How Americans Feel About Guns after Mass Shootings: The Case of the 2016 Orlando Nightclub Massacre

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Abstract

Objective: At the time, the 2016 Pulse Nightclub massacre in Orlando, Florida, was the most devastating mass shooting in the U.S., with 49 people dead and dozens more injured. We examined American attitudes about gun legislation in its aftermath, with particular attention to the importance of media exposure to the event.

Method: Starting 5 days after the shooting, data were collected anonymously among a nationally representative U.S. sample (*N*=3,199); 95% completed the survey online. Data were analyzed using multinomial logistic regression models.

Results: Most respondents favored gun restrictions in the aftermath of the shootings (i.e., 80%, weighted, favored universal background checks; 61%, weighted, desired stricter laws covering the sale of firearms). Multinomial logistic regressions identified traditional (Republican identity, gun ownership, age, gender, education) and novel (media exposure, recent history of violence) predictors of gun attitudes. Individuals who consumed a minimum of 1 hour average daily media coverage in the event's aftermath were significantly more likely to prefer stricter gun laws and favor universal background checks ($p < 0.05$) than not, adjusting for relevant covariates. Direct exposure to the shooting was not significantly associated with gun attitudes.

Conclusion: Media coverage of mass shootings may be critical in shaping contemporary public attitudes around gun violence. Research on gun violence should therefore include information on media exposure and explore whether mass shooting media coverage can shift individual attitudes toward preventive policy efforts.

Keywords: Gun violence, mass shooting, gun attitudes, media, politics

How Americans Feel About Guns after Mass Shootings:

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The United States has more mass shootings than any other country in the world, with estimates reporting an average of one mass shooting event a month occurring in a public space (Willingham & Ahmed, 2017). In recent years, the U.S. has experienced two of the deadliest mass shootings in modern history: the 2016 Orlando nightclub shooting and the 2017 Las Vegas concert shooting. Although the circumstances surrounding the mass shootings were different – in Orlando the shooter targeted Pulse, a gay nightclub celebrating "Latin night", killing 49 people and wounding at least 50 others, while in Las Vegas the shooter opened fire on a crowd of concert-goers killing 58 people and injuring over 500 others (CNN, 2018) – both were devastating and called into question the nation's current gun policies. The present study examined how a large nationally representative sample of Americans felt about gun laws in the days after the Orlando nightclub shooting and examined predictors of gun attitudes including both direct and media-based exposure to the massacre and its aftermath.

Gun issues guide voting practices (Joslyn, Haider-Markel, Baggs, & Bilbo, 2017) and political party affiliation in the U.S.; the Republican party tends to favor unregulated gun rights whereas the Democratic party tends to favor gun control and regulation efforts. According to trend data from the General Social Survey (1974-2016), though gun control has shown to be a partisan issue over the years, many Republicans do support gun control efforts (Miller, 2017). In fact, as many as 52% of National Rifle Association (NRA) members and 75% non-NRA members who are Republican and gun owners themselves support background checks for private gun sales (Parker, 2017). These numbers increase when considering issues such as banning mentally ill persons (79% NRA members and 90% non-NRA members) and those on the no-fly or watch lists (72% NRA members and 80% non-NRA members) from purchasing guns (Parker, 2017). Moreover, around half of all people who identify or lean Republican support the banning of assault weapons (50%) or high-capacity magazines (51%; Pew, 2018). Partisanship, though

important, is not the only factor to consider when trying to understand American attitudes on gun rights. Other personal attributes including age, gender (Goss, 2017), race/ethnicity (Filindra & Kaplan, 2017), education, and gun ownership (Haider-Markel & Joslyn, 2001) have been linked with gun attitudes, albeit largely in a non-disaster (mass shooting) context.

In a mass shooting context, gun policy attitudes have been examined in relation to political party identity, gun ownership, self-reported anxiety, and media-based experimental manipulations, rather than in a real world context following direct or media-based event exposure. Personal experiences, social interactions, and information from media outlets have the capacity to challenge or reinforce belief systems by creating states of cognitive dissonance (Festinger, 1957), increasing mortality saliency (Harmon-Jones et al., 1997) and/or guiding the development of cultural theories of risk or cultural worldviews (Douglas & Wildavsky,1982; Kahan, 2012), in turn affecting gun policy beliefs (Braman, Kahan, & Grimmelmann, 2005; Jang, 2019; Kahan & Braman, 2003). Direct and indirect (media-based) mass shooting event exposures are therefore understudied but critical factors likely to be associated with public gun policy attitudes.

