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Gun ownership and fear

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A B S T R A C T

Americans can be divided into two groups: those who own guns and those who do not. Although people who own guns and people who do not own guns are often separated along social, cultural, and political lines, it is unclear whether these divisions might extend to population differences in emotional experience. In this paper, we use national cross-sectional data from the 2014 Chapman University Survey on American Fears ($n = 1385$) to test whether gun owners are more or less afraid than people who do not own guns. We build on previous work by testing two hypotheses with a broad range of fear-related outcomes, including specific phobias and fears associated with being victimized. The *symptom perspective* argues that gun ownership is a behavioral expression of fear, that gun owners need guns to protect themselves because they are irrational cowards. Although binary logistic regression models provided minimal support for this idea, there was some evidence to suggest that the odds of gun ownership are *higher* for people who report being afraid of being victimized by a random/mass shooting. The *palliative perspective* claims that gun ownership mitigates fear, that owning a powerful weapon is somehow soothing to individuals and their families. Ordinary least squares and negative binomial regression models suggest that people who own guns tend to report lower levels of phobias and victimization fears than people who do not own guns. This general pattern is observed across multiple indicators of fear (e.g., of animals, heights, zombies, and muggings), multiple outcome specifications (continuous and count), and with adjustments for age, gender, race/ethnicity, education, household income, marital status, the presence of children, religious identity, religiosity, religious attendance, political orientation, region of residence, and urban residence. Additional longitudinal research is needed to confirm our findings with a wider range of covariates and fear-related outcomes.

Introduction

Americans can be divided into two groups: those who own guns and those who do not. Many people who own guns adhere to a culture that is supported by the National Rifle Association (NRA), the Republican Party, and the United States Constitution. Many people who do not own guns follow a culture that is driven by social organizations such as Everytown for Gun Safety, social movements like #NeverAgain, and the Democratic Party. Those who own guns often fight for gun rights and pit “honest, God-fearing Americans” against the “godless left” (Heston, 1999; Loesch, 2015). Those who do not own guns frequently struggle for new gun control laws and set “sick fuckers” and “shitty people” against “student survivors” and “the American public” (Howe, 2018; Zornick, 2018).

While the substance of policy rhetoric suggests that people who own guns and people who do not own guns can be separated along social, cultural, and political lines, its harsh tone suggests that these divisions might also extend to our emotional lives. In their book, *The Sociology of Emotions*, Turner and Stets (2005) explain that primary emotions like fear, anger, happiness, and sadness are fundamentally embedded in our “complex sociocultural structures.” For this reason, they argue that “emotions pervade virtually every aspect of human experience and all

social relations” (Turner & Stets, 2005, p. 1).

In this paper, we examine the link between gun ownership and fear. We ask whether gun owners are more or less afraid than people who do not own guns. Although several studies have considered the seemingly bidirectional association between gun ownership and the experience of fear (Clotfelter, 1981; DeFronzo, 1979; Hauser & Kleck, 2013; Kleck, Kovandzic, Saber, & Hauser, 2011; Lizotte & Bordua, 1980; Steidley & Kosla, 2018; Stroebel, Leander, & Kruglanski, 2017; Stroud, 2012; Warr & Ellison, 2000), this body of research has focused primarily on fear of victimization. We build on previous work by using national survey data to test two hypotheses with a broad range of fear-related outcomes, including previously unexplored specific phobias (e.g., fear of animals and strangers) and more commonly studied fears associated with being victimized (e.g., fear of being mugged and murdered). In the pages that follow, we develop the theoretical perspectives that drive our analyses. After describing our data, measures, and statistical procedures, we summarize our key results. We conclude with a discussion of our limitations and contributions.

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Two theoretical perspectives

Guns are symptoms

Our review of the literature revealed two perspectives on the association between gun ownership and fear. The *symptom perspective* argues that gun ownership is a behavioral expression or outcome of fear. According to this perspective, people own guns because they are essentially overcome by fear in a world they perceive to be uncertain and potentially dangerous. The idea is that gun owners need guns to protect themselves because they are irrational cowards. This perspective has been advanced by journalists (Bishin, 2018; Blow, 2015) and scientists (Carlson, 2015; Hauser & Kleck, 2013; Kleck et al., 2011; Steidley & Kosla, 2018; Wintemute, 2008). For example, Blow (2015) made the following claim in the *New York Times*: “These people [gun owners] are afraid. They are afraid of a time conservative media and the gun industry has convinced them is coming when sales of weapons, particularly some types of weapons, will be restricted or forbidden. They are afraid of growing populations of people they do not trust. Some are even afraid that a time will come when they will have to defend themselves against the government itself.” It is well known that the NRA employs fear rhetoric to expand gun ownership and gun rights. Following the shooting at the Pulse nightclub in Orlando, then-NRA President Wayne LaPierre warned that restricting gun access would allow terrorists to more easily harm Americans (Schultheis, 2016).

There is at least some empirical support for the idea that crime and status anxiety may increase the demand for firearms (Anuradha, 2017; Clotfelter, 1981; Lizotte & Bordua, 1980; Steidley & Kosla, 2018). Perceived risk of victimization and fear of crime might also lead some people who do not own guns to consider acquiring a gun (Anuradha, 2017; Carlson, 2015; Hauser & Kleck, 2013; Kleck et al., 2011; Strooe et al., 2017; Warr & Ellison, 2000), but these processes are not uniform in the literature (Cao, Cullen, & Link, 1997; DeFronzo, 1979; Lizotte & Bordua, 1980; Warr & Ellison, 2000; Wright, Rossi, & Daly, 1983). There is at least some longitudinal evidence to suggest that fear of crime and victimization in one's neighborhood may increase the odds of acquiring a gun over a three-year study period (Hauser & Kleck, 2013). Following the weight of previous research, the *symptom perspective* suggests that people who exhibit higher levels of fear will be more likely to own a gun (Hypothesis 1).

