How Perpetrator Identity (Sometimes) Influences Media Framing Attacks as "Terrorism" or "Mental Illness"

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Erin M. Kearns is an Assistant Professor in the Department of Criminology & Criminal Justice at the University of Alabama. Her research examines the relationships among groups that use terrorism, police, media, and the public. Her work has been funded through sources including the National Consortium for the Study of and Responses to Terrorism (START) and featured on media

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Anthony F. Lemieux is Founding co-Director of the Atlanta Global Studies Center, and Professor of Communication at Georgia State University. He is Principal Investigator of the U.S. Department of Defense Minerva Initiative supported interdisciplinary, multi-institution, research program on Mobilizing Media which analyzes propaganda outputs of terrorist groups including magazines, music, images, texts, and videos. In addition, he is co-PI on a U.S. Department of Education supported National Resource Center and FLAS program in collaboration with colleagues at Georgia Tech.

Author contributions. AEB led the data coding and cleaning efforts, developed our theory, wrote introduction, and contributed to the literature review and discussion. EMK oversaw data collection, assisted with cleaning and coding, conducted the analyses, and wrote the methodology, results, discussion, and conclusion. AFL framed the idea for the project and wrote the literature review and contributed to the introduction and discussion.

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Abstract

Do media frame attacks with Muslim perpetrators as "terrorism" and attacks with White perpetrators as the result of "mental illness"? Despite public speculation and limited academic work with relatively small subsets of cases, there have been no systematic analyses of potential biases in how media frame terrorism. We addressed this gap by examining the text of print news coverage of all terrorist attacks in the United States between 2006 and 2015. Controlling for fatalities, affiliation with a group, and existing mental illness, the odds that an article references terrorism are approximately five times greater for a Muslim versus a non-Muslim perpetrator. In contrast, the odds that an article references mental illness do not significantly differ between White and non-White perpetrators. Results partially confirm public speculation and are robust against numerous alternative explanations. Differences in media framing can influence public (mis)perceptions of violence and threats, and ultimately harm counterterrorism policy.

Keywords: terrorism; mental illness; news coverage; media; framing

How Perpetrator Identity (Sometimes) Influences Media Framing Attacks as "Terrorism" or "Mental Illness"

In the aftermath of extremist violence, public discussion often centers on the question of whether or not to call the incident *terrorism.* This question can be deceptive in its simplicity; there is no absolute definition of terrorism for journalists to reference, nor are they obligated to select and consistently apply a specific definition. Recent public speculation suggests that media reference *terrorism* in coverage of terror attacks by non-White (often Muslim) perpetrators, whereas White perpetrators are more likely to be portrayed as mentally ill. A look at individual cases provides some anecdotal support for this supposition. For example, following Dylann Roof's 2015 attack in Charleston, debate emerged over whether it was appropriate to call Roof a terrorist, and coverage often speculated about potential mental illness (e.g., Bump, 2015). More recently, many argued that the 2017 Las Vegas shooting should be called *terrorism*, surmising that media would have done so if the perpetrator had been Muslim (e.g., Vedantam, 2017). Yet, the idea that media differentially reference these terms is speculative.[1] To date, there has been no systematic analysis of differences in how media apply terms that heighten the salience of terrorism or mental illness in coverage of terror attacks.

In systematic work focused on the *quantity* of news coverage on terror attacks, evidence shows that Muslim-perpetrated attacks receive *more* media attention than attacks by non-Muslims (Kearns et al., 2019b; Mitnik et al., 2020). What we do not yet know is how the *content* of this coverage may <u>systematically</u> differ as a function of the perpetrator's identity. To date, research on

[1] We use the term *reference* rather than *label* to more accurately capture the ways in which media cover attacks. Whereas *label* implies a direct statement that the incident is terrorism or the perpetrator is a terrorist, *reference* accounts for scenarios like coverage of Wade Michael Page's attack on a Sikh temple in which the following is said about him (and other far-right extremists): "They claim a moral high ground that is anything but moral in justifying the murder of the innocent. They see terrorism as a heroic act necessary to awaken a fallen society." While neither Page nor the attack are directly called a terrorist or terrorism, the quote clearly suggests that it was terrorism.

qualitative differences in U.S. media coverage of terrorism has focused on a few specific events rather than the universe of cases. Looking at a subset of 11 terrorist attacks in the U.S., Powell (2011) found that news coverage of Muslim perpetrators often assumed a religious motivation and connections to a larger group, whereas non-Muslim perpetrators were more likely to be described as mentally unstable. Analyzing the 15 most covered attacks in the *New York Times,* Mitnik et al. (2020) found that coverage of Muslim perpetrators focused on external radicalization and otherness while personal histories and mental health issues were used to explain the actions of non-Muslim perpetrators. Comparing coverage of Dylann Roof and Omar Mateen, Arva et al. (2017) found that coverage of Roof focused more on mental health while coverage of Mateen more often discussed terrorism. In depictions of mass violence more broadly, U.S. media also tend to portray White perpetrators more sympathetically than non-White perpetrators (Gade et al., 2018). While these findings suggest bias in media coverage, it is also possible that results are a function of the cases selected for comparison. Without a systematic analysis of all U.S. terrorism cases over a set time period and their coverage, we cannot know whether there are meaningful differences in how media frame terrorist attacks, and how this is influenced by perpetrator identity. The present study addresses this gap by examining the following research question: In media coverage of terror attacks, when is terrorism referenced and when is mental illness referenced?

In the present study, we examined the text of print media coverage of every terrorist attack in the United States between 2006 and 2015 as coded by the Global Terrorism Database (GTD), where terrorism is defined as "the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation." While scholars debate nuances in the definition of terrorism—such as whether state actors can perpetrate it or whether civilian targets are required (see Schmid, 2011),

quantitative research in this area predominantly uses the GTD definition and data (Young, 2019).

The GTD has systematically collected event-level data since 1970 and is the most comprehensive publicly available terrorism dataset. Importantly, GTD data collection and coding is done independently by a research team following the publicly available codebook and does not represent specific interests or perspectives of any funding body.[2] In tying our sampling frame to a public terrorism database, we addressed the limitation in prior work by studying media coverage of all attacks in the U.S. rather than subsets of cases which may bias results of those studies. Further, since we analyze only attacks coded as terrorism, these *should* all be framed as *terrorism* in media coverage and deviation from this may suggest bias in coverage.

