In the wake of a terrorist attack, do Americans’ attitudes toward Muslims decline?

Amber E. Boydstun1, Jessica T. Feezell2 and Rebecca A. Glazier3

Abstract

When a terrorist attack occurs, a natural response may be increased public concern about terrorism. But when a self-described Muslim perpetrates a terrorist attack, do negative attitudes toward Muslims also increase? If so, is this effect conditional on the nature of people’s past personal experiences with Muslims? We present natural experiment data based on a 2015 web-based survey of 2105 non-Muslims in the US, a survey that happened to span the terrorist attacks in Paris on 13 November and San Bernardino on 2 December. We thus test Americans’ feelings toward Muslims immediately before and after both an international and a domestic terrorist attack. We find that, although the attacks significantly affected Americans’ concerns about radicalism both in the US and abroad, they did not negatively affect Americans’ thermometer feelings toward Muslims in the aggregate—a null finding conditioned only slightly by the nature of past personal experiences with Muslims.

Keywords
Terrorism, public opinion, contact hypothesis, Muslim

Introduction

Public opinion data indicate that terrorist attacks tend to increase overall concern about terrorism (Newport 2015; Poushter 2015). But do terrorist attacks carried out by self-described Muslims lead people to view Muslims less favorably? We use a survey that was serendipitously in the field during the 2015 Paris and San Bernardino terrorist attacks, resulting in a natural experiment that allows us to assess whether the attacks affected Americans’ attitudes toward Muslims and, moreover, whether any effects differed based on the nature of people’s previous personal encounters with Muslims.

Although several studies indicate that terrorist attacks by self-reported Muslims may negatively affect people’s attitudes toward Muslims in general, the literature is inconclusive. One main reason to expect a negative response is that Muslims are often viewed as both religious and ethnic outsiders (Kalkan et al., 2009; Rowatt et al., 2005) and are commonly linked with terrorism in the media and in the minds of Americans (e.g. Gerges, 2003). Das et al. (2009), for example, find that the murder of Dutch filmmaker Theo van Gogh by Islamic extremists—committed in the midst of their ongoing study—increased participants’ prejudice toward Arabs. Likewise, Legewie (2013) examines survey data in the field during both the 2002 Bali and the 2004 Madrid terrorist attacks, showing that the attacks negatively affected European attitudes toward immigrants. Thus, if a person associates Muslims with terrorism, or is cued to think about terrorism (e.g. by a terrorist event), we might expect that person to report cooler feelings toward Muslims as a result.

Yet the effects of terrorism on attitudes toward Muslims are likely not monolithic; we should expect attitudinal responses to vary based on personal experience (e.g. Ojeda, 2016). This expectation derives in part from the “contact hypothesis” literature, which suggests that people who have contact—particularly extended personal contact (Wright...
et al., 1997)—with members of a perceived out-group will not be as susceptible to fallacies of generalization (Pettigrew and Tropp, 2006).

More specifically, the literature on “group threat” cautions that contact can be either negative or positive (Gilliam et al., 2002). Mironova and Whitt (2014) find that ethnic Serbs who live closer to rival Albanians have both greater in-group identification and greater out-group altruism. Whereas King and Wheelock (2007) show that contact with out-groups that seem threatening can increase prejudice and punitiveness, Park et al. (2007) were able to substantially diminish implicit Arab-Muslim bias with a single positive news story. Furthermore, positive interactions can decrease anxiety about out-groups (Desforges et al., 1991).

The literature on racial prejudice provides additional insight into how we might expect anti-Muslim bias to work. For instance Gilliam et al. (2002) find that people from heterogeneous neighborhoods, where both Black and White people live, are less likely to accept negative stereotypes in the news that portray Blacks as violent criminals. In fact, they find that White respondents who have more Black neighbors are less likely to endorse Black stereotypes when they view a stereotypical news story about crime featuring a Black suspect than when no racial information is provided about the suspect. White respondents with fewer Black neighbors, on the other hand, are more likely to endorse Black stereotypes after viewing the news story with a Black criminal suspect.

The nature of past encounters might help explain the somewhat counterintuitive finding of Panagopoulos (2006), who identifies a spike in pro-Muslim attitudes after 9/11. This modest increase in pro-Muslim sentiment may have resulted from some people rejecting the connection between the 9/11 attackers and Muslims they knew personally. In short, news reports—whether about crime or terrorism—are interpreted in the light of personal experience. Those who know Black people personally may reject the connection between race and crime, just as those who know Muslim people personally may reject the connection between religion and terrorism.

Based on this theory that the nature of previous intergroup contact conditions people’s susceptibility to endorsing stereotypes in the wake of an event or news report, we expect Hypothesis 1:

H1. The nature of people’s past encounters with Muslims will condition the effects of terrorist attacks on attitudes toward Muslims. Specifically, people with positive (negative) previous encounters with Muslims will view Muslims more (less) favorably following a terrorist attack by a purported Muslim, relative to attitudes prior to the attack.