Guns are palliative

The *palliative perspective* claims that gun ownership mitigates fear. In line with this perspective, gun ownership is associated with less fear because firearms help their owners to feel safe, secure, and protected in a world they perceive to be uncertain and potentially dangerous. The idea is that owning a powerful weapon is somehow soothing to individuals and their families. This perspective is also supported by media (Blackwell, 2017; Braverman, 2016; Campbell, 2018) and science (Carlson, 2015; DeFronzo, 1979; Hauser & Kleck, 2013; Kleck, 1997; Parker, Horowitz, Ruth, Oliphant, & Brown, 2017; Strooe & Tom, 2017; Stroud, 2012; Wintemute, 2008). For example, the NRA has argued that guns provide a sense of safety and comfort in an increasingly precarious world (Blackwell, 2017). Research also suggests that some people see gun ownership as a means of empowerment in a context of failing institutions (Carlson, 2015). In 2013, Wayne LaPierre suggested that Americans are able to sleep better at night knowing that there are 5 million members in the NRA organization (LaPierre, 2013).

The *palliative perspective* has received much less empirical support than the symptom perspective. A recent national poll revealed that 67% of gun owners report that “protection” is the “major” reason why they own a gun (Parker et al., 2017). Editorials and news articles push back by suggesting that “US gun culture is built on myths and lies” and that bringing a gun into your home merely creates an “illusion of security” (Hasan, 2018; Peterson, 2016). Although gun owners often tell people

that their guns make them feel less afraid, longitudinal research suggests that acquiring a gun is unrelated to subsequent changes in fear of crime and victimization in one's neighborhood (Hauser & Kleck, 2013). With this research in mind, the *palliative perspective* suggests that people who own guns will tend to exhibit lower levels of fear than people who do not own guns (Hypothesis 2).

Perspective distinctions

The *symptom perspective* argues that people own guns because they are afraid. The *palliative perspective* claims that people are comforted by their weapons. These perspectives are distinct because they imply different theoretical models. The *symptom perspective* argues that the experience of fear precedes gun ownership (fear → guns). The *palliative perspective* suggests that gun ownership precedes the experience of fear (guns → fear). Although people may acquire weapons because they are afraid AND feel comforted as a result, our cross-sectional data cannot test this process *within* individual respondents. We can, nevertheless, assess the perspectives *between* individual respondents at a given point in time. If fear increases (+) gun ownership, the *symptom perspective* is supported. If gun ownership reduces (−) fear, the *palliative perspective* is supported. Given the nature of these models, we argue that the two perspectives are distinct, but not necessarily mutually exclusive.

Methods

Data

To formally test our hypotheses, we employ the first wave of the Chapman University Survey on American Fears (CSAF). The goal of the CSAF was to collect annual data on the fears, worries, and concerns of Americans, the behaviors and attitudes related to those fears, and how those fears are associated with other attitudes and behaviors. The CSAF is based on a national sample of 1573 non-institutionalized U.S. adults collected in April of 2014 (<https://www.chapman.edu/wilkinson/research-centers/babbie-center/fear-survey-faqs.aspx>). The data were collected by Knowledge Networks, a consumer research company with expertise in probability samples. Knowledge Networks maintains a probability-based web panel, designed to be representative of the general population of the United States. The initial panel was recruited using random-digit dialing, but is maintained using the U.S. Postal Service's Delivery Sequence File that includes households without wired telephones. Selected households were invited to participate in a web-based panel study. Respondents who lacked the necessary equipment or internet connection were provided a laptop computer and/or internet service connection by Knowledge Networks. Once recruited for the panel study, participants received unique log-in information for accessing online surveys. Of the 2500 panelists recruited, 1572 ultimately completed the survey (a 62.9% completion rate). Due to missing data, our final analytic sample included 1385 respondents. Tables 1 and 2 provide descriptive statistics for our focal variables and background variables.

Measures

Gun Ownership. We measure gun ownership with a single item. Respondents were asked to “describe” their “level of gun/firearm ownership.” Response categories included the following: (1) “I do not own a gun.” (2) “I own a gun for recreational use (such as for hunting).” (3) “I own a gun for personal protection.” (4) “I own a gun for both recreational use and for personal/family protection.” We dummy coded this item (1 = gun owner for any reason; 0 = does not own a gun) to directly compare people who own guns with people who do not own guns. We chose this coding scheme for four reasons. First, most studies of guns and fear contrast owners and non-owners. Second, this common contrast matches our theoretical interests. Third, it is unusual to own a

Table 1
Descriptive statistics for focal variables (n = 1385).
Source: Chapman Survey of American Fears (2014)