We focused on two inquiries: First, we compared references to *terrorism* in coverage of attacks with Muslim versus non-Muslim perpetrators. Second, we compared references to *mental illness* in coverage of attacks with White versus non-White perpetrators. It was necessary to separate these questions since the colloquially popular logic that "Muslims perpetrators are terrorists and White perpetrators are mentally ill" implies two false dichotomies: 1) that perpetrators are either Muslim or White and 2) that media coverage will reference either terrorism or mental illness. In reality, however, perpetrators of terrorism may be White, Muslim,

[2] Further detail on the GTD and coding independence can be found on the START (2020) website. Inclusion decisions are "based on the totality of information about the attack reported in a variety of media sources … Specifically, GTD researchers look primarily at information about the perpetrator (GTD Codebook p. 43)…the target/victim (GTD Codebook p. 32)…and where relevant, information about the tactics/weapons used that might inform whether the inclusion criteria are satisfied (GTD Codebook p .23)" (E. Miller, personal communication, July 28, 2020). Coding decisions are made by a team of extensively trained researchers "based on information about the attack reported in a variety of media sources…If there is conflicting or unclear information about whether the inclusion criteria are satisfied, trained GTD researchers assess the available information and make a determination on whether it is appropriate to include the case in the database, but mark it as 'doubt terrorism proper' to document the uncertainty (GTD Codebook p. 11)" (ibid). Attacks without information about motive are not included in the GTD. When there is unclear or conflicting information about motive, the attack maybe included by marked as "doubt terrorism proper." Information about the motive "must be explicit and is based on a preponderance of evidence, but the GTD researchers do not require an official designation or use a legal threshold of 'beyond a reasonable doubt'" (ibid). Coding Notes from the 2017 Las Vegas shooting detail how the GTD works through the coding process for challenging cases (Miller, 2018).

both, or neither. Similarly, media coverage of attacks may reference terrorism, mental illness, both, or neither. Further, some perpetrators of terrorism do have mental health issues while others do not.

Media Framing

Media establish *what* the public needs to know and highlight the most relevant and salient dimensions of *how* information should be understood and discussed (Gerbner, 1998; McCombs, 2014; Scheuefele & Tewksbury, 2007). Framing—the process of defining an object by heightening the salience of selected aspects of it—influences how people perceive and structure the object and its place in the world (McCombs, 2014; Powell, 2011). As framed aspects of something become more salient, unframed aspects become less salient (Entman, 1993; McCombs, 2014). While frames are employed in everyday communication, media framing is especially powerful in influencing public discussions of issues, events, and people (Bekkers et al., 2011). Frames help us construct mental models of the world and encourage us to understand it in certain ways (Price et al., 1997).

While there are many ways to frame objects, here we focus on emphasis frames and associative frames. Emphasis frames draw attention to information that the audience is meant to view as deserving special consideration (Druckman, 2001). For example, referring to an attack as a "terror attack" v. "shooting" v. "crazed rampage" emphasize different aspects of the incident which can alter audience interpretations. Associative frames highlight the connections between things (which can be done via emphasis framing), thereby encouraging the audience to judge an issue by those connections (Van Atteveldt et al., 2005). For example, if the news says that a terrorism task force is investigating a perpetrator, it invites the audience to think of that person in association with terrorism without directly accusing them of being a terrorist.

Media select topics to frame with a bias towards attention-grabbing events (Price & Tewksbury, 1997). Further, when media frame an object, audiences are likely to activate that frame when presented with similar objects in the future (Price & Tewksbury, 1997). Exposure to frames in the news also encourages people to search for more information that fits within those frames and makes people less likely to accept competing frames (Druckman et al., 2012). Thus, it is important to examine how media distributes references to terrorism or mental illness. If media are differentially framing perpetrators based on identity, it could lead audiences to inaccurately associate terrorism or mental illness with particular demographics.

Global events are often translated into local cultures through media framing, which itself is colored by the dominant values and power structures of the cultural context in which it is presented (Altheide, 1987; McCombs, 2014; Nagar, 2010). News framing is an accumulative process through which ideologies are frequently and repetitively reinforced (Bryant & Mirion, 2004) and, when frames are repeated, the effects of those frames are stronger than an individual exposure (Lecheler et al., 2015). Through this, dominant ideologies and perspectives come to be viewed as "common sense" even though they are simply possible interpretations of a complex world (Gitlin, 1978).

Media Depictions of Terrorism and Its Perpetrators

Looking at coverage of crime broadly, there is ample evidence that media reporting tends to represent minority members more negatively than White individuals (Dixon, 2017; Dixon & Linz, 2000). Turning to terrorism specifically, research shows that both print and television news provide disproportionately more coverage to attacks perpetrated by Muslims (Dixon & Williams, 2015; Kearns et al., 2019b; Mitnik et al., 2020). However, this does not tell us *how* the attacks are being framed, and whether there are differences in qualitative aspects of the coverage. Three

studies examining a total of 28 terror incidents in the U.S. all found that Muslim-perpetrated attacks were more likely to be framed as terrorism (Arva et al., 2017; Mitnik et al., 2020; Powell, 2011). Yet, these studies raise the question of bias towards newsworthiness. Findings may be an artifact of case selection rather than a broader trend in how media frame all terrorist attacks in the U.S. To determine whether these trends truly exist, a systematic study of news coverage for all terrorist attacks in the U.S. over a long period of time is necessary.

Even in news that does not cover terrorism, Muslims are described in more negative tones generally and are more likely to be linked to extremism than other groups (Alsultany, 2012; Dixon & Williams, 2015; Prince, 2009; Shaheen, 2014). Western media also disproportionately frame violence perpetrated by Muslims as terrorism (Nagar, 2010). Even neutral or sympathetic depictions of Muslims often appear in the context of 'bad' news. Both entertainment and news media have a long history of framing Muslims as terrorists and terrorism as a Muslim problem (Alsultany, 2012; Shaheen, 2014). Simultaneously drawing attention to group differences and linking threatening characteristics to an out-group serves to bolster a sense of in-group identity (Greenaway & Cruwys, 2019). Recall that frames tend to activate when people are presented with information similar to the original frame. If we combine this with the disproportionate coverage of Islamist terrorists and negative coverage of Muslims in general, we are left in a situation where people may come to primarily or overwhelmingly associate terrorism with Islam. Consistent with Slater's reinforcing spirals model (2007, 2015), we note that media have the potential to both shape and also reflect public sentiment about Muslims, as well as public perceptions of terrorism.[3] As noted below, efforts to establish causality in terms of how

[3] Testing whether the media is primarily the shaper v. the reflector of public sentiment is beyond the scope of the current research. However, literature suggests both can be true, and that people are more likely to seek out media that corresponds with and reinforces their existing views across a range of topics (e.g., Moeller & de Vreese, 2019).

violent attacks are categorized on the basis of perpetrator identity have added to our understanding of this relationship.

Turning to experimental research with samples from the U.S. public, we see similar trends in how people view violence. Huff and Kertzer (2018) find that people were more likely to classify a hypothetical attack as terrorism if the perpetrator was Muslim, though the effect was relatively small. West and Lloyd (2017)'s findings also support this, while D'Orazio and Salehyan (2018) found that people are more likely to call an attack terrorism if the perpetrator was Arab-American—a group often conflated with Muslims. From this, we expected that:

H1a: Media coverage of a terrorist attack will be more likely to reference *terrorism* when the perpetrator is Muslim versus non-Muslim.

As Corner and Gill (2015) note, terrorism research has swung from blaming terrorism on mental illness to asserting that mental illness precludes terrorist intent because of reduced agency. Yet, a wide body of literature shows that mental health issues are not a driver of violence (e.g., Appelbaum & Swanson, 2010). While mental illness has not been found to motivate terrorist violence, stress and trauma accrued through terrorist activity may contribute to developing mental illness (Weatherston & Moran, 2003). Relative to the general population, lone actor terrorists have higher rates of mental illness while groups actors have lower rates—but, regardless, perpetrators with mental illnesses are still the minority (Gruenewald et al., 2013).