Mass Shootings, Gun Violence, and Gun Policy Attitudes

Research has been conducted on attitudes towards gun rights and the propensity toward gun violence in the aftermath of mass shootings. A review by Metzl and MacLeish (2015) examined the evidence surrounding popular assumptions about the perpetrators of gun violence and the efficacy of gun laws. They concluded that most people who commit gun violence have not been diagnosed with a mental illness and that gun laws themselves cannot guarantee the end of mass shootings (Metzl & MacLeish, 2015). This latter conclusion is similar to that offered by Fox and DeLateur (2014), who found that mass shootings are mainly committed by people with no criminal or hospital institutionalization records, using non-banned assault weapons, suggesting that enhanced background checks and a federal assault weapon ban may not do enough to prevent mass shootings (Fox & DeLateur, 2014). Studies have also used experimental

designs to see how the framing of an event (e.g., many people blame weak gun laws) informs gun attitudes after a mass shooting (Haider-Markel & Joslyn, 2001) or examined time series data to determine temporal associations between national and regional gun acquisition rates and mass shooting events (Porfiri, Sattanapalle, Nakayama, Macinko, & Sipahi, 2019; Studdert, Zhang, Rodden, Hyndman, & Wintemute, 2017; Wallace, 2015).

A few studies have looked at different situational, psychological, or political factors related to gun policy attitudes following contemporary mass shooting events. Merging multiple data sources to identify all mass shootings from 1966-2015, Newman and Hartman (2019) found public support for stricter gun policies if Americans lived geographically closer to one or more mass shooting events and if the event resulted in five or more casualties or occurred in more recent years (i.e., the last 20 years). Another study by Barry and colleagues (2013) examined attitudes around mental illness and the types of gun policies supported by U.S. residents following the 2012 Sandy Hook Elementary School shooting. When comparing gun owners versus non-gun owners, few differences were found in support for gun restrictions, except for legislation dealing with the banning of semiautomatic assault weapons or large-capacity ammunition magazines, prohibiting persons under 21 years from owning a handgun, and requiring gun-owners to lock their hand-guns when not in use (Barry, McGinty, Vernick, & Webster, 2013). An absence of change in gun policy attitudes for gun owners have been reported by others as well after the Sandy Hook School massacre (e.g., Joslyn & Haider-Markel, 2017). Rogowski and Tucker (2019) similarly found no significant differences reported across political groups when examining public support for banning handguns using cross-sectional data collected pre- and post-event (Sandy Hook massacre). However, analysis of within-subjects responses for those who completed surveys pre- and post-event surprisingly found that support for gun control significantly decreased for Independents, liberals, and conservatives over time (Rogowski & Tucker, 2019). Shortly after the 2016 Orlando nightclub shooting, a national online study by Joslyn and Haider-Markel (2018) examined the relationship between anxiety and

political ideology on blame attributions, gun laws, and beliefs in the government. Results indicated that heightened levels of Orlando shooting related anxiety reduced the gap between conservatives and liberals when it came to blaming mass shootings on guns or terrorism, favoring restrictive gun laws, and having confidence in the government (Joslyn & Haider-Markel, 2018). However, a small participation rate in the online survey (2.8%) restricts the generalizability of these findings.

Gallup polls, based on information gathered from telephone interviews, inform much of what is known about contemporary gun attitudes in the U.S. For example, in October 2017, days after the Las Vegas shooting, Gallup found that approximately 40% of people were “very worried” or “somewhat worried” that either they or a family member would be a victim of a mass shooting, with women, Democrats or those who lean Democratic, people under 55 years old, and non-gun owners more likely to worry than their counterparts (Newport, 2017). Despite public sentiments about gun access, most polled participants also reported feeling that new gun control laws (58%; 2017 estimate) and universal background checks (53%; 2015 estimate) would have little or no effect on reducing the number of mass shootings in the U.S. (Gallup, 2018). These survey items are nevertheless limited as they asked people to think about mass shootings in general and did not take into account individual exposure – directly or via the media – to a mass shooting event.