	Range	Mean	Standard Deviation
Gun Owner	0–1	0.31	
Phobia Index	1–4	1.59	0.49
Phobia Count	0–12	4.89	3.20
Victimization Index	1–4	1.78	0.79
Victimization Count	0–3	1.60	1.29
Fear of Blood	0–1	0.45	
Fear of Animals	0–1	0.61	
Fear of Clowns	0–1	0.14	
Fear of Drowning	0–1	0.48	
Fear of Flying	0–1	0.39	
Fear of Ghosts	0–1	0.20	
Fear of Heights	0–1	0.62	
Fear of Public Speaking	0–1	0.63	
Fear of Small Spaces	0–1	0.47	
Fear of Strangers	0–1	0.46	
Fear of the Dark	0–1	0.31	
Fear of Zombies	0–1	0.15	
Fear of Mugging	0–1	0.58	
Fear of Murder	0–1	0.47	
Fear of Mass Shooting	0–1	0.56	

Table 2
Descriptive statistics for background variables (n = 1385).
Source: Chapman Survey of American Fears (2014)

	Range	Mean	Standard Deviation
Age	18–92	50.06	16.72
Male	0–1	0.51	
Non-Hispanic White	0–1	0.73	
Non-Hispanic Black	0–1	0.09	
Hispanic	0–1	0.10	
Other Race	0–1	0.08	
Less Than High School	0–1	0.09	
High School	0–1	0.28	
Some College	0–1	0.29	
College Degree	0–1	0.34	
Household Income	1–19	12.32	4.35
Married	0–1	0.57	
Children in the Household	0–1	0.29	
Cons. Religious Identity	0–1	0.37	
No Religious Identity	0–1	0.41	
Religiosity	1–4	2.63	1.00
Religious Attendance	1–8	3.98	2.47
Lib. Political Orientation	1–7	3.74	1.45
Southern Resident	0–1	0.35	
Western Resident	0–1	0.23	
Midwestern Resident	0–1	0.24	
Northeastern Resident	0–1	0.18	
Urban Resident	0–1	0.83	

gun solely for recreation or protection. In our sample, only 95 respondents identified as recreation-only owners. Finally, our preliminary analyses showed no differences between recreational gun owners and other gun owners.

Fear. Fear is indicated by (1) specific phobias and (2) fear of victimization. Specific phobias are unreasonable fears associated with specific objects or scenarios that rarely (if ever) present any real danger. The CSAF measured 12 specific phobias, including fear of blood (blood and/or needles), animals (bugs, snakes, dogs, or any other animal/insect), clowns, drowning (drowning, water), flying, ghosts, heights (like balconies, bridges, or roofs), public speaking, small spaces (enclosed spaces, such as: caves, tunnels, closets and elevators), strangers, the dark, and zombies. Respondents were asked how “afraid” they were of each object or scenario. Response categories for these items ranged from (1) “not at all afraid” to (4) “very afraid.” The CSAF also measured three fears associated with being victimized. Respondents were asked how “afraid” they were of being “victimized” in the following ways:

“mugged,” “murdered,” and “random/mass shooting.” Response categories for these items also ranged from (1) “not at all afraid” to (4) “very afraid.” We examined phobias and fear of victimization in three ways. First, we examined mean indices of the original phobia ($\alpha = 0.85$) and victimization ($\alpha = 0.87$) items. Second, we examined summed counts of phobia and victimization dummy variables (1 = any phobia/fear of victimization, 0 = no phobia/fear of victimization). Finally, we examined each of the phobia and victimization dummy variables separately. In this paper, we are interested in fear generally, not phobias or fear of victimization per se. We include both phobias and fear of victimization because they are both valid and reliable indicators of fear. We include phobias because previous research has focused on fear of victimization. Our hypotheses specify associations between gun ownership and fear generally.

Background Variables. Several background variables have been identified as significant correlates of gun ownership and fear-related outcomes (Clotfelter, 1981; Ellison, 1991; Hauser & Kleck, 2013; Kleck et al., 2011; Lizotte & Bordua, 1980; Parker et al., 2017; Steidley & Kosla, 2018; Stroope & Tom, 2017; Yamane, 2016, 2017). In accordance with this research, subsequent multivariate analyses include adjustments for *age* (in years), *gender* (1 = male; 0 = female), *race and ethnicity* (dummy variables for non-Hispanic black, Hispanic, and other race, with non-Hispanic white serving as the common reference), *education* (dummy variables for less than high school, some college, and college, with high school serving as the common reference), *household income* (1 = less than \$5000 to 19 = \$175,000), *marital status* (1 = married; 0 = not married), *presence of children* (1 = children in the household; 0 = no children in the household), *conservative religious identity* (1 = respondent self-identified with any of the following descriptions: evangelical, theologically conservative, charismatic, bible-believing, born-again, Pentecostal, or fundamentalist; 0 = did not self-identify with any of these descriptions), *no religious identity* (1 = respondent self-identified with any of the following descriptions: spiritual not religious, secular, irreligious, religiously indifferent, or atheist; 0 = did not self-identify with any of these descriptions), *religiosity* (1 = not at all religious to 4 = very religious), *religious attendance* (1 = never to 8 = several times a week), *political orientation* (1 = extremely conservative to 7 = extremely liberal), *region of residence* (dummy variables for Northeast, Midwest, and West, with South serving as the common reference), and *urban residence* (1 = currently living in an urban area; 0 = currently living in a rural area).