Data
Because terrorist attacks are largely unpredictable, comparing attitudes before and after a terrorist attack is challenging. However, as part of a different project, we happened to have a survey measuring concern about religious radicalism and feelings toward Muslims in the field during two major terrorist attacks carried out by self-identified Muslims. In total, the survey was completed by 2128 US participants recruited through Amazon’s Mechanical Turk and administered using Qualtrics. We excluded Muslim participants (N = 23) from the analysis, leaving 2105 participants.

Social desirability bias leads respondents to often under-report their opposition to certain groups in an attempt to be viewed more favorably by others. However, a recent list experiment study conducted by Creighton and Jamal (2015) finds that Americans do not hold back their opposition to Muslims as they do for other groups. In other words, it is socially acceptable to be opposed to Muslims, thus rendering social desirability forces less relevant in asking survey questions about Muslims. Nevertheless, we guard against social desirability pressures in this study in two ways. First, we use a web-based survey rather than a face-to-face or phone survey, which helps mitigate social desirability bias for sensitive topics (Kreuter et al., 2008). We also protected against bias by assuring anonymity and allowing participants to skip questions. Although eliminating social desirability bias entirely is nearly impossible, we have no reason to believe that this bias would change over the course of our study.

The survey was posted on MTurk on 4 November 2015. The title of the post read, “Take a brief public opinion survey (~10 min.).” The job description gave no indication of the content about terrorism or Muslims, which might have affected response rates after an attack.1 On 13 November 2015 there was a series of coordinated, high-profile terrorist attacks in Paris, killing 130 people in all (New York Times, 2016). Extensive international media coverage was dedicated to the attacks, and Americans generally reacted with solidarity and empathy (Healy and Fausset, 2015). Only a few weeks following the Paris attacks, on 2 December 2015, there was a terrorist shooting in San Bernardino, California, killing 14 and injuring 21 (CNN, 2015). Our survey closed on 16 December 2015.

The resulting dataset contains a national (non-random) sample of US non-Muslim adults2 responding to questions about religious radicalism and Muslims both before and after major international and domestic terrorist attacks. We have a large number of participants in each of the three time points of interest: 897 (42%) before the Paris attacks, 710 (34%) between the attacks, and 498 (24%) after San Bernardino (see Online Appendix Figure A.1 for counts of participants per day). Although the sample is not a representative one, MTurk provides a diverse sample that is increasingly used by researchers (Berinsky et al., 2012). Given the innocuous MTurk job title and description, and the random timing of the terrorist attacks, we have no reason to believe that people taking the survey before the attacks were systematically different from those who took it after
one or both attacks. We test sample comparability using balance tests, presented in Table 1. ANOVA tests show that the two variables of particular import to our research question—evaluation of past encounters with Muslims (continuous), and categorizing past encounters with Muslims as positive (binary)—were balanced across the three time periods, supporting our ability to treat the data as a natural experiment. Nevertheless, it is important to acknowledge that our findings rest on the assumption that the compositions of the samples in each period are comparable.

The balance tests in Table 1 also show that the demographic variables of party identification, race (using a binary variable for White vs. non-White respondents), age, and Christian religious identity are balanced across all three periods. However, there is not balance on sex at the 0.05 level; more women responded in the last two periods. And both education and California zip code approach significance. Thus, in the models we present in Table 2, we offer versions that control for sex, education, and California zip code. (See Table 1 for balance results and Online Appendix Table A.1 for summary statistics.)

Analysis and results

Our data provide a natural experiment in which we were able to compare participant responses across the three time periods to the following questions, all ranging from 0 to 100 using sliding scales that required movement in order for a response to register: levels of concern about “the possible rise of religious radicalism” both in the US and around the world ($N = 2059$ and $N = 2063$, respectively); a Muslim feeling thermometer ($N = 1922$); and how respondents characterized their past “personal encounters with Muslims,” with higher numbers indicating more positive encounters ($N = 1962$). (See Online Appendix for full wording of questions.)

Although the Paris attacks happened abroad, we expect that Americans’ reactions to the two attacks will be similar, since most Americans likely consider Western Europe as part of the same broad “in-group” as the US when it comes to terrorism. For instance, fear of terrorism increased in the US following the 2005 London attacks (Sinclair and Antonius, 2012). Similarly, Geys (2017) shows that Belgians were affected by the 11 September 2001 terrorist attacks in the US. Additionally, because the Paris and San Bernardino attacks occurred in short order, any effects they had on Americans’ attitudes are likely to be cumulative.