Media Exposure to Mass Shootings

Most individuals (excluding those directly exposed) learn about both domestic and international mass shooting events via the media. Modeling the coverage of the 1999 Columbine High School shooting, media coverage of mass shootings in the U.S. often opt for real-time, uninterrupted reporting at the scene of the event (Schildkraut & Elsass, 2017; Schildkraut, Elsass, & Meredith, 2018). Event information is typically shared in a practice referred to as “agenda setting” (Schildkraut & Elsass, 2017). By calling attention to select or specific aspects of the event (e.g., perpetrator characteristics), the media has the potential to influence consumer beliefs or attitudes about the event. Additionally, the media historically has provided a platform

for discussions on gun control and the right to carry guns after mass shootings (Schildkraut & Elsass, 2017). This has led to research on media consumption and beliefs/attitudes about mass shootings, the shooter, and gun policy, along with gun ownership.

Compared to traditional media consumption, more social media consumption (specifically Twitter) is associated with greater college student beliefs that school shootings are a major problem in the U.S. (Elsass, Schlidkraut, & Stafford, 2014). Data from a nationally representative sample of Americans also indicate that media manipulations can affect beliefs around gun violence and gun policy. In particular, relative to persons in the control condition (no story), those who read a story of a mass shooting committed by a person with serious mental illness were less likely to want to live or work near a mentally ill person, more likely to perceive the mentally ill as dangerous, and more likely to support gun restrictions and policy banning high capacity magazines (McGinty, Webster, & Barry, 2013). Guided by Terror Management Theory (TMT; Harmon-Jones et al., 1997), recent experimental work finds that exposure to print media on the Sandy Hook Elementary School shootings and the 2015 San Bernardino, California terrorist attack prompted death-related thoughts, which in turn reinforced pre-existing gun policy attitudes along partisan lines (e.g., Republicans displaying less support for gun control laws but stronger support for open carry policies; Jang, 2019). This parallels earlier findings that show that Republicans and Democrats differ in their causal reasoning after a mass shooting event (i.e., blaming “troubled” individuals or broader social problems; Joslyn & Haider-Markel, 2013). Finally, a study using transfer entropy analysis identified a potential causal link from media coverage on firearm control regulations to nationwide firearm acquisition, after controlling for mass shooting events (Porfiri et al., 2019). Media coverage therefore may not only relate to how individuals feel about guns, but may also increase their desire to own a gun in the aftermath of mass shooting.

The Present Study

It remains unclear whether direct or indirect (media-based) exposure are associated with the gun policy attitudes of Americans after a specific mass shooting event, especially above and

beyond other frequently studied predictors (e.g., gun ownership and political partisanship). This gap in knowledge is in part explained by the difficulty in collecting timely and representative exposure data in the aftermath of a mass shooting (Jones, Brymer, & Silver, 2019) and the trend to focus on the relationship between exposure and health outcomes post-event (Norris et al., 2002; Pfefferbaum et al., 2014). As has been documented since the September 11th terror attacks, increased media coverage of large-scale man-made traumas or disaster events can be associated with both short- and long-term health problems (e.g., acute stress, post-traumatic stress, cardiac problems; Holman, Garfin, & Silver, 2014; Holman et al., 2008; Silver et al., 2013, and see Houston, Spialek, & First, 2018, for a recent review). Just as extensive exposure to media coverage of a collective trauma can have health consequences, evidence suggests that the media may also reinforce or manipulate personal belief systems with stories, images, or audio (Iyer, Webster, Hornsey, & Vanman, 2014; McGinty et al., 2013). We thus extend past research that has used geographic proximity (Newman & Hartman, 2019) as a proxy for exposure by including measures of direct and indirect (media-based) exposure to the Orlando nightclub shooting to understand how event-specific trauma exposure informs gun attitudes in its aftermath among a representative sample of Americans. Specifically, we had three research goals:

Goal 1. Assess the prevalence of support for gun control policies, specifically the use of universal background checks and stricter gun firearm sale laws in the aftermath of a specific and historic mass shooting event.

Goal 2. Identify the non-trauma related individual attributes associated with gun policy attitudes in the aftermath of the shooting.

Goal 3. Identify the association between direct or indirect (media-based) Orlando nightclub shooting exposure and gun policy attitudes in the aftermath of the massacre, controlling for relevant socioeconomic, psychological, historical, and political attributes.