Statistical procedures

Our focal regression analyses are presented in Tables 3–6. Tables 3 and 4 directly assess the *symptom perspective* (gun ownership is an outcome of fear). In Table 3, we use binary logistic regression (BLR) to regress the dummy gun ownership variable on our fear indices and all background variables to assess whether the odds of owning a gun vary according to overall levels of fear. In Table 4, we use BLR to regress gun ownership on each of the phobias, victimization fears, and all background variables to assess whether the overall associations in Table 3 are driven by specific phobias and fears. The odds ratios (ORs) in these analyses are interpreted as the estimated difference in the odds of gun ownership for each one-unit change in an independent variable, while all other variables in the model are held constant. Although the results in Table 4 are condensed to save space, the full analysis is available upon request.

Tables 5 and 6 directly assess the *palliative perspective* (fear is an outcome of gun ownership). In Table 5, we regress our fear indices on gun ownership and all background variables to assess the overall levels of fear for people who own guns and people who do not own guns. We use ordinary least squares (OLS) regression to model our continuous phobia and victimization indices. The unstandardized OLS coefficients are interpreted as the difference in the expected mean of fear (phobia or fear of victimization) for each one-unit change in an independent

Table 3

Binary logistic regression of gun ownership on fear indices and background variables (n = 1385).

Source: Chapman Survey of American Fears (2014). *p < 0.05, **p < 0.01, ***p < 0.001. Reference categories include female, non-Hispanic white, high school, unmarried, no children in the household, non-conservative religious identity, having a religious identity, southern residence, and non-urban residence. Shown are unstandardized logistic regression coefficients.

	Model 1		Model 2	
Phobia Index ^a	0.814			
Victimization Index ^a	0.885			
Phobia Count ^b			0.952	*
Victimization Count ^b			0.980	
Age	0.997		0.997	
Male	2.132	***	2.135	***
Non-Hispanic Black	0.737		0.709	
Hispanic	0.396	**	0.384	***
Other Race	0.458	**	0.453	**
Less Than High School	0.990		0.993	
Some College	1.092		1.090	
College Degree	0.505	***	0.508	***
Household Income	1.038	*	1.039	*
Married	1.582	**	1.592	**
Children in the Household	0.967		0.963	
Cons. Religious Identity	1.027		1.040	
No Religious Identity	0.956		0.967	
Religiosity	1.094		1.093	
Religious Attendance	0.954		0.954	
Lib. Political Orientation	0.825	***	0.826	***
Northeastern Resident	0.626	*	0.622	*
Midwestern Resident	0.794		0.800	
Western Resident	0.756		0.758	
Urban Resident	0.515	***	0.511	***

variable, while all other variables in the model are held constant. We use negative binomial regression (NBR) to model our phobia and victimization counts. The unstandardized negative binomial coefficients are interpreted as the difference in the expected log count of fears (phobias or victimization fears) for each one-unit change in an independent variable, while all other variables in the model are held constant. In Table 6, we regress each of the phobias and victimization fears on gun ownership and all background variables to assess whether the overall associations in Table 5 apply to specific phobias and fears. We use BLR to model each of the 15 dummy outcomes. The ORs in these analyses are interpreted as the estimated difference in the odds of reporting any fear for each one-unit change in an independent variable, while all other variables in the model are held constant. Although the results in Table 6 are condensed to save space, this analysis is also available upon request.

Results

Symptom perspective analyses

Tables 3 and 4 present our gun ownership regressions. In Model 1, we observe that our continuous fear indices are unrelated to the odds of

Table 4

Binary logistic regression of gun ownership on fear items and background variables (n = 1385).

Source: Chapman Survey of American Fears (2014). *p < 0.05, **p < 0.01, ***p < 0.001. Shown are odds ratios obtained from binary logistic regression analyses. All analyses include adjustments for age, gender, race/ethnicity, education, household income, marital status, the presence of children, religious identity, religiosity, religious attendance, political orientation, region of residence, and urban residence.

	Fear of Blood	Fear of Animals	Fear of Clowns	Fear of Drowning	Fear of Flying
Gun Owner	1.24	0.60**	1.33	1.02	0.96
Gun Owner	Fear of Ghosts	Fear of Heights	Fear of Pub. Speaking	Fear of Small Spaces	Fear of Strangers
	0.86	0.77	1.07	1.22	0.92
Gun Owner	Fear of the Dark	Fear of Zombies	Fear of Mugging	Fear of Murder	Fear of Mass Shooting
	0.98	0.71	0.51***	1.07	1.46*

owning a gun (p > 0.05). In Model 2, we find that our phobia count index is *inversely* associated with the odds of owning a gun. Odds ratios (ORs) can be manipulated ((OR - 1) × 100) to describe the percent difference in the odds of gun ownership for each one-unit change in an independent variable. In this case, each unit increase in the phobia index (or each additional phobia) *reduces* the odds of owning a gun by nearly 5% ((0.952 - 1) × 100). Consistent with Model 1, the victimization count is unrelated to the odds of owning a gun (p > 0.05).

For the most part, gun ownership does not vary according to specific phobias or fears in Table 4. There are three exceptions to this general pattern. The odds of owning a gun are 40% *lower* for people who report being afraid of animals (bugs, snakes, dogs, or any other animal/insect) and 49% *lower* for people who are afraid of being mugged. Contrary to the nature of the other statistically significant associations, we observe that the odds of gun ownership are 46% *higher* for people who are afraid of being victimized by a random/mass shooting. Taken together, the results presented in Tables 3 and 4 show little support for the symptom perspective. In fact, gun ownership does not appear to vary much according to fear. Two of the three statistically significant associations indicate that people who are more afraid are *less* likely to own a gun. The only evidence that gun ownership is an expression of fear is observed in the context of mass shootings.