Despite the lack of data linking terrorism and mental illness, experimental evidence with samples of the U.S. public shows that partisan motivated reasoning influences whether people will attribute an attack to group identity or mental illness. People are more likely to rate violent in-group actors as being mentally ill and violent out-group actors as motivated by identity (Noor et al., 2018). When comparing perceptions of Arab Muslim versus White supremacist terrorists,

Americans are far less likely to refer to the latter as terrorists or assume an ideological motivation, and tend to assume that they are mentally ill (D'Orazio & Salehyan, 2018). People are also less likely to call an attack terrorism if the perpetrator was mentally ill (Huff & Kertzer, 2018). All of this implies that people are simply less likely to view White perpetrators as terrorists and more willing to find alternate explanations for their behavior, while Muslim perpetrators are not granted the same consideration. Further, people are more likely to reference mental illness to explain an attack in cases where the perpetrator is also a member of the respondent's in-group, thereby creating distance between the perpetrator's actions and what is normative among the broader group (Noor et al., 2018). From this we expected:

H1b: Media coverage of a terrorist attack will be more likely to reference *mental illness* when the perpetrator is White.

Beyond race or religion, other perpetrator-level factors may also influence how media frame an attack. Some attacks are carried out by members or supporters of a terrorist group whereas others are perpetrated by individuals or groups unaffiliated with a larger organization. Huff and Kertzer (2018) found that, relative to a lone individual, Americans were more likely to label an attack as terrorism if the perpetrators were part of an organization. Reasonably, group affiliation should also influence how media frame an attack since a discrete group can provide a point of reference for how to view the attacker's actions. From this, we expected that:

H2a: Media coverage of a terrorist attack will be more likely to reference *terrorism* when it is associated with a known terrorist group.

H2b: Media coverage of a terrorist attack will be less likely to reference *mental illness* when it is associated with a known terrorist group.

Some terrorism perpetrators do suffer from mental health issues (Gruenewald et al., 2013). In these cases, media reporting on mental illness—while potentially stigmatizing—would not be unreasonable or necessarily an indicator of bias. Media do not strictly reference mental illness when there is evidence of a valid diagnosis or reasonable proof that it acted as a motivator though. Media may prime readers to view the perpetrator as mentally ill by using certain non-clinical terms (e.g.. crazy, nuts, maniac), drawing attention to mental health evaluations, bringing up family histories of mental illness, or quoting laymen who assume the perpetrator to be mentally ill (e.g., "Someone must be crazy to do something like this."). Relatedly, members of the public are less likely to consider perpetrators to be terrorists when they have documented mental health issues (Huff & Kertzer, 2018). From this, we expect that:

H3a: Media coverage of a terrorist attack will be less likely to reference *terrorism* when the perpetrator has a mental illness.

H3b: Media coverage of a terrorist attack will be more likely to reference *mental illness* when the perpetrator has a mental illness.

The Effects of Casualties on Coverage

Terrorist attacks with more casualties tend to receive more media coverage (Chermak & Gruenewald, 2006; Kearns et al., 2019b; Mitnik et al., 2020). As fatalities rise, members of the U.S. public are also more likely to classify an attack as terrorism (Huff & Kertzer, 2018), but casualties are not necessary for an attack to be considered terrorism. In fact, the modal number of fatalities per terrorist attack is zero (GTD, 2018). Drawing from Terror Management Theory, a greater number of casualties may evoke a heightened sense of mortality salience in journalists and thus influence the way that they frame an attack (Solomon et al., 2015). Further, the number of people killed in an attack influences whether Americans perceive it as terrorism (Dolliver &

Kearns, 2019). The number of fatalities may influence whether media reference terrorism in coverage of an attack, but there is no clear theoretical expectation for how casualties would influence attribution to mental illness. From this, we expect that:

H4: Media coverage of a terrorist attack will be more likely to reference *terrorism* as the number of fatalities increases.

Potential alternate explanations for referencing terrorism. Based on prior research, we expect that other contextual factors may influence how media frame terror attacks. We identified five alternate explanations that may also impact whether an attack is linked to terrorism. First, research has shown that people are more likely to view a bombing as terrorism (Huff & Kertzer, 2018). Second, people are more likely to call an attack terrorism when there are multiple perpetrators (Huff & Kertzer, 2018). Third, media coverage of crime is framed less negatively when the victims are minorities (Gilliam & Iyengar, 2000) and the same may be true for terrorism specifically. Fourth, while attacks against the government receive more media attention (Kearns et al., 2019b; Zhang et al., 2013), there is conflicting evidence on whether targeting the state influences how the public labels an attack (Huff & Kertzer, 2018). Fifth, some violent incidents clearly meet the GTD definition of terrorism while others do not meet the threshold for a definitive classification. If experts are not certain that an attack was terrorism, media may also be more hesitant to use the term.

Potential alternate explanations for referencing mental illness. In addition to the alternate explanations above, we also identified four alternate explanations which could influence when media will reference mental illness in coverage of a terror attack. First, the number of people killed in an attack may have a positive relationship with references to mental illness. Second, the existence of multiple perpetrators may indicate more coordination, thus

making the presence of mental illness seem less likely. Third, it is common for individual perpetrator(s) of terrorism to be unidentified (Kearns, 2019). When the individual perpetrator(s) are unknown, media are less able to defensibly speculate about potential mental illness. Fourth, violent incidents that do not clearly meet the GTD definition of terrorism may be more open to speculation about the causes, which creates more room to discuss mental illness as a potentially relevant factor.

Methods

Data

Data for this project focused on terrorist attacks listed in the Global Terrorism Database (GTD) which occurred in the United States from 2006 to 2015.[4] During this ten-year span, the GTD lists 170 terrorist attacks—though under GTD coding an attack at multiple locations (i.e., the Boston Bombing) has a separate entry for each location. Since attacks like these were perpetrated by the same individual(s) and are reported on together in media, we collapsed attacks by the same perpetrator(s) into a single attack to avoid over-counting and duplicating articles. This yielded a total of 136 terrorism attacks in the United States between 2006 and 2010.

Media coverage of these attacks focused on two sources: LexisNexis Academic and CNN.com. LexisNexis Academic searches the full text of thousands of news outlets from major publications like *The New York Times* and *The Wall Street Journal* to local newspapers from around the country and is commonly used in academic studies of print news coverage (e.g., Linnemann, 2010). To supplement this coverage, we searched CNN.com's archives. Ideally, we

[4] 2015 was the most recent year for which data were available when we collected our data. 2006 was the first year where the majority of Americans used the Internet to get their news (Caumont, 2013). The news sources in our dataset come from both print and online articles. Accordingly, we started our analyses in 2006. In years prior to 2005, we should see fewer news articles overall since print was more common and is subject to space constraints that online media is not.

would have also searched from online new sources across the political spectrum. Unfortunately, neither Fox News nor Huffington Post have a searchable public archive dating back to 2006 and we were unable to secure access to their bodies of work during this time. Given the large number of news sources LexisNexis draws from, it is not possible to compare differences in coverage across sources or control for sources in our analyses. Our interest is in the words used in the articles; the use of visuals is a separate inquiry outside of the scope of this paper.[5]

Procedure

We limited coverage to print and online newspaper articles[6] from US-based sources between the date of each attack and the end of 2016 by which point all known perpetrators had pled guilty, were found not competent to stand trial, or had gone to trial. We searched the following for each incident: perpetrator(s), location, and key words about the attack. Our initial goal was over-inclusion of articles to ensure that we were not missing coverage. Two authors separately reviewed each article to ensure that we only included articles where the primary focus was the attack, perpetrator(s), or victim(s). The types of articles we removed most frequently included lists of attacks, articles focused on a political or policy position where the incident was an anecdote, and memorials held in other locations. Our dataset was comprised of 3,541 news articles. Importantly, 36 of the 136 terrorism attacks in our dataset did not receive any coverage

[5] While we appreciate the importance of images in coverage (Barry, 1997; Tsang, 1984), an analysis of the pictures included in media coverage is beyond the scope of the current project. Our sample was not collected with visual analysis in mind and this level of analysis would not be supported by the current sample of articles. Some of the articles in our sample were PDFs with images while most were documents of text only from LexisNexis. Video captions were not coded for the same reasons we refrained from coding images. Text within captions for images was coded because image captions were present in both PDFs and LexisNexis documents, though these represent a tiny fraction of the coded text.