Methods

Data and Participants

Participants in this study were drawn from the GfK KnowledgePanel, the largest online survey research panel that is representative of the adult U.S. population aged 18 or older (GfK, 2016). The KnowledgePanel was created via address-based sampling, a probability-based sampling methodology that ensures population coverage for hard-to-reach individuals. Panelists are non-institutional adults aged 18 years or older who could complete surveys in English. GfK provides a web-enabled device and free Internet service for adults recruited from households without Internet access to facilitate survey completion and ensure sample representativeness. Research indicates that such probability panels maintain a strong degree of reliability, while non-probability and convenience panels (e.g., mTurk, YouGov, Prolific) hold considerable risk for bias (Callegaro et al, 2014; Yeager et al, 2011). GfK uses probability-based selection to make certain all panelists have an equal probability of being included in the study sample. Panelists complete surveys in exchange for Internet access or points for merchandise. Post-stratification weights based on U.S. Census demographics were applied to all statistics reported to allow for population inferences (see Holman et al., 2014, for more details about weighting of the panel). The study protocol and all procedures were approved by the Institutional Review Board at the University of California, Irvine.

The Orlando nightclub shooting occurred June 12, 2016. Starting five days later, panelists were invited to participate in a study of the shooting. Demographics, recent history of violence, event exposure, and gun attitude data were collected (N = 3,199; weighted age: M = 47.97; SD = 16.77). Data collection took place between June 17 and July 22, 2016 (89% of participants completed their surveys in the first 3 weeks, June 17-July 8, 2016; completion rate: 74.7%). The vast majority (95%) completed the survey anonymously online; a small proportion (5%) completed the survey anonymously via a paper and pencil version that they mailed back in a self-addressed stamped envelope. Two variables – prior physician diagnoses of mental illness

and political party affiliation – were collected or updated earlier (December 29, 2014 through February 27, 2015)[1]. Descriptive statistics are presented for all study variables in Table 1.

Independent Variables

Demographics. Demographic data were collected upon entry to the GfK panel and updated annually, assessing the following: age (in years), gender (1 = female; 0 = male), highest level of educational attainment (1 = bachelor's degree or higher; 0 = some college, high school, or less than high school), household income (an 8-level ranked measure ranging from "less than $24, 999" to "$175,000 or more"), and ethnicity (Black, Hispanic, "Other", and multi-race; non-Hispanic White was the reference group).

Mental health history. GfK collected information on whether panelists had ever been diagnosed ("yes" or "no") with an anxiety or depressive disorder prior to the shooting. The count of disorders was coded such that: 0 = no anxiety or depression, 1= anxiety or depression, 2 = both anxiety and depression.

Time. Time captured the time of survey completion following the Orlando nightclub shooting in terms of weeks (1 = June 17th to June 19th; 2= June 20th to June 26th, 3= June 27th to July 3rd, 4= July 4th to July 10th, 5 = July 11th to July 17th, 6 = July 18th to July 22nd).

Political identity and gun ownership. GfK panel data included a single item on political party identification and two items on gun ownership. For political identification, the original 7-level measure was used to create two separate dummy coded measures for Independents (1 = Undecided/Independent/Other, Leans Democrat, or Leans Republican) and Democrats (1 = Strong/Not Strong Democrat), with Republicans as the reference group (0 = Strong/Not Strong Republican). Gun ownership was likewise based on the yes/no responses to the following question: "Are there any guns or revolvers that are kept in your home or garage?". Those who

[1] Participant data come from a multi-year longitudinal study initially focused on individual health and responses to the 2013 Boston Marathon bombings (for additional details see Holman et al., 2014). In this study, we used data from wave 6 (demographics, recent history of violence, event exposure, and gun attitudes) and wave 4 (mental health diagnoses and political party affiliation).

said “yes” were asked the follow-up question: “Do any of these guns personally belong to you?”. Responses were coded to create a dichotomous measure of gun ownership (1= owner of gun in the home/garage; 0 = no gun in home/garage or not owner of a gun in the home/garage).

Recent history of violence. Past year violence exposure was based on the Blum, Silver, and Poulin (2014) measure of violent life events. Individuals indicated whether they had experienced and/or lost someone as a result of 10 different violent events (e.g., combat exposure, man-made disaster, physical or sexual assault). The total number of violent events experienced since June 2015 were summed to create a measure of recent (past year) history of violence (range: 0 -10).

Direct Orlando shooting exposure. A person was deemed directly exposed (coded 1) to the Orlando shooting if he or she replied “yes” to either of the following: self or close other (e.g. loved one) was at or near the site of the Orlando mass shooting[2]. If they responded “no” to both statements, they were considered not directly exposed (coded 0).