Palliative perspective analyses

The first two columns of Table 5 present our specific phobia regressions. The OLS estimate in the first column (-0.060, p < 0.05) indicates that people who own guns tend to report *lower* levels of phobias than people who do not own guns. The NBR estimate in the second column (-0.099, p < 0.05) also demonstrates that people who own guns tend to report *fewer* phobias than people who do not own guns. When NBR coefficients are exponentiated (e^b), the result is an incidence rate ratio (IRR). IRRs are interpreted as the difference in the expected count for each one-unit change in an independent variable, while all other variables in the model are held constant. IRRs can be further manipulated ((IRR - 1) × 100) to describe the percent difference in the expected count for each one-unit change in an independent variable. The IRR for gun ownership is 0.91 (e^{-0.099}). Because the IRR is less than one, the association between gun ownership and the phobia count is inverse. More specifically, the expected phobia count is 9% ((0.91 - 1) × 100) *lower* for respondents who own guns than for people who do not own guns.

The last two columns of Table 5 present our fear of victimization regressions. Consistent with our phobia analyses, the OLS estimate in the third column (-0.093, p < 0.05) indicates that people who own guns tend to report *lower* levels of victimization fears than people who do not own guns. The NBR estimate in the last column (-0.076, p > 0.05) is not statistically significant. This suggests that the expected count of victimization fears is comparable for people who own guns and people who do not own guns. Taken together, the results presented in Table 5 indicate that people who own guns tend to report lower levels of fear than people who do not own guns. This general pattern is observed across multiple indicators of fear (specific phobias and

Table 5

Fear indices regressed on gun ownership and background variables (n = 1385).

Source: Chapman Survey of American Fears (2014). *p < 0.05, **p < 0.01, ***p < 0.001. Reference categories include female, non-Hispanic white, high school, unmarried, no children in the household, non-conservative religious identity, having a religious identity, southern residence, and non-urban residence.

	Phobia Index ^a		Phobia Count ^b		Victimization Index ^a		VictimizationCount ^b	
Gun Owner	-0.060	*	-0.099	*	-0.093	*	-0.076	
Age	-0.003	**	-0.003	*	-0.003	*	-0.002	
Male	-0.159	***	-0.230	***	-0.246	***	-0.263	***
Non-Hispanic Black	0.076		0.045		0.283	***	0.162	*
Hispanic	0.053		0.064		0.226	**	0.073	
Other Race	0.191	***	0.248	***	0.393	***	0.287	***
Less Than High School	0.218	***	0.167	*	0.103		0.086	
Some College	-0.113	**	-0.158	**	-0.142	**	-0.070	
College Degree	-0.168	***	-0.190	***	-0.244	***	-0.208	**
Household Income	-0.003		-0.001		0.001		0.006	
Married	0.009		0.014		-0.080		-0.027	
Children in the Household	0.028		0.017		0.071		0.007	
Conservative Religious Identity	0.060		0.078		0.028		0.027	
No Religious Identity	0.031		0.010		-0.068		-0.495	
Religiosity	0.064	***	0.071	**	0.062	*	0.079	*
Religious Attendance	-0.017	*	-0.025	*	-0.024	*	-0.023	
Liberal Pol. Orientation	0.022	*	0.031	*	0.038	*	0.055	**
Northeastern Resident	-0.001		-0.026		-0.010		-0.039	
Midwestern Resident	-0.004		-0.003		-0.105	*	-0.095	
Western Resident	-0.065		-0.079		-0.111	*	-0.097	
Urban Resident	-0.019		-0.014	*	0.145	**	0.187	**

^a Shown are unstandardized ordinary least squares regression coefficients.

^b Shown are unstandardized negative binomial regression coefficients.

victimization fears), multiple outcome specifications (continuous and count), and with adjustments for age, gender, race/ethnicity, education, household income, marital status, the presence of children, religious identity, religiosity, religious attendance, political orientation, region of residence, and urban residence.

Table 6 presents our regressions of individual phobias and fears. Consistent with our results in Table 5, we observe that the odds of reporting any fear of animals (0.61, p < 0.001), heights (0.73, p < 0.05), zombies (0.66, p < 0.05), and being mugged (0.66, p < 0.01) are lower for people who own guns than for people who do not own guns. More specifically, the odds of reporting any fear of animals (bugs, snakes, dogs, or any other animal/insect) are 39% lower for people who own guns than for people who do not own guns. The odds of reporting any fear of heights (like balconies, bridges, or roofs) are 27% lower for gun owners. The ORs for fear of zombies and fear of mugging both indicate a 34% reduction in the odds of fear for gun owners.

Discussion

In this paper, we considered the association between gun ownership and fear. We contributed to previous work by testing two theoretical perspectives with an unprecedented range of fear-related outcomes. The *symptom perspective* argues that gun ownership is an expression of fear and that people who exhibit higher levels of fear will be more likely to own a gun (H1). The *palliative perspective* claims that gun ownership

mitigates fear and that people who own guns will tend to exhibit lower levels of fear than people who do not own guns (H2).