### Table 1. Balance tests across time periods.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean variable value by attack period</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before Paris</td>
<td>Between Paris and San Bernardino</td>
</tr>
<tr>
<td>Party ID (7-point scale, Republican to Democrat)</td>
<td>4.596</td>
<td>4.598</td>
</tr>
<tr>
<td>White (binary)</td>
<td>(1.764)</td>
<td>(1.707)</td>
</tr>
<tr>
<td>Age</td>
<td>0.811</td>
<td>0.790</td>
</tr>
<tr>
<td>Age</td>
<td>(0.392)</td>
<td>(0.408)</td>
</tr>
<tr>
<td>Age</td>
<td>35.160</td>
<td>34.526</td>
</tr>
<tr>
<td>Female (binary)</td>
<td>(11.947)</td>
<td>(12.583)</td>
</tr>
<tr>
<td>Female (binary)</td>
<td>0.544</td>
<td>0.599</td>
</tr>
<tr>
<td>Female (binary)</td>
<td>(0.498)</td>
<td>(0.490)</td>
</tr>
<tr>
<td>Education</td>
<td>4.221</td>
<td>4.074</td>
</tr>
<tr>
<td>Education</td>
<td>(1.232)</td>
<td>(1.269)</td>
</tr>
<tr>
<td>Education</td>
<td>0.436</td>
<td>0.449</td>
</tr>
<tr>
<td>Education</td>
<td>(0.496)</td>
<td>(0.498)</td>
</tr>
<tr>
<td>California zip code (binary)</td>
<td>0.196</td>
<td>0.152</td>
</tr>
<tr>
<td>California zip code (binary)</td>
<td>(0.397)</td>
<td>(0.359)</td>
</tr>
<tr>
<td>Past encounters with Muslims (continuous variable)</td>
<td>69.715</td>
<td>71.175</td>
</tr>
<tr>
<td>Past encounters with Muslims (continuous variable)</td>
<td>(24.341)</td>
<td>(25.309)</td>
</tr>
<tr>
<td>Positive past encounters (binary: &gt;50 on a 0–100 scale)</td>
<td>0.725</td>
<td>0.745</td>
</tr>
<tr>
<td>Positive past encounters (binary: &gt;50 on a 0–100 scale)</td>
<td>(0.447)</td>
<td>(0.436)</td>
</tr>
</tbody>
</table>

Note: One-way ANOVA; standard deviations in parentheses.
Thus, all those at 51 or above are responding with some amount of positivity toward Muslims. One concern is that a recent attack might affect people’s memories of their previous encounters with Muslims. But again, there is no statistical difference across the time periods either in the mean level of responses to the continuous “personal encounters” question or to the binary variable we employ (see Table 1).

Figure 1 shows the mean values for our variables of interest across the attacks. The Paris attacks significantly increased concerns about religious radicalism in the US and in the world. Interestingly, while both types of concern also increased after the San Bernardino attack, the change is not statistically significant. We suspect that these findings are the result of a ceiling effect. Given the large amount of media coverage of the Paris attacks, American concerns about radicalism might simply have maxed out following that event.

However, Figure 1 also shows that, on average, respondents’ feelings toward Muslims did not significantly change across the three time periods, suggesting that, in the aggregate at least, people did not generalize their concerns about radicalism to concerns about Muslims. It is worth noting that these results suggest that anti-Muslim attitudes are not directly driven by terrorist attacks perpetrated by Muslim actors; an important finding we return to in the conclusion.

For a more systematic test of our hypothesis, Table 2 presents regression results for concerns about radicalism in the US and in the world, and for our key dependent variable of interest: attitudes toward Muslims. Models 1, 3, and 5 present findings using our key independent variables of interest without additional covariates, including only: a variable for the “attacks,” coded 0 for before Paris, 1 for between Paris and San Bernardino, and 2 for after San Bernardino; the “positive past encounters” dichotomous variable; and an interaction term between this variable and the “attacks” variable in order to test whether the nature of people’s past encounters with Muslims conditions the effects of a terrorist attack on attitudes toward Muslims. The results from these basic models demonstrate that, overall, the attacks led to greater concerns about radicalism in the world, but not cooler attitudes toward Muslims. However, the significant interaction term suggests that the nature of people’s past encounters moderates their reaction to each terrorist attack.

Although we have no reason to believe that there is systematic bias in the population that responded to our survey over time, we also ran a version of each model (Models 2, 4, and 6 in Table 2) with controls for female, education, and California zip code—the only demographic variables in our sample that were not fully balanced. These results are nearly identical to the basic model. The attacks have no effect on attitudes toward Muslims, although the interaction term between positive past encounters and the attacks shows a significant effect.

Thus, in both sets of models, having positive past encounters with Muslims led to greater concern about terrorism in the world and also warmer feelings toward Muslims overall. In support of H1, as the attacks mounted
respondents with positive past encounters were more likely to feel greater positivity toward Muslims, compared to people with negative past encounters. This finding suggests that, whereas people with negative past encounters with Muslims may respond to terrorist attacks by adversely stereotyping Muslims, those with positive past encounters may rally in response, displaying increased warmth in attitudes toward Muslims.