Media-based exposure to the Orlando shooting. Media-based exposure was captured with the number of hours per day (on average) that one watched or listened to five different sources of media for coverage on the Orlando nightclub shooting. Media types included TV, radio, online news sources (CNN, Yahoo, NYTimes.com etc.), pictures and or videos on social media (Facebook, Twitter, etc.), and news or text updates on social media (Twitter, Reddit, etc.) and were rated using a 13-point response scale ranging from “none” to “11+ hours per day”. The total number of hours of media consumed across the five media types was summed (0=none, 0.5 = less than 1 hour, 1 = 1 hour … 11 = 11+ hours) (see Holman et al., 2014). The generated cumulative measure of media exposure was divided into four quantiles: 1= less than 1 hour, 2 = 1 to less than 2hrs, 3 = 2 to less than 4hrs, and 4 = 4 or more hours per day. This measure was

[2] More participants indicated that someone close to them was at or near the site of the Orlando mass shooting (weighted *n*: 43.5) as opposed to stating they were at or near the site of the Orlando mass shooting (weighted *n*: 14.7).

then recoded to create dichotomous measures of media exposure where less than 1 hour served as the reference group.

Dependent Variables

Gun attitudes. Two items taken from Gallup polls (Gallup, 2018) asked participants about their general feelings surrounding gun laws. The first asked “In general, do you think laws covering the sale of firearms should be made more strict, less strict, or be kept the same as they are now?” Response options included: more strict, less strict, kept the same as they are now, and no opinion. The second asked “Do you favor or oppose a law that would require universal background checks for all gun purchases in the US using a centralized database across all 50 states?” Response options included: favor, oppose, and no opinion.

Analytic Plan

All analyses were conducted in STATA, version 14 (Stata Corp., Texas). To ensure estimates were nationally representative of the U.S. population, post-stratification weights were used in all models using the “svyset” command. Sample statistics were reported as means, standard deviations, and percentages. In addition, separate multinomial logistic regression models were estimated to identify correlates of the two gun attitudes: (1) making firearm sale laws more or less strict or keeping them the same and (2) requiring universal background checks. The firearm sales law outcome variable was coded such that “no opinion” and “kept the same” defined the reference group (coded as 2) for “more strict” (coded as 3) and “less strict” (coded as 1). For the universal background checks outcome variable, “no opinion” defined the reference group (coded as 2) for “favor” (coded as 3) and “oppose” (coded as 1). Reported model statistics include relative risk ratios (*RRR*), 95% confidence intervals (*CI*), and *p* values.

Power Analysis

We conducted a *post hoc* power analysis for the two dependent variables (attitudes about firearm sale laws and preference for universal background checks) with each variable having two contrasts: more strict or less strict vs keep the same/no opinion and favor or oppose vs no

opinion. Associations were assessed between these outcome variables and two primary independent variables: direct exposure and media exposure to the Orlando nightclub shooting. Thus, the statistical power for detecting a total of eight associations was assessed. After adjusting for multiplicity, the effective alpha was 0.006 (0.05 / 8). We conservatively assumed a high level of multiple correlation between the covariates and the primary independent variables (r^2 of 0.49), which corresponds to a variance inflation factor of 1.96 (Hsieh, Bloch, & Larsen, 1998). Using these parameters, a sample size of 2,927 (*N* after deletion of observations with missing covariate values; Table 3) provides 87% power for detecting a small effect size (Cohen's *w*) of 0.14 for all eight comparisons.

Results

Participants were primarily Independent (43%), followed by Democrat (33%) and Republican (24%). Almost one-quarter (23%) were gun owners. Few indicated being directly exposed to the Orlando nightclub shooting (< 2%), but 80% consumed 1 hour or more of media related coverage about the event. Most participants supported gun regulation efforts, with around 61% advocating for stricter firearm sale laws and 80% in favor of universal background checks (Goal 1). All reported statistics mentioned above are weighted (see Table 1).

Attitudes about Firearm Sale Laws

As noted in Table 2, in the aftermath of this shooting, those with a Bachelor's degree or higher, Independents, Democrats, and non-gun owners preferred stricter gun laws when compared to their respective counterparts (i.e., those with less education, Republicans, and gun owners, in order). Men and those who reported a greater number of recent violent events preferred less strict gun laws when compared to women and those reporting fewer violent events (Goal 2). Respondents who were exposed to one or more hours of Orlando nightclub shooting media were 53% to 77% more likely to endorse stricter gun laws over no change. Direct exposure was not a significant predictor of firearm sale law attitudes (Goal 3). The preference for

stricter or less strict firearm sale laws was evaluated in comparison to making no change to the current law (i.e., having “no opinion” or wanting firearm laws to be “kept the same”).