Our analyses offered minimal evidence to support the *symptom perspective* and our first hypothesis. For the most part, phobias and fears were unrelated to gun ownership. We tested whether the odds of being a gun owner varied according to two phobia indices and two victimization indices. Only one of the indices (the phobia count) was (inversely) associated with gun ownership. We then tested 15 associations between individual phobias/fears and gun ownership. Approximately 80% of these associations were null, and only 20% were statistically significant at conventional levels. The only evidence that gun ownership is an expression of fear was observed in the context of mass shootings. Although the weight of these findings call into question the idea that people own guns because they are afraid, we do not dismiss the *symptom perspective* entirely.

Our results consistently supported the *palliative perspective* and our second hypothesis. In our focal analyses, we observed that people who own guns tend to report lower overall levels of specific phobias and victimization fears than people who do not own guns. Our analyses of individual phobias and fears also revealed that people who own guns are less likely to report fears associated with animals (bugs, snakes, dogs, or any other animal/insect), heights (like balconies, bridges, or roofs), zombies, and being mugged. These findings are consistent with the idea that guns help their owners to feel safe, secure, and protected (Braverman, 2016; Campbell, 2018; Hauser & Kleck, 2013; Kleck, 1997; Parker et al., 2017; Wintemute, 2008).

Table 6

Binary logistic regression of fear items on gun ownership and background variables (n = 1385).

Source: Chapman Survey of American Fears (2014). *p < 0.05, **p < 0.01, ***p < 0.001. Shown are odds ratios obtained from binary logistic regression analyses. All analyses include adjustments for age, gender, race/ethnicity, education, household income, marital status, the presence of children, religious identity, religiosity, religious attendance, political orientation, region of residence, and urban residence.

	Fear of Blood	Fear of Animals	Fear of Clowns	Fear of Drowning	Fear of Flying
Gun Owner	1.00	0.61***	1.00	0.84	0.84
Gun Owner	Fear of Ghosts	Fear of Heights	Fear of Pub. Speaking	Fear of Small Spaces	Fear of Strangers
	0.73	0.73*	0.93	0.94	0.80
Gun Owner	Fear of the Dark	Fear of Zombies	Fear of Mugging	Fear of Murder	Fear of Mass Shooting
	0.82	0.66*	0.66**	0.90	1.04

There are, however, two important caveats to this narrative. Although people who own guns were less afraid of being victimized in general and of being mugged in particular, they were not less afraid of being murdered or victimized in a random/mass shooting. Our findings regarding fear of murder and mass shootings seem to directly contradict common rhetoric put forward by the NRA suggesting that the “good guy with a gun” is able to bravely counter such threats (LaPierre, 2018). In his speech to the Conservative Political Action Committee (CPAC) following the shooting at Parkland, LaPierre (2018) stressed this rhetoric by saying “evil must be confronted immediately by all necessary force to protect our kids ... never forget these words – to stop a bad guy with a gun, it takes a good guy with a gun.” While previous research has emphasized victimization fears, we are the first to show that the association between gun ownership and fear could extend beyond victimization to a broader range of fears. In doing so, we were able to observe thresholds of security that are inconsistent with widespread rhetoric from within the broader gun culture. These findings suggest a common sense of fatalism or resignation to some of the most deadly forms of violence.

We acknowledge a striking contrast between our analyses of overall fear and our analyses of individual phobias and fears. The association between gun ownership and the summary measures of fear were consistent. Our results for individual phobias and fears were more sporadic. Once again, we tested 15 associations between gun ownership and individual phobias/fears. Approximately 73% of these associations were null. This means that only 27% were statistically significant at conventional levels. These associations are noteworthy because they support the same general conclusion: people who own guns tend to report lower levels of fear than people who do not own guns. The only exception to this pattern was observed in the case of fear of being victimized by random/mass shooting.

One possible explanation for why the *symptom perspective* remains so prevalent in the mainstream discourse on gun ownership with little empirical support here is that popular media representations often characterize those who use guns as fearful or weak. These representations are omnipresent. They appear in editorial pieces in prominent news publications, social media, movies, and other forms of popular culture. An article published in *Salon* claimed that gun ownership gives “cowards the heart to stand tall” (Watkins, 2015). In 2013, an Op-Ed in the *Daily Kos* argued that there is one basic truth: “gun owners are cowards” (LokiGirl, 2013). In comic books, Batman characterizes criminals who use guns as cowardly (Finger & Kane, 1940; Miller, 1986). In the film *Rush Hour*, Detective James Carter tells the character Sang to “put down the gun and fight like a man” (Ratner, 1998). These popular cultural narratives imply that people who use guns are somehow less courageous than people who do not use guns. This rhetoric informs peoples’ opinions of gun owners. This can be seen in the Facebook group called “Guns Are For Cowards” who cite Frank Miller’s Batman in their “About” section by saying that “A gun is a coward’s weapon. A liar’s weapon. We kill too often because we’ve made it easy, too easy, sparing ourselves the mess and the work” (Miller, 1986).

Alternatively, people who do not own guns could be projecting their own documented fears onto gun owners. Holmes (1978:677) explains that “projection is the process by which persons attribute personality traits, characteristics, or motivations to other persons as a function of their own personality traits, characteristics, or motivations.” He goes on to note that “projection is a defense mechanism with which persons can reduce their anxiety concerning their possession of undesirable traits” (Holmes, 1978, p. 677). In this case, people who do not use guns are motivated to project their fears to avoid facing them.