[6] Systematically studying broadcast news is beyond the scope of this project. Broadcast media has a fixed amount of airtime, so we expect that even more of these attacks would not receive any coverage. In this study, 26.5% of attacks are not covered. We expect that focusing on broadcast media would bias results in favor of more sensational events.

from the sources that we searched. Thus, these cases were excluded from analyses, leaving us with 100 attacks.[7] See Appendix A for a list of attacks and the number of articles covering each.

Variables

We were interested in two outcome variables: 1) whether or not an article references *terrorism*[8] and 2) whether or not an article references *mental illness*. For these dependent variables, each article was coded as 1=yes if the topic was referenced at least once and 0=no if it was not. A small subset of articles referenced both *terrorism* and *mental illness* (6.7%; n=238). This included title, body, and—where applicable— graphic captions and highlights.[9]

To determine whether and how often *terrorism* and *mental illness* were referenced, one author and a hired research assistant separately searched the entire dataset of 3,541 articles in Nvivo for key words associated with our two dependent variables (see Appendix B for search terms). Throughout this process, there was no subjectivity in coding (keywords appear in the article or they do not) and discrepancies arose from either Nvivo coding comment sections and URLs or the software failing to recognize terms with added punctuation marks or typos. In the coding process, every article was examined three times to ensure that all machine errors were caught and corrected, including instances of codable terms that were overlooked due to typos or formatting errors in the article.[10] We compared the two separately coded datasets—over 200,000

[7] As others note in examining media's role in setting public discourse, the amount of media coverage given to terrorist attacks suggest over-coverage of some attacks as a function of perpetrator identity (Muslim or minorities) and other factors (Chermak & Gruenewald, 2006; Kearns et al., 2019; Mitnik et al., 2020).

[8] At the coding level, we differentiated between "terrorism"—referring to acts—and "terrorist"—referring to perpetrator(s). For analyses of media framing of the attack, we combined these categories. As noted in Appendix B, we exclude references that state that it was <u>not</u> terrorism or that the perpetrator was not a terrorist (or mentally ill).

[9] Articles covering jihadi attacks are substantially longer, on average, than articles covering other terrorist attacks (Mitnick et al., 2020). As a robustness check, we created proportion variables were the number of references to *terrorism* and to *mental illness* in coverage were divided by the total number of words in that article (*M*=608.6, *SD*=457.8, *Mdn*=513, Range: 11 – 3901). Results were fundamentally unchanged, which gives us confidence that variation in article length is not the driver of our results.

[10] Context was considered when making final decisions on codes. Each article was carefully read to ensure that terms were not counted if they did not reflect the intended meaning of the keywords. For example, instances of "insane" and "crazy" when clearly used to indicate quantity (e.g., "insane murder rate") or that something was

data points in total—for discrepancies. After initial coding, Krippendorff's alpha was above the common threshold of 0.8 for both references to *terrorism* (α=0.88) and *mental illness* (α=0.83) across all articles (Krippendorff, 2004). Finally, two of the authors reviewed all discrepancies and discussed each one individually until final codes were determined for all data points. In sum, the entire dataset was double-coded and all coding discrepancies were resolved by the authors.

Our key predictor variables focused on the perpetrator(s) and the number of casualties. The GTD codes the group responsible for the attack (if applicable), a list of the known perpetrators, and the number of fatalities. From this, we created a binary indicator for membership in a known group. Fatalities were measured as the total number of people—excluding perpetrator(s)—killed in the attack. Prior to coding the articles, two of the authors separately coded three binary perpetrator-level variables not included in the GTD: whether the perpetrator was White; whether the perpetrator was Muslim; and whether the perpetrator was mentally ill. If an attack had multiple perpetrators and at least one met the criteria, we coded these variables as 1. If the perpetrator was unknown, these variables were coded as 0. After initial coding, Krippendorff's alpha was above the common threshold of 0.8 for these three variables: perpetrator Muslim (α=0.93); perpetrator White (α=0.91); and perpetrator had a known mental illness[11] (α=0.90; Krippendorff, 2004).[12] For additional confidence in the accuracy of our

absurd (e.g., "the insanity of paying taxes") were not included. Further, references that clarified that a perpetrator had no known affiliation with a terror group or that they were competent to stand trial were excluded (see Appendix B). Codes were only counted if they were being applied to the perpetrator or situation or if a crime was being used as a direct comparison to the crime being discussed (e.g., "Not since the Boston terror attack has the country seen a bombing like this" would count as a terrorism reference because the audience is being invited to reference their knowledge of terrorism without explicitly labeling the attack as such).

[11] We coded this variable in two ways: a strict coding where only perpetrators with diagnosed mental health issues were coded as 1=yes and a loose coding where perpetrators with suspected mental health issues were also coded as 1=yes. We also coded those variables to both drop incidents where the perpetrator(s) were unknown and where these incidents were default coded to 0=no.

[12] While terrorism perpetrators can be both White and Muslim, in the present sample this is only the case for one attack. Thus, exploring the interaction between these identities here would be impossible based on a single case.

incident-level coding, all inconsistencies were discussed and final coding was agreed upon prior to analyses.

We also tested our argument against several alternate explanations. Derived from the GTD's weapon type variable, we created a binary indicator for whether or not the attack involved a bomb, explosive, or dynamite. Since the GTD lists the names of known perpetrators, we created a binary indicator for attacks with multiple perpetrators. The individual person(s) who perpetrated each attack was unknown in 24.0% of the attacks in this dataset, which is common in terrorism (Kearns, 2019). Consequently, we created a binary variable indicating whether the perpetrator was unknown. The GTD also includes a variable that identifies cases where there is doubt about whether the incident clearly meets all definitional criteria of terrorism. Our final two alternative explanations involved the target as either: 1) law enforcement or government; or, 2) a minority group. Table 1 contains descriptive statistics for each variable.

[TABLE 1 HERE]

Results

Since the two key dependent variables are binary—whether or not the article references 1) terrorism or 2) mental health—we estimated a series of logistic regression models with standard errors clustered on the attack. To ease interpretation, we present odds ratios where ratios greater than one indicate a positive relationship and ratios less than one indicate a negative relationship.[13]

[13] As a series of robustness checks, we estimated models in a number of alternative ways: 1) outcomes as a count of mentions; 2) outcomes as a proportion of mentions over the total number of words in the article; 3) recoding perpetrator identity variables to collapse Muslim and White perpetrators with unknown perpetrators to create two new variables—PerpNotMuslim and PerpNotWhite—to ensure that our findings are not an artifact of collapsing non-Muslim and non-White perpetrators with unknown perpetrators; 4) excluding cases where the perpetrator is unknown; and, 5) measuring casualties instead of fatalities. Across all alternative models, the results reported in text are fundamentally unchanged, which has given us additional confidence in the strength of our findings.