Preference for Universal Background Checks

As noted in Table 3, Democrats and those with a Bachelor’s degree or higher favored universal background checks when compared to Republicans and those with less education. Men and gun owners on the other hand were more likely to oppose universal background checks when compared to women and non-gun owners. Being older in age and reporting more violent events in the past year were associated with having a non-neutral opinion about universal background checks in either direction (i.e., favor or oppose; Goal 2). Relative to individuals who reported no opinion on gun sale protocol, respondents who reported one or more hours of media exposure were 92% to 100% more likely to favor universal background checks when compared to respondents with less than 1 hour of media exposure. Direct exposure was not a significant predictor of universal background check attitudes (Goal 3). Universal background check preferences were evaluated in comparison to the "no opinion" group.

Discussion

In the U.S., mass shootings have become frequent, violent, tragic events. With the American public as the victims of these devastating events, it is important to understand how Americans feel about gun legislation in the aftermath of mass shootings. Consistent with prior work (Haider-Markel & Joslyn, 2001; Parker, 2017; Pew, 2018), most respondents were in favor of increased or additional gun regulations (Goal 1) and political party affiliation, participant demographic details (age, gender, and education) and gun ownership were all associated with gun attitudes in the aftermath. Recent history of violence was also associated with the desire for less strict gun laws and both favoring/opposing universal background checks. This latter counterintuitive finding likely has to do with the fact that for some victims of violence owning a gun may increase feelings of protection (Kleck, Kovandzic, Saber, & Hauser, 2011), whereas for others owning a gun could be a trigger or unnecessary (trust in police; Kleck, Gertz, & Bratton,

2009), leading to distinctly non-neutral opinions on gun policy (Goal 2). Novel to this study, we found that increased media exposure to the Orlando mass shooting was significantly associated with the desire for stricter gun laws and universal background checks, even after adjusting for common predictors (e.g., demographics, political affiliation, and gun ownership).

Increased media exposure to the shooting corresponded to wanting stricter firearm sale policies and favoring universal background checks, rather than preferring no change/the status quo or having no opinion on the issue. These findings suggest that the media may have the ability to shape an agenda (Smidt, 2012), as well as reflect, public attitudes around gun violence. In part, the potentially persuasive ability of the media to shape gun attitudes may be rooted in its ability to personalize sometimes distant traumatic events. As evidenced by Jang (2019), one pathway by which the media can personalize mass shooting events to influence gun attitudes is by reminding individuals of their own mortality. No direct exposure effects were found for either outcome, likely due to the fact that only a small subset of participants indicated being directly exposed to the Orlando shootings (weighted percentage: 1.78%; Goal 3). Replication studies are required to determine the robustness of the relationship between direct/indirect shooting exposure and gun attitudes.

Cultural worldviews frame not only what we attend to but what we choose to ignore in real life and in the media (e.g., political differences in media consumption; Coe et al., 2008). People are more influenced by those who share their cultural worldview (Braman et al., 2005) and tend to discredit or “tune out” information discordant with their cultural ethos (Braman et al., 2005; Festinger, 1957), even when doing so can be costly (i.e., “strong” Democrat/Republican support for banning assault weapons is unaffected by neighborhood crime rates; Pearson-Merkowitz & Dyck, 2017). Media exposure in the aftermath of a mass shooting might therefore have differential influence depending on the media source/content and the recipient’s cultural worldview. Such issues would benefit from more research in the future.

Limitations

Although this is one of the first studies to examine attitudes toward guns and gun policies among a nationally representative sample in the early aftermath of a mass shooting, limitations nonetheless exist regarding our political, mental health, history of violence, and media data. Political party affiliation and doctor-diagnosed mental disorders were collected months before the Orlando nightclub shooting. As neither are considered time-invariant attributes, more up-to-date information should be used when available. In terms of our assessment of violence victimization history, the items used did not include specific information on whether a gun was involved. Individual attitudes on gun policy may differ depending upon history of gun-specific violence; a more sensitive measure would discriminate between non-gun violence and gun violence. Details on the informational content, tone, and source of media coverage were not collected in this study. Future studies should consider collecting these data, as doing so may provide a better understanding of what it is about media exposure of mass shootings that is associated with gun policy attitudes. All findings are specific to U.S. residents and may not be generalizable to other cultural or social contexts.

