-records/Arizona/Wickenburg/

Crockett, Z. (2016). *What happens after mass shooting? American buy more guns*. Retrieved from http://www.vox.com/2016/6/15/11936494/after-mass-shooting-americans-buy-more-gun

DeJong, C. (1997). Differential indicators of defensive weapon ownership: A comparison by gender. *Journal of Criminal Justice*, *25*, 517-525.

Duckitt, J. (2001). A dual-process cognitive-motivational theory of ideology and prejudice. *Advances in Experimental Social Psychology*, *33*, 41-114.

Dunning, D. (1999). A newer look: Motivated social cognition and the schematic representation of social concepts. *Psychological Inquiry*, *10*, 1-11.

Feather, N. T. (Ed.). (1982). *Expectations and actions: Expectancy-value models in psychology*. Hillsdale, NJ: Lawrence Erlbaum.

Federal Bureau of Investigation. (2014). *Uniform crime report: Crime in the United States*. Retrieved from https://ucr.fbi.gov/crime-in-the-u.s/2014/crime-in-the-u.s.-2014/offenses-known-to-law-enforcement/expanded-offense

Filindra, A., & Kaplan, N. J. (2016). Racial resentment and white's gun policy preferences in contemporary America. *Political Behavior*, *38*, 255-275. doi: 10.1007/s11109-015-9326-4

Gallup. (2013). *Men, married, Southerners most likely to be gun owners*. Retrieved from http://www.gallup.com/poll/160223/men-married-southerners-likely-gun-owners.aspx

Gallup. (2014). *Guns: Historical trends*. Retrieved from http://www.gallup.com/poll/1645/guns.aspx

General Social Survey. (2015). *Trends in gun ownership in the United States, 1972-2014* (Final report). Retrieved from http://www.norc.org/PDFs/GSS%20Reports/GSS_Trends%20in%20Gun%20Ownership_US_1972-2014.pdf

GunPolicy.org. (2016). *United States—Gun fact, figures and the law*. Retrieved from http://www.gunpolicy.org/firearms/region/united-states

Hemenway, D., & Solnick, S. J. (2015). The epidemiology of self-defense gun use: Evidence from the National Crime Victimization Surveys 2007–2011. *Preventive Medicine*, *29*, 22-27.

Hoyle, R. H. (Ed.). (1995). *Structural equation modeling: Concepts, issues, and applications*. Thousand Oaks, CA: SAGE.

Hwang, K., & Murphy, K. (2014, August 20). Armed, out and about: Evolving public carry laws expand gun rights. *NBC News*. Retrieved from http://www.nbcnews.com/news/investigations/armed-out-about-evolving-public-carry-laws-expand-gun-rights-n184296

Kleck, G., Kovandzik, T., Saber, M., & Hauser, W. (2011). The effect of perceived risk of victimization on plans to purchase a gun for self-protection. *Journal of Criminal Justice*, *39*, 312-319.

Kline, R. B. (2005). *Principles and practice of structural equation modeling*. New York, NY: Guilford.

Koffka, K. (1935). *Principles of gestalt psychology*. London, England: Routledge.

Koffka, K (1936). London: Routledge and Kegan Paul.

Kruglanski, A. W., Shah, J. Y., Fishbach, A., Friedman, R. S., Chun, W. Y., Sleeth-Keppler, D., & Zanna, M. P. (2002). A theory of goal systems. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 34, pp. 331-378). San Diego, CA: Academic Press.

Kruglanski, A. W. & Stroebe, W. (2005). Attitudes, goals and beliefs: issues of structure, function and dynamics. In D. Aberracin, B. Johnson, & M. P. Zanna (Eds.), *Handbook of attitude research* (pp. 323-368). Mahwah, NJ: Erlbaum.

Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, *108*, 480-498.

Lewin, K. (1917). Die Kriegslandschaft [The war landscape]. *Zeitschrift für Angewandte Psychologie*, *12*, 440-447.

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, *50*, 370-396. doi:10.1037/h0054346

McDowall, D., & Wiersema, B. (1994). The incidence of defensive firearm use by US crime victims, 1987 through 1990. *American Journal of Public Health*, *84*, 1982-1984. doi:10.2105/AJPH.84.12.1982

Memmott, M. (2012, December 21). "Only a good guy with a gun" can stop school shootings, says NRA. *Breaking News From NPR*. Retrieved from http://www.npr.org/blogs/thetwo-way/2012/12/21/167785169/live-blog-nra-news-conference

Muthén, L. K., & Muthén, B. O. (1998-2011). *Mplus user's guide* (6th ed.). Los Angeles, CA: Author.

O'Brien, K., Forrest, W., Lynott, D., & Daly, M. (2013). Racism, gun ownership and gun control: Biased attitudes in US whites may influence policy decisions. *PLoS ONE*, *8*, e77552.

O'Neill, K. L. (2007). Armed citizens and the stories they tell. *Men and Masculinities*, *9*, 457-475. doi:10.1177/1097184X05281390

Pew Research Center. (2014). *The demographics and politics of gun-owning households*. Retrieved from http://www.pewresearch.org/fact-tank/2014/07/15/the-demographics-and-politics-of-gun-owning-households/

Planty, M., & Truman, J. L. (2013). *Firearm violence, 1993–2011* (Special report, NCJ 241730). *U.S. Department of Justice*. Retrieved from http://www.bjs.gov/content/pub/pdf/fv9311.pdf

Rojanasakul, M., & Migliozzi, B. (2016). *After Orlando, gun sales surged*. *Bloomberg News*. Retrieved from https://www.bloomberg.com/graphics/2016-gun-sales/

Romer, D., Hall Jamieson, K., & Aday, S. (2003). Television news and the cultivation of fear of crime. *Journal of Communication*, *53*, 88-104.

Saleem, M., & Anderson, C. A. (2012). The good, the bad, and the ugly of electronic media. In J. Dvoskin, J. L. Skeem, R. W. Novaco, & K. S. Douglas (Eds.), *Using social science to reduce violent offending* (pp. 83-101). New York, NY: Oxford University Press.

Siegel, M., Negussie, Y., Venture, S., Pleskunas, J., Ross, C. S., & King, C. (2014). The relationship between gun ownership and stranger and nonstranger firearm homicide rates in the United States, 1981–2010. *American Journal of Public Health*, *104*, 1912-1919.

Stroebe, W. (2013). Firearm possession and violent death: A critical review. *Aggression and Violent Behavior*, *18*, 209-721.

Stroebe, W. (2016). Firearm availability and violent death: The need for a culture change in attitudes toward guns. *Analyses of Social Issues and Policy*, *16*, 7-35. doi: 10.1111/asap.12100

Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review*, *117*, 440-463.

US Department of Justice (2011). *Homicide rate falls to lowest rate in four decades*. Retrieved from https://www.bjs.gov

ValuePenguin. (2015). *Safest places in Arizona*. Retrieved from http://www.valuepenguin.com/2015-safest-places-arizona

Wegner, D. M., & Vallacher, R. R. (1986). Action identification. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 550-582). New York, NY: Guilford.

Welch, W. M., & Hoyer, M. (2013, December 15). 30 mass killings, 137 victims: A typical year. *USA Today*. Retrieved from http://www.usatoday.com/story/news/nation/2013/12/15/mass-killings-main/3821897/

Williams, J. S., & McGrath, J. H., III (1976). Why people own guns. *Journal of Communication*, *26*, 22-30. doi: 10.1111/j.1460-2466.1976.tb01931.x