Table 2 contains the results of models examining whether an article references terrorism. Supporting H1a, articles are significantly more likely to reference terrorism when the perpetrator is Muslim (Model 1). When controlling for our other key predictor variables, the odds an article references terrorism are approximately five times greater if the perpetrator is Muslim (Model 2). Supporting H2a, we see approximately a two and a quarter times increase in odds that an article references terrorism when the attack is perpetrated by a group. When we coded diagnosed mental illness strictly (Model 2), we did not see support for H3a. However, when we coded mental illness more loosely (Model 3), the odds that an article references terrorism decrease by approximately half. Contrary to H4, fatalities were not positively related to the odds of terrorism being referenced.

[TABLE 2 HERE]

We suggested five alternative explanations for when media refer to an attack as terrorism. Models 4 and 5 in Table 2 tested the first four alternatives: the weapon was an explosive, there were multiple perpetrators, the target was a minority, and the target was law enforcement or government. None of these factors impacted the likelihood that an article references terrorism. Further, controlling for these factors did not change our main findings that articles about attacks perpetrated by Muslims and those connected to a group are more likely to reference terrorism. To test our final alternate explanation, we replicated our analyses from Table 2 but excluded articles about attacks that did not meet all inclusion criteria to be considered terrorism in the GTD. As shown in Appendix A (Table A3), our results held and the magnitude of each significant variable remained similar. In sum, the two largest drivers of whether or not an article referenced terrorism were: whether the perpetrator was Muslim and whether the perpetrator was part of a terrorist group.

We next examined when media will reference mental illness in coverage of an attack, as shown in Table 3. Contrary to expectation in H1b, articles about attacks perpetrated by White people were not more likely to reference mental illness across all of our models. Supporting H2b, the odds that an article references mental illness decreased between 69% and 82% if the perpetrator(s) had a group affiliation (Models 7 - 14). Supporting H3b, the odds that an article references mental illness are between approximately one to two and a half times greater when the perpetrator actually had a diagnosed mental health issue at the time of reporting (Models 7 - 14).

[TABLE 3 HERE]

We suggested four possible alternate explanations for when media would reference mental illness. Models 7 through 14 in Table 3 tested the first three of these alternatives: more fatalities, multiple perpetrators, and unknown perpetrators. When mental illness was coded strictly, the odds that an article references mental illness increased 7% per fatality. Across models, the odds that an article referenced mental illness decreased 62-74% if the attack had multiple perpetrators. When the perpetrator(s) were unknown, the odds that an article references mental illness decrease 96-98%. Across these models, our main findings remained significantly and substantively unchanged. To test our final alternative argument, we replicated the models from Table 4 but only included cases which meet all inclusion criteria to be considered terrorism in the GTD. As shown in Appendix A (Table A4), our findings were robust and remain substantively unchanged.

Discussion

The motivation for this study was to systematically examine when terrorism is referenced and when mental illness is referenced in media coverage of terror attacks, and whether there is variation on the basis of perpetrator identity. Prior research on media coverage of terrorism has

either systematically focused on the *amount* of coverage that attacks receive (Kearns et al., 2019b; Mitnik et al., 2020) or examined differences in how media frame a small subsets of attacks (Arva et al., 2017; Gade et al., 2018; Mitnik et al., 2020; Powell, 2011). To our knowledge, this is the first paper to examine how media frame all terrorist attacks in a country during a set time period. By conducting a systematic examination of content on this scale, we are confident that our results accurately depict variance (or not) in how media frame attacks on the bases of perpetrator identity and other factors.

Descriptive statistics showed that less than 40% of the articles in our sample referenced terrorism, despite all attacks being included in the GTD. In contrast, the percentage of stories that referenced mental illness is roughly proportional to the percentage of perpetrators with a known history of mental illness. Because there is no one definition of terrorism, journalists may be discouraged from referencing it, whereas the presence of a mental health diagnosis makes referencing the perpetrator's mental health more defensible. Yet, that still would not explain differences that emerge in coverage along demographic lines. Many publicly speculate that media is more likely to call Muslims terrorists and White people mentally ill, but we only found support for the former.

Coverage of attacks perpetrated by Muslims were dramatically more likely to reference terrorism, which may reflect dominant values and power structures whereby media focus more on threatening characteristics of an out-group in society (Greenaway & Cruwys, 2019). Results from our systematic examination of all terrorist attacks in the US from 2006 to 2015 confirmed the results of studies using smaller subsets of terrorist violence (Arva et al., 2017; Gade et al., 2018; Mitnik, et al. 2020; Powell, 2011). This finding is also consistent with prior work showing that Muslim-perpetrated attacks receive more news coverage (Dixon & Williams, 2015; Kearns et al., 2019b;

Mitnik et al., 2020) and that entertainment media tend to depict Muslims and Arabs as terrorists or villains (Shaheen, 2014). Together, these findings may help explain why people are more likely to call an attack terrorism if the perpetrator is Muslim or Arab (D'Orazio & Salehyan, 2018; Huff & Kertzer, 2018; West & Lloyd, 2017). The association between terrorism and Muslims in news media can help explain the implicit associations that many in the public have between the two (Saleem & Anderson, 2013). Articles covering attacks by individuals affiliated with or inspired by a known group that uses terrorism were also more likely to reference terrorism. This result is consistent with the previous finding that members of the public are more likely to label an attack to be terrorism when the perpetrators are part of an organization (Huff & Kertzer, 2018).

We found partial support for the expectation that media would be less likely to reference terrorism if the perpetrator had a known mental health issue. Whether the perpetrator had a *confirmed* mental health issue was unrelated to whether coverage referenced terrorism. When the mental health status of a perpetrator was known, it may have been the case that it neither bolstered nor detracted from the attack being discussed as terrorism. Yet, articles were less likely to reference terrorism when the perpetrator had a *confirmed or suspected* mental health issue. We posit that, as long as the question of the perpetrator's mental health is in play, there may be a reluctance to frame an act as terrorism. The discrepancy in findings here is interesting, in that less, rather than more, certainty about the perpetrator's mental health decreased the likelihood of refencing terrorism.

Finally, while casualties have a positive relationship with both the amount of coverage that attacks receive (Chermak & Gruenewald, 2006; Kearns et al., 2019b; Mitnik et al., 2020) and the likelihood that members of the public will call an attack terrorism (Huff & Kertzer, 2018), it had no impact on whether coverage referenced terrorism. While this is a bit surprising,

terrorism does not require that anyone be harmed (GTD, 2018). If media are willing to reference terrorism when discussing attacks with no or few fatalities, this can help bring public perception of terrorism more in line with reality. This may decrease fear of terrorism, as people often vastly overestimate the lethality of terror attack in the US (Kearns et al., 2019a), and thus undercut terrorism's effectiveness.