Although our analyses suggest that people who own guns are less fearful than people who do not own guns, we do not mean to endorse gun ownership as safe. Research shows that the presence of a gun in the home markedly increases the risk of accidental gun death, suicide, and the murder of women (Hemenway, 2011, 2018; National Partnership

for Women & Families, 2018). A recent study by Kim (2018) suggests that having a gun in the home may increase the risk of mental health issues for adolescent girls. Other research examining the psychological effects of guns indicates that merely seeing a gun may increase aggressive thoughts and behaviors (Benjamin, Kepes, & Bushman, 2018). Overall, gun ownership may undermine safety by increasing the risk of danger, distress, and aggressive behavior.

We recognize that our analyses are limited in several important respects. First and foremost, our analyses are based on a cross-sectional design. Although we observe that people who own guns tend to be less afraid than people who do not own guns, we cannot establish the causal order of this association. On the one hand, gun owners could be comforted by a powerful means of protection. On the other hand, gun owners could be less afraid before they purchase their guns. In this case, having lower levels of fear could facilitate the acquisition of a dangerous weapon. Unfortunately, we were unable to determine the most likely scenario with our data. We can make one conclusion that is independent of the causal order question. There is no evidence to suggest that people who own guns are more afraid than people who do not own guns.

Omitted variable bias is another potential limitation. Although our analyses include adjustments for a wide range of covariates, we could imagine an important role for several variables not included in our data. For example, stressful events in early life, the direct experience of victimization, and prior mental health could conceivably drive gun ownership and subsequent phobias and fears.

Although we have framed our broad range of fear measures as a contribution to a literature that has narrowly focused on victimization fears, we acknowledge that we have only scratched the surface. More comprehensive measures are required to better assess the universe of fears. For example, it would be informative to consider fears associated with gun restrictions and the government. It is also important to begin to consider anxiety symptoms and related disorders.

Conclusion

Our analyses offer minimal support for the idea that gun ownership is an expression of fear, but they do suggest that people who own guns tend to exhibit lower levels of fear than non-gun owners. Although the causal order of this association is uncertain, it is likely characterized by a complex combination of fears as opposed to any particular fears or set of fears. Gun ownership divides our country. We find that these divisions extend to population differences in emotional experience that are predictable and consistent with broader gun culture. Additional longitudinal research is needed to confirm our findings with a wider range of covariates and fear-related outcomes. We must also begin to test potential subgroup variations in the association between gun ownership and fear. For example, are guns more important to the emotional experiences of women or men, older or younger adults? Research along these lines will provide a more thorough and extensive understanding of the ways in which our emotional experiences are structured by gun ownership or vice versa.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ssmph.2019.100463>.

References

- Anuradha, G. (2017). “Why do gun sales in the US spike after mass shootings?” Stanford law school. Retrieved December 10, 2018 <https://law.stanford.edu/press/gun-sales-us-spike-mass-shootings/>.
- Benjamin, A., Kepes, S., & Bushman, B. (2018). Effects of weapons on aggressive thoughts, angry feelings, hostile appraisals, and aggressive behavior: A meta-analytic review of the weapons effect literature. *Personality and Social Psychology Review*, 22, 347–377.
- Bishin, B. G. (2018). Why is it so hard to regulate guns — even though gun regulation is so