However, the effect size is very small. In fact, when we plot in Figure 2 the predicted values for feelings toward Muslims among each group based on Model 5 from Table 2, we see that neither group demonstrates a statistically significant change in attitudes across the period of the attacks. The significant interaction finding stems only from the gap between the groups’ attitudes, and there only in comparing the gap between before Paris and after San Bernardino. The gap widens by 5.70 points (on the 100-point scale).

Online Appendix Tables A.2–A.4 offer tests of the effect of each attack in isolation instead of cumulatively. They show again that the significant interaction effect in Table 2 is the result of the cumulative change in attitudes after San Bernardino relative to before Paris.

Conclusion

The results from this natural experiment suggest that, in the wake of terrorist attacks perpetrated by self-identified Muslims, Americans do, in the aggregate, distinguish between terrorists and the broader community of Muslims. While on average people become more concerned about religious radicalism, they do not commit a fallacy of generalization by feeling cooler toward Muslims in general. Our results indicate that Americans’ anti-Muslim sentiment is not a direct artifact of terrorist attacks perpetrated by Muslims, suggesting that any negative attitudes are instead driven by other, more systemic factors.

Yet, in a finding that speaks to the importance of social contact, we also show suggestive evidence that the nature of previous personal contact (positive or negative) may moderate the effect of attacks on attitudes toward Muslims, at least in the case of mounting attacks as with Paris and San Bernardino. Positive previous encounters can lead to more positive attitudes toward Muslims following attacks, perhaps as people subconsciously rally to the defense of Muslims who may be stereotyped. By contrast, negative previous encounters can lead to more negative attitudes,
perhaps as stereotypes are reinforced. It is important to note, however, that the effect observed is very slight and is suggestive of this moderating effect without being conclusive.

These results help explain the simultaneous positive responses that followed the Paris and San Bernardino attacks (Kaleem and Blumberg, 2015; Sweas, 2015) as well as the fear-filled negative responses (Sullivan et al., 2015). Our study provides both a hopeful and a cautionary tale as societies grapple with increasing ethnocentrism and terrorism: personal contact can matter for how people respond to attacks. Without personal contact, negative Muslim stereotypes in media and popular culture may be many people’s main source of information about Muslims. With Muslims making up only about 1.1% of the US population (Mohamed, 2018), pervasive negative attitudes toward Muslims in the US may be slow in changing. But the most important finding from our study is a null finding: overall, terrorist attacks perpetrated by self-described Muslims do not erode people’s attitudes toward Muslims in general.

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Supplemental materials

Notes
1. The description read: “Respond to a short, 10–15 min. survey including questions about your opinions on certain issues and about yourself.” The average time it took a participant to complete the survey was 9.58 minutes (SD = 7.7 minutes).
2. Zip codes and IP addresses were checked to ensure that respondents were in the US.
3. Although Table 1 shows that the mean level of the “positive past encounters” variable did not significantly change from one time period to the next, endogeneity is still a concern. Specifically, although the terrorist attacks could not have had a causal influence on the actual nature of people’s past encounters with Muslims, people might remember their past encounters differently after an attack compared to before it. However, a mediation analysis reveals no sensitivity to endogeneity; the “attacks” variable does not have a significant effect on the positive past encounters variable (β = 0.034, p = 0.381), meaning there cannot be significant indirect effects of the attacks variable on people’s attitudes toward Muslims via the positive past encounters variable as mediator. This result reinforces our understanding of the positive past encounters variable as a moderator, rather than a mediator (Baron and Kenny, 1986; Imai et al., 2010; Hicks and Tingley, 2011).
4. See Online Appendix for the results of using an alternative cut-point directly below the midpoint of 50 (Table A.5) and for treating past experiences as a continuous variable (Table A.6). In both these models, the interaction term is insignificant.
5. An alternative way to visualize these natural experiment data is to use a regression discontinuity design (Finseraas and Listhaug, 2013; Jakobsson and Blom, 2014). As the assignment to treatment conditions varies discontinuously by the date of the attack, we can fit a regression line before v. after each attack. Online Appendix Figures A.6–A.11 show that concerns about radicalism in the US and abroad increased following each attack, but more sharply following Paris than following San Bernardino. Attitudes toward Muslims show a very slight drop following each attack.
6. However, as Mutz and Pemantle (2016) explain, this robustness check is largely unnecessary due to the randomization of our respondents over time.

References
Baron RM and Kenny DA (1986) The moderator–mediator variable distinction in social psychological research:

![Figure 2. Predictive values of feelings toward Muslims for those with positive versus negative past encounters with Muslims over time. Note: Vertical lines show 95% confidence intervals.](image-url)