Across all models, the alternate explanations regarding whether coverage of an attack references terrorism were not supported and our main findings remained unchanged. While the public is more likely to call an attack terrorism if it involves a bomb or multiple perpetrators (Huff & Kertzer, 2018), neither factor influenced whether coverage references terrorism. The target also did not influence whether coverage of an attack references terrorism. Our results held across both all cases and only cases that meet all inclusion criteria to be considered terrorism by the GTD.

Turning to factors that influence whether media reference mental illness, we found no evidence that media are more likely to reference mental illness when the perpetrator is White. This finding runs counter to public speculation and experimental findings (Noor et al., 2018), but was robust across all of our models. We posit that, in the relative absence of references to terrorism, references to mental illness may simply be more memorable to the reader. References to mental illness may also be more consistent with expectations about violent individuals. Empirical testing is needed before this assertion can be presented defensibly, however. While perpetrator race did not impact media references to mental illness, media coverage was more likely to reference mental illness if the perpetrator had a known or suspected mental health issue. There were no differences in known or suspected mental illness between White and non-White or Muslim and non-Muslim perpetrators. Attacks with multiple perpetrators or in association

with a known group signal greater planning and preparation, which can explain why coverage of these attacks was less likely to reference mental illness. In the broader terrorism and violence literatures, people with mental illness are perceived to not be "good team players" (Corner & Gill, 2015). Attacks with unknown perpetrators were far less likely to reference mental illness, probably due to a lack of information. There is some evidence that coverage is more likely to reference mental illness as the number of fatalities increases, which—while inaccurate—may be an attempt to make sense of violence by assuming that someone would have to have a mental illness to kill others. Once again, our results held across coverage of all attacks and just those that clearly met all inclusion criteria for the GTD.

In sum, our results show the strength of our main findings: Coverage of Muslim-perpetrated attacks was more likely to reference terrorism, while there was no difference in references to mental illness between attacks perpetrated by White people compared to people of color. These results are robust against a number of alternate explanations. This strengthened our confidence in the findings that Muslim perpetrators are more likely to be associated with terrorism while there are no differences in references to mental illness between White and non-White terrorists.

Conclusion

Limitations and Future Directions

Our results clearly show that incident- and perpetrator-level factors of a terrorist attack influence whether media coverage references terrorism or mental illness. Media coverage of terrorism influences how the public understands violence and its perpetrators, as well as which policies the public will support to address the problem. Though our findings are robust against a number of alternatives, they still have limitations. We limited our study to textual analysis of U.S.-

based print media coverage of U.S. terrorist attacks in a 10-year period. While there are both practical and methodological reasons for this, it is unclear if our findings apply across other contexts or whether the inclusion of image and photo analysis might yield different or more nuanced results. Specifically, broadcast news has time constraints and tends to sensationalize stories (Dixon & Williams, 2015) which may amplify disparities in coverage. Doing a similar analysis on broadcast news is one potential avenue for future research. Systematically examining imagery used in media coverage of terrorism is another potential direction for scholarship in this area.

Relatedly, most work on media coverage of terrorism focuses on the U.S. so results may not translate cross-nationally. Exploring terrorist attacks and media coverage outside of the U.S. is another possibility for future research. Longitudinally examining how media frame terrorism pre- and post-9/11 may also yield interesting findings. An expanded dataset may also allow for examination of the interaction between identities, which was not possible here since only one attack had a White, Muslim perpetrator. Finally, lack of a public archive for websites like FoxNews.com and HuffingtonPost.com precluded us from examining differences in how media frame violence more comprehensively across the political spectrum. Future work could examine differences here over a shorter time period, where data availability is not an issue.

There were also methodological limitations, the largest being that we necessarily have to rely on publicly available information about perpetrators. There is unconfirmed speculation about a history of mental illness for some perpetrators, and for others there may be mental health issues that are currently unknown or unaddressed. Again, it is important to reiterate that we did not see differences in the prevalence of known or suspect mental health issues between either White and non-White or Muslim and non-Muslim perpetrators. Additionally, while white supremacists have perpetrated much of the terrorism in the U.S. in recent years, the U.S. government has been reticent

to label these attacks as *terrorism,* which may in turn influence how media report on them. Investigating this is beyond the scope of the current project. Lastly, our approach here was to examine whether each article references terrorism or mental illness. This leaves room for further, more in-depth qualitative and linguistic analyses of other ways that news articles may differentially frame or depict terrorism. Focusing on mental illness as a key driver of some attacks can downplay or discount the relative importance of other aspects of the attack, such as access to firearms. One potential function of framing some acts of violence as terrorism and attributing others to mental illness is that this may provide a buffer between the perpetrator and their religious, ethnic, or racial groups while explaining their violence away. While an in-depth analysis of this nature was beyond the scope of the current data and project, we recognize that it presents an important point of consideration for future study.

Policy Implications

The attacks under examination in this study were all classified as terrorism by experts using rigorous coding criteria, and thus *should* be discussed as terrorism by media. We see, however, that this is often not the case. While only 16% of the attacks had a Muslim perpetrator, 77% of the articles that reference terrorism were about these incidents. In contrast, references to mental illness were more proportional and linked to the mental health of the perpetrator rather than the perpetrator's race. Media framing and coverage influences how the public perceives issues (McCombs, 2014; Scheuefele & Tewksbury, 2007; Tversky & Kahneman, 1981). By differentially framing attacks by Muslims as terrorism, news media perpetuate misconceptions of terrorism and terrorist threats, which are reflected in public opinion (D'Orazio & Salehyan, 2018; Huff & Kertzer, 2018; Saleem & Anderson, 2013) and can influence policy preferences (Beale et al., 2019; Matthes et al., 2019).

The US public's fear of terrorism is largely misplaced and seems to be based more in media depictions than reality. Prior research shows that Muslim-perpetrated attacks receive more media coverage (Dixon & Williams, 2015; Kearns et al., 2019b; Mitnik et al., 2020) and the present study finds that this coverage is also more likely to reference terrorism. Results indicate that news media present an incomplete narrative of the landscape of terror attacks. Misperceptions like these promote prejudice and reduce the likelihood that security threats will be appropriately addressed.