Research Implications

Future studies should continue to examine how exposure to mass shootings informs attitudes around gun legislation, with special attention to the role of the media. In particular, studies should examine how the media can be distressing but also beneficial in starting a national dialogue about gun violence in the United States. Shifts in political ideology and gun attitudes tend to be related to acute stress responses following shootings (Ben-Ezra, Hamama-Raz, Mahat-Shamir, Pitcho-Prelorentzos, & Kaniasty, 2017). Efforts to understand the temporal sustainability of attitudes and reactions to gun violence therefore remain important areas of study.

Prevention and Policy Implications

To enact stricter gun control laws or regulation efforts, bipartisan support and public dialogue is needed. Presently, the bipartisan support required to push gun control legislation through Congress is often absent and discussions censored. Our results, along with other published research (Barry et al., 2013; Newman & Hartman, 2019), suggest that most Americans are supportive of stricter gun laws in the aftermath of a mass shooting and that media exposure may be instrumental in fostering public attitudes toward gun policy. Government leaders invested in "doing right" by their constituents should consider implementing gun control policies or, at a minimum, support open dialogue and increase science funding to study gun policy. As our data suggest that media exposure was associated with gun control policy attitudes following the Orlando massacre, it also seems reasonable to assume that media-based interventions (e.g., campaigns focused on educating the public on gun violence or changing social/cultural gun norms; Mozaffarian, Hemenway, & Ludwig, 2013) could serve as a powerful and positive aid (Vasterman, Yzermans, & Dirkzwager, 2005) in gun violence prevention efforts. In the U.S., mass shootings have become a "contagious" public health epidemic (Towers, Gomez-Lievano, Khan, Mubayi, & Castillo-Chavez, 2015) and change will likely require both new policies and new or enhanced interventions, with public opinion at the center.

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Table 1.
Sample Descriptives (N = 3,199)

	Weighted		Unweighted	
	M(*SD*)	Percent	*M*(*SD*)	Percent
Time				
June 17-19, 2016		36.77		41.67
June 20-26, 2016		37.19		35.60
June 27-July 3, 2016		7.08		6.94
July 4-10, 2016		5.49		5.63
July 11-17, 2016		8.70		6.06
July 18-22, 2016		4.78		4.10
Age (in years)	47.97(16.77)		53.36(16.51)	
Female		52.24		54.20
Ethnicity				
White		66.56		77.81
Black		11.30		7.47
Other		6.09		3.25
Hispanic		14.45		9.00
Multi-race		1.60		2.47
Education (Bachelor's or higher = 1)		28.93		45.51
Household Income				
Less than $24,999		16.66		12.35
$25,000 to $49,999		21.78		20.16
$50,000 to $74.999		18.56		19.41
$75,000 to $99,999		16.88		16.16
$100,000 to $124,999		11.36		12.79
$125,000 to $149,999		5.87		6.94
$150,000 to $174,999		4.08		4.50
$175,000 or more		4.83		7.69

Political Identity				
Republican		24.02		23.13
Independent[a]		43.44		42.98
Democrat		32.55		33.90
Gun Ownership		22.94		19.03
Prior Mental Health				
No disorders		81.91		81.65
Either anxiety or depression		11.43		11.66
Both disorders		6.66		6.69
Recent History of Violence	0.20(0.73)		0.15(0.57)	
Direct Exposure to Orlando Shooting		1.78		1.41
Media Exposure to Orlando Shooting				
Less than 1 hour		19.86		17.49
1 to less than 2 hours		23.60		25.38
2 to less than 4 hours		28.48		30.13
4 or more hours		28.06		27.00
Laws Covering Sale of Firearms				
More strict		60.72		67.76
Keep the same		26.34		21.86
Less strict		6.58		5.56
No opinion		6.36		4.83
Universal Background Checks				
Favor		80.00		85.06
Oppose		9.39		7.00
No opinion		10.61		7.95

Notes. *M* = mean; *SD* = standard deviation. There were no missing data for demographics, time, prior mental health, and direct exposure to the Orlando nightclub shooting. Except for gun ownership (6% missing), all other measures (i.e., policy attitudes, media exposure, political identity, and violence history) had less than 2% missing data. Missingness was not significantly predicted by participant demographics or prior mental health.