- popular? *Washington Post*. February 16. Retrieved December 10, 2018 https://www.washingtonpost.com/news/monkey-cage/wp/2018/02/16/why-is-it-so-hard-to-regulate-guns-even-though-gun-regulation-is-so-popular/?utm_term=.d54d5f3bcd4a.
- Blackwell, K. (2017). *The simple truth is that guns help, not hurt, millions of Americans*. The Hill. Retrieved December 10, 2018 <https://thehill.com/opinion/civil-rights/354618-the-simple-truth-is-that-guns-help-not-hurt-millions-of-americans>.
- Blow, C. (2015). *On guns, fear is winning*. *New York Times* October 5.
- Braverman, B. (2016). When I was scared, my gun-owning neighbors helped me feel safe. *The Guardian*. September 22. Retrieved December 10, 2018 <https://www.theguardian.com/us-news/2016/sep/22/when-i-was-scared-my-gun-owning-neighbors-helped-me-feel-safe>.
- Campbell, A. (2018). Owning a gun is my right to feel safe, secure and protected. *Evening Sun*. February 16. Retrieved December 10, 2018 <https://www.eveningsun.com/story/opinion/2018/02/16/owning-gun-my-right-feel-safe-secure-and-protected-letter/345438002/>.
- Cao, L., Cullen, F., & Link, B. (1997). "The social determinants of gun ownership: Self-protection in an urban environment. *Criminology*, 35, 629–658.
- Carlson, J. (2015). *Citizen protectors: The everyday politics of guns in an age of decline*. New York, NY: Oxford University Press.
- Clotfelter, C. (1981). Crimes, disorders, and the demand for handguns: An empirical analysis. *Law & Policy*, 3, 425–441.
- DeFronzo, J. (1979). Fear of crime and handgun ownership. *Criminology*, 17, 331–340.
- Ellison, C. (1991). Southern culture and firearms ownership. *Social Science Quarterly*, 72, 267–283.
- Finger, B., & Kane, B. (1940). *The legend of the batman - who He is, and how He came to Be. Batman March*.
- Hasan, M. (2018). US gun owners are holding the country hostage—and I fear for my family's safety. *New Statesman*. September 12. Retrieved on December 10, 2018 <https://www.newstatesman.com/world/north-america/2018/09/us-gun-owners-are-holding-country-hostage-and-i-fear-my-family-s-safety>.
- Hauser, W., & Kleck, G. (2013). Guns and fear: A one-way street? *Crime & Delinquency*, 59, 271–291.
- Hemenway, D. (2011). Risks and benefits of a gun in the home. *American Journal of Lifestyle Medicine*, 5, 502–511.
- Hemenway, D. (2018). Commentary: Easy home gun access and adolescent depression. *Social Science & Medicine*, 203, 60–63.
- Heston, C. (1999). The second amendment: America's first freedom. *199-204 in guns in America: A reader, edited by Jane E. Dizard, Robert Merrill Muth, and Jr.* New York, New York: Stephen P. Andrews.
- Holmes, D. (1978). Projection as a defense mechanism. *Psychological Bulletin*, 85, 677–688.
- Howe, N. (2018). #NeverAgain: A new generation takes aim in the gun debate. *Forbes*. August 3. Retrieved on December 10, 2018 <https://www.forbes.com/sites/neilhowe/2018/08/03/neveragain-a-new-generation-takes-aim-in-the-gun-debate/#6c72d0d75718>.
- Kim, J. (2018). Beyond the trigger: The mental health consequences of in-home firearm access among children of gun owners. *Social Science & Medicine*, 203, 51–59.
- Kleck, G. (1997). *Targeting guns: Firearms and their control*. Hawthorne, New York: Aldine.
- Kleck, G., Kovandzic, T., Saber, M., & Hauser, W. (2011). The effect of perceived risk and victimization on plans to purchase a gun for self-protection. *Journal of Criminal Justice*, 39, 312–319.
- LaPierre, W. (2013). *LaPierre: Gun owners make U.S. Safer*. NRA-ILA. Retrieved December 18, 2018 <https://www.nraila.org/articles/20130430/lapierre-gun-owners-make-us-safer>.
- LaPierre, W. (2018). Transcript of LaPierre's 2018 speech to CPAC following the shooting at Parkland. CNN. February 22. Retrieved February 27, 2019 <http://transcripts.cnn.com/TRANSCRIPTS/1802/22/cnr.04.html>.
- Lizotte, A., & Bordua, D. (1980). Firearms ownership for sport and protection: Two divergent models. *American Sociological Review*, 45, 229–244.
- Loesch, D. (2015). "The 'godless left.'" *YouTube*. Retrieved December 12, 2018 <https://www.youtube.com/watch?v=L9acrGW4hjE>.
- LokiGirl (2013). *Only cowards carry guns*. *Daily Kos* October 15.
- Miller, F. (1986). *The dark knight returns*. New York: DC Comics.
- National Partnership for Women & Families. (2018). *Gun violence: A threat to women and Families.* Fact Sheet, National Partnership for Women & Families.
- Parker, K., Horowitz, J., Ruth, I., Oliphant, B., & Brown, A. (2017). *America's complex relationship with guns: An in-depth look at the attitudes and experiences of U.S. Adults*. Pew Research Center June.
- Peterson, L. (2016). More guns, more fear: Concealed carry and the illusion of security. *The Christian Century*, 133, 11–12.
- Ratner, B. (1998). *Rush Hour*. New Line Cinema.
- Schultheis, E. (2016). *NRA chief: Terrorists on the verge of overwhelming us*. *Face the Nation* June 19.
- Steidley, T., & Kosla, M. (2018). Toward a status anxiety theory of macro-level firearm demand. *Social Currents*, 5, 86–103.
- Stroebe, W., Leander, N. P., & Kruglanski, A. (2017). Is it a dangerous world out there? The motivational bases of American gun ownership. *Personality and Social Psychology Bulletin*, 43, 1071–1085.
- Stroope, S., & Tom, J. (2017). In-home firearm access among US adolescents and the role of religious subculture: Results from a nationally representative study. *Social Science Research*, 67, 147–159.
- Stroud, A. (2012). Good guys with guns: Hegemonic masculinity and concealed handguns. *Gender & Society*, 26, 216–238.
- Turner, J. H., & Stets, J. E. (2005). *The Sociology of emotions*. New York: Cambridge University Press.
- Warr, M., & Ellison, C. (2000). Rethinking social reactions to crime: Personal and altruistic fear in family households. *American Journal of Sociology*, 106, 551–578.
- Watkins, D. (2015). Want a gun? Take a bullet: Take this, gutless NRA cowards – you can have a gun, once you understand the pain of being shot. *Salon*. October 17. Retrieved on December 10, 2018 https://www.salon.com/2015/10/16/want_a_gun_take_a_bullet_new_rule_before_you_pack_heat_you_will_know_what_it_feels_like_to_be_shot/.
- Wintemute, G. (2008). Guns, fear, the constitution, and the public's health. *New England Journal of Medicine*, 358, 1421–1424.
- Wright, J., Rossi, P., & Daly, K. (1983). *Under the gun: Weapons, crime, and violence in America*. New York: Transaction Publishers.
- Yamane, D. (2016). Awash in a sea of faith and firearms: Rediscovering the connection between religion and gun ownership in America. *Journal for the Scientific Study of Religion*, 55, 622–636.
- Yamane, D. (2017). The Sociology of U.S. Gun culture. *Sociology Compass*, 11, e12497.
- Zornick, G. (2018). How the #NeverAgain movement is disrupting gun politics. *The Nation*. April 3. Retrieved on December 10, 2018 <https://www.thenation.com/article/how-the-neveragain-movement-is-disrupting-gun-politics/>.