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Table 1

Descriptive Statistics

Variable	Frequency	Mean (SD)	Median	Span
Dependent Variables				
Article references terrorism	39.1%	---	---	---
Article references mental illness	18.7%	---	---	---
Independent Variables by Article (N=3,541)				
Perpetrator Muslim (unknown coded as 0)	50.4%	---	---	---
Perpetrator Muslim (unknown dropped)	52.5%	---	---	---
Perpetrator part of a known group	11.6%	---	---	---
Perpetrator mentally ill (strict, drop unknown)	19.4%	---	---	---
Perpetrator mentally ill (loose, drop unknown)	46.0%	---	---	---
Perpetrator mentally ill (strict, keep unknown)	18.6%	---	---	---
Perpetrator mentally ill (loose, keep unknown)	44.1%	---	---	---
Number killed	---	4.0 (4.8)	2	0-15
Number wounded (log)	---	1.7 (1.8)	1.1	0-5.0
Bomb as weapon	30.5%	---	---	---
Multiple perpetrators	21.3%	---	---	---
Perpetrator White (unknown coded as 0)	35.5%	---	---	---
Perpetrator White (unknown dropped)	37.0%	---	---	---
Perpetrator(s) unknown	4.0%	---	---	---
Target minority	18.3%	---	---	---
Target law enforcement/government	38.5%	---	---	---
Does not meet all criteria for terrorism	13.8%	---	---	---
Independent Variables by Incident (N=100)				
Perpetrator Muslim (unknown coded as 0)	16.0%	---	---	---
Perpetrator Muslim (unknown dropped)	21.9%	---	---	---
Perpetrator part of a known group	14.0%	---	---	---
Perpetrator mentally ill (strict, drop unknown)	17.8%	---	---	---
Perpetrator mentally ill (loose, drop unknown)	30.1%	---	---	---
Perpetrator mentally ill (strict, keep unknown)	13.0%	---	---	---
Perpetrator mentally ill (loose, keep unknown)	22.0%	---	---	---
Number killed	---	1.0 (2.7)	0	0-15
Number wounded (log)	---	0.5 (1.0)	0	0-5.0
Bomb as weapon	21.0%	---	---	---
Multiple perpetrators	12.0%	---	---	---
Perpetrator White (unknown coded as 0)	45.0%	---	---	---
Perpetrator White (unknown dropped)	61.6%	---	---	---
Perpetrator(s) unknown	27.0%	---	---	---
Target minority	35.0%	---	---	---
Target law enforcement/government	22.0%	---	---	---
Does not meet all criteria for terrorism	17.0%	---	---	---

Table 2

Does the Article Reference Terrorism?

	Model 1	Model 2	Model 3	Model 4	Model 5
Perpetrator Muslim	**6.66*** (1.92)**	**5.88*** (1.64)**	**5.20*** (1.40)**	**3.78*** (1.13)**	**3.87*** (1.23)**
Known Group	---	**3.28*** (1.00)**	**3.13*** (0.93)**	**2.63** (0.98)**	**2.52** (0.86)**
Perpetrator mentally ill (strict, drop unknown)	---	0.49 (0.23)	---	0.53† (0.19)	---
Perpetrator mentally ill (loose, drop unknown)	---	---	**0.43** (0.12)**	---	**0.46* (0.15)**
Number killed	---	1.00 (0.04)	1.05† (0.03)	1.03 (0.03)	**1.07* (0.04)**
Bomb as weapon	---	---	---	1.63 (0.58)	1.38 (0.48)
Multiple perpetrators	---	---	---	1.06 (0.39)	0.81 (0.30)
Perpetrator(s) unknown	---	---	---	omitted	omitted
Target minority	---	---	---	0.56 (0.22)	0.52† (0.19)
Target law enforcement or government	---	---	---	0.67 (0.24)	0.71 (0.23)
AIC	4075.8	3740.9	3685.7	3676.5	3660.9
BIC	4088.1	3771.5	3716.3	3721.7	3716.1

Note: Logistic regression models. Constants not reported. Odds ratios are presented with standard errors clustered on the attack in parentheses. Significant results in bold.
†p < 0.10. *p < 0.05. **p <0 .01. ***p< 0.001.

Table 3

Does the Article Reference Mental Illness?

	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14
Perp. White	1.52 (0.62)	1.01 (0.37)	1.02 (0.31)	1.07 (0.39)	1.06 (0.32)	0.88 (0.28)	0.91 (0.29)	0.88 (0.28)	0.91 (0.29)
Known Group	---	**0.18 *** (0.06)**	**0.29 *** (0.09)**	**0.19 *** (0.06)**	**0.31 *** (0.08)**	**0.20 *** (0.07)**	**0.21 *** (0.07)**	**0.20 *** (0.07)**	**0.21 *** (0.07)**
Perp. mentally ill (strict, drop unkn.)	---	**2.37* (0.97)**	---	---	---	**2.39* (0.94)**	---	---	---
Perp. mentally ill (loose, drop unkn.)	---	---	**3.18 *** (0.93)**	---	---	---	**2.11* (0.75)**	---	---
Perp. mentally ill (strict, keep unkn.)	---	---	---	**2.47* (1.00)**	---	---	---	**2.38* (0.93)**	---
Perp. mentally ill (loose, keep unkn.)	---	---	---	---	**3.44 *** (0.95)**	---	---	---	**2.11* (0.75)**
Number killed	---	---	---	---	---	**1.07* (0.03)**	1.01 (0.03)	**1.07* (0.03)**	1.01 (0.03)
Multiple perps	---	---	---	---	---	**0.26 *** (0.06)**	**0.38* (0.14)**	**0.26 *** (0.06)**	**0.38* (0.14)**
Perp(s) unknown	---	---	---	---	---	omit	omit	**0.02 ** (0.03)**	**0.04 ** (0.04)**
AIC	3393.8	3189.7	3110.0	3241.2	3145.5	3064.8	3084.0	3079.4	3097.8
BIC	3406.1	3214.2	3134.6	3265.8	3170.2	3101.6	3120.8	3122.6	3141.0

Note: Logistic regression models. Constants not reported. Odds ratios are presented with standard errors clustered on the attack in parentheses. Significant results in bold.
$^{\dagger}p < 0.10$. *p < 0.05. **p <0 .01. ***p< 0.001.

Online Appendix A

Table A1

News Coverage by Attack

GTD Event ID	Perpetrator(s)	# of Articles	% of Dataset
200603030013	Mohammed Reza Taheri-azar	42	1.19%
200607280004	Naveed Afzal Haq	59	1.67%
200703180002	Grant Barnes	3	0.08%
200704250006	Paul Ross Evans	15	0.42%
200706240004	Unknown	1	0.03%
200710200003	Unknown	5	0.14%
200710260003	Unknown	5	0.14%
200712060011	Chad Altman, Sergio Baca	2	0.06%
200802090004	Eric Ian Baker, Michael Corey Golden, Jonathan Edward Stone	2	0.06%
200802170007	Unknown	1	0.03%
200803020012	Unknown	11	0.31%
200804220011	Unknown	2	0.06%
200804250010	Eric Reginald Robinson, Rachelle Carlock, Ella Louise Sanders	4	0.11%
200807270001	Jim David Adkisson	25	0.71%
200808020023	Joseph Buddenberg, Maryam Khajavi, Nathan Pope, Adriana Stump	19	0.54%
200811050008	Benjamin Haskell, Michael F. Jacques Jr., and Thomas Gleason Jr.	14	0.40%
200903070010	Unknown	2	0.06%
200905300002	Shawna Forde, Jason Eugene Bush, Albert Robert Gaxiola	17	0.48%
200905310017	Scott Roeder	123	3.47%
200906010028	Abdulhakim Muhammad	51	1.44%
200906100003	James W. von Brunn	49	1.38%
200907030004	Bret MacDonald Hicks, Michael Aaron Powell, Brian Charles Hanson, Erin Lee Brooks	1	0.03%
200908240016	Alex Youshock	36	1.02%
200909040003	Unknown	1	0.03%
200911060002	Nidal Malik Hasan	400	11.30%
200912250024	Umar Farouk Abdulmutallab	115	3.25%
201002170017	Brad A. Saari, Timothy Dean, Nicholas A. Halverson, Jared D. Hubbuch	6	0.17%
201002180013	Joseph Stack	36	1.02%
201002250007	Roosevelt Terry	1	0.03%
201003040016	John Patrick Bedell	21	0.59%