[a] Independents include those who marked “Undecided/Independent/Other” along with “Leans Democrat” and “Leans Republican”

Table 2.
Correlates of Americans' Preference for Changes in Firearm Sale Laws (N = 2,932)

	More Strict		Less Strict	
	RRR	95% *CI*	*RRR*	95% *CI*
Time (in weeks)	0.99	[0.90,1.08]	0.88	[0.73,1.06]
Age (in years)	1.01	[1.00,1.02]	0.99	[0.98,1.01]
Gender (Female = 1)	1.10	[0.82,1.46]	0.53*	[0.30,0.95]
Black	1.79	[0.99,3.25]	0.43	[0.05,3.37]
Other	1.18	[0.55,2.51]	2.62	[0.83,8.27]
Hispanic	1.66	[0.99,2.78]	1.56	[0.68,3.58]
Multi-race	0.82	[0.37,1.80]	0.54	[0.14,2.09]
Education (Bachelor's or higher = 1)	1.96***	[1.44,2.66]	0.63	[0.34,1.15]
Household Income	1.03	[0.95,1.11]	1.05	[0.90,1.23]
Independent	2.22***	[1.62,3.05]	1.20	[0.66,2.16]
Democrat	5.33***	[3.65,7.79]	1.28	[0.60,2.72]
Gun ownership	0.37***	[0.27,0.52]	1.06	[0.58,1.94]
Prior Mental Health	1.08	[0.86,1.37]	0.95	[0.57,1.59]
Recent History of Violence	1.29	[0.97,1.70]	1.94***	[1.34,2.80]
Direct Exposure to Orlando shooting[a]	1.06	[0.38,2.97]	1.83	[0.38,8.81]
Media Exposure to Orlando shooting				
1 to < 2 hours	1.53*	[1.05,2.23]	0.83	[0.38,1.82]
2 to < 4 hours	1.53*	[1.05,2.25]	1.08	[0.51,2.29]
4 or more hours	1.77**	[1.19,2.62]	1.03	[0.49,2.18]
Constant	0.30**	[0.15,0.60]	0.27*	[0.08,0.94]
F(*df*,*df*)	6.52(36,2896)***			

Notes. *RRR* = relative risk ratio; *CI* = confidence interval; *df* = degrees of freedom. The base group for the above multinomial logistic regression is "keep the same" and "no opinion".
[a] Models excluding individuals who were directly exposed did not significantly differ from those reported above.
*p < .05. **p< .01. ***p< .001.

Table 3.
Correlates of Americans' Preference for Universal Background Checks (N = 2,927)

	Favor		Oppose	
	RRR	95% *CI*	*RRR*	95% *CI*
Time (in weeks)	1.00	[0.86,1.16]	0.96	[0.77,1.18]
Age (in years)	1.01*	[1.00,1.02]	1.02*	[1.00,1.04]
Gender (Female = 1)	0.97	[0.63,1.50]	0.46*	[0.25,0.86]
Black	0.92	[0.41,2.04]	0.42	[0.10,1.81]
Other	1.96	[0.51,7.45]	2.72	[0.55,13.41]
Hispanic	1.54	[0.70,3.42]	1.77	[0.64,4.92]
Multi-race	0.68	[0.21,2.22]	0.54	[0.09,3.15]
Education (Bachelor's or higher = 1)	2.08**	[1.20,3.58]	1.76	[0.88,3.51]
Household Income	1.08	[0.95,1.21]	0.97	[0.81,1.16]
Independent	1.11	[0.70,1.75]	0.92	[0.50,1.71]
Democrat	3.30***	[1.77,6.16]	0.77	[0.30,2.00]
Gun ownership	1.09	[0.65,1.82]	2.73**	[1.39,5.35]
Prior Mental Health	1.30	[0.89,1.90]	1.45	[0.84,2.51]
Recent History of Violence	1.89*	[1.05,3.40]	2.72**	[1.44,5.14]
Direct Exposure to Orlando shooting[a]	1.52	[0.20,11.35]	2.52	[0.22,29.05]
Media Exposure to Orlando shooting				
1 to < 2 hours	1.98*	[1.15,3.42]	1.17	[0.53,2.58]
2 to < 4 hours	1.92*	[1.11,3.30]	1.09	[0.50,2.37]
4 or more hours	2.00*	[1.15,3.48]	1.15	[0.53,2.52]
Constant	0.97	[0.36,2.57]	0.26	[0.07,1.06]
F(*df*,*df*)	4.93(36,2891)***			

Notes. *RRR* = relative risk ratio; *CI* = confidence interval; *df* = degrees of freedom. The base group for the above multinomial logistic regression is "no opinion".
[a] Models excluding individuals who were directly exposed did not significantly differ from those reported above.
*p < .05. **p< .01. ***p< .001.