201004300006	Walter Edmund Bond	18	0.51%
201005010001	Faisal Shahzad	194	5.48%
201005100042	Sandlin Matthews Smith	12	0.34%
201009010022	James Lee	21	0.59%
201010000001	Yonathan Melaku	72	2.03%
201011160004	Unknown	2	0.06%
201101060018	Unknown	15	0.42%
201101170018	Kevin Harpham	27	0.76%
201102220009	Unknown	4	0.11%
201104230010	Unknown	1	0.03%
201111110020	Oscar Ramiro Ortega-Hernandez	59	1.67%
201201010020	Bobby Joe Rogers	17	0.48%
201201030019	Ray Lazier Lengend	8	0.23%
201204010018	Francis Grady	1	0.03%
201206180029	Anson Chi	1	0.03%
201207040032	Jedediah Stout	11	0.31%
201208050006	Wade Michael Page	67	1.89%
201208120012	Unknown	1	0.03%
201208150059	Floyd Lee Corkins II	22	0.62%
201209300041	Randolph Linn	13	0.37%
201302030025	Christopher Dorner	132	3.73%
201302260036	Unknown	3	0.08%
201304150001	Tamerlan Tsarnaev, Dzhokhar Tsarnaev	460	12.99%
201304160051	Unknown	6	0.17%
201304170041	Unknown	48	1.36%
201305200073	Shannon Guess Richardson	33	0.93%
201311010046	Paul Anthony Ciancia	33	0.93%
201404130060	Frazier Glenn Cross	72	2.03%
201404270057	Ali Muhammad Brown	6	0.17%
201405050073	David Patterson	1	0.03%
201406060065	Dennis Marx	11	0.31%
201406080071	Jerad and Amanda Miller	21	0.59%
201409110001	Eric King	2	0.06%
201409120032	Eric Frein	109	3.08%
201410230047	Zale H. Thompson	5	0.14%
201411040086	Michael C. Sibley	2	0.06%
201411040087	Unknown	2	0.06%
201411230071	John Hugo Scherzberg	3	0.08%
201411230072	Jeremiah Mauer, Gregory Tinnell, Warren Gerald Browning	1	0.03%
201411280018	Larry Steven McQuilliams	7	0.20%
201412180047	Justin Nojan Sullivan	12	0.34%
201412200060	Ismaaiyl Brinsley	90	2.54%
201501060024	Thaddeus Cheyenne Murphy	7	0.20%
201502100004	Craig Stephen Hicks	64	1.81%

201502170127	Unknown	1	0.03%
201503200036	Richard White	8	0.23%
201505030003	Nadir Soofi, Elton Simpson	62	1.75%
201506170035	Dylann Roof	158	4.46%
201506230056	Unknown	1	0.03%
201506240051	Unknown	1	0.03%
201506260046	Unknown	1	0.03%
201507160061	Muhammad Youseff Abdulazeez	100	2.82%
201507190097	Unknown	1	0.03%
201507230080	John Russell Houser	23	0.65%
201508020114	Unknown	12	0.34%
201508190040	Unknown	6	0.17%
201509040048	Unknown	4	0.11%
201509130079	Rasheed Abdul Aziz	4	0.11%
201509300082	Unknown	4	0.11%
201511010076	Marshall W. Leonard	1	0.03%
201511040056	Faisal Mohammad	19	0.54%
201511060053	K.C. Tard Jr.	1	0.03%
201511150043	Ted Hakey Jr.	8	0.23%
201511230084	Nathan Gustavsson, Allen Lawrence, Daniel Thomas Macey, Joseph Martin Backman	14	0.40%
201511270001	Robert Dear	178	5.03%
201512020012	Syed Rizwan Farook, Tashfeen Malik	152	4.29%
201512050031	Piro Kolvani	2	0.06%
201512080038	Matthew Gust	3	0.08%
201512110031	Carl James Dial Jr.	10	0.28%
201512260016	Unknown	2	0.06%

Table A2

Correlation Matrix of Dependent Variables and Key Independent Variables

	Terror	MentIll	PerpMslm	PerpWt	KnownGp	PerpMI	NKilled	Bomb	MultPerp	TargMin	TargetLG	PerpUnk
Terror	1.00											
MentIll	-0.06	1.00										
PerpMslm	0.63	-0.13	1.00									
PerpWt	-0.52	0.15	-0.97	1.00								
KnownGp	0.49	-0.44	0.37	-0.52	1.00							
PerpMI	-0.41	0.35	-0.41	0.45	-1.00	1.00						
NKilled	0.13	0.11	0.42	-0.31	-0.86	-0.55	1.00					
Bomb	0.54	-0.35	0.71	-0.60	0.67	-0.47	-0.06	1.00				
MultPerp	0.41	-0.36	0.70	-0.67	-0.30	-1.00	0.20	0.83	1.00			
TargMin	-0.44	-0.02	-0.88	0.72	-0.28	-0.22	-0.05	-0.51	-0.36	1.00		
TargetLG	-0.03	0.18	0.33	-0.42	-0.70	-0.17	0.53	-0.53	-0.30	-0.84	1.00	
PerpUnk	-0.10	-0.56	---	---	0.05	---	0.08	-0.28	-0.29	-0.12	-0.34	1.00

Note: Tetrachoric correlation coefficients presented between binary variables. Polychoric correlation coefficients presented between number killed and the binary variables. Mutual exclusive variables presented as ---.

Table A3

Does the Article Reference Terrorism when all GTD Terrorism Criteria are Met?

	Model A1	Model A2	Model A3	Model A4	Model A5
Perpetrator Muslim	**5.60*** (1.73)**	**5.04*** (1.50)**	**4.40*** (1.23)**	**3.09*** (1.00)**	**3.17*** (1.03)**
Known Group	---	**2.81** (0.87)**	**2.89** (0.86)**	**2.39* (0.91)**	**2.32* (0.84)**
Perpetrator mentally ill (strict, drop unknown)	---	0.39† (0.19)	---	**0.43* (0.17)**	---
Perpetrator mentally ill (loose, drop unknown)	---	---	**0.39** (0.11)**	---	**0.37** (0.14)**
Number killed	---	0.99 (0.04)	1.05 (0.03)	1.02 (0.03)	1.06† (0.04)
Bomb as weapon	---	---	---	1.67 (0.62)	1.34 (0.50)
Multiple perpetrators	---	---	---	1.09 (0.40)	0.79 (0.31)
Perpetrator(s) unknown	---	---	---	omitted	omitted
Target minority	---	---	---	0.54 (0.25)	0.51† (0.20)
Target law enforcement or government	---	---	---	0.82 (0.31)	0.90 (0.31)

Note: Logistic regression models. Constants not reported. Odds ratios are presented with standard errors clustered on the attack in parentheses. Significant results in bold.
†p < 0.10. *p < 0.05. **p <0 .01. ***p< 0.001.

Table A4

Does the Article Reference Mental Illness when all GTD Terrorism Criteria are Met?

	Model A6	Model A7	Model A8	Model A9	Model A10	Model A11	Model A12	Model A13	Model A14
Perpetrator White	1.59 (0.75)	1.07 (0.46)	1.06 (0.37)	1.11 (0.48)	1.09 (0.38)	0.95 (0.36)	0.96 (0.37)	0.95 (0.36)	0.96 (0.37)
Known Group	---	**0.18 *** (0.07)**	**0.20 *** (0.10)**	**0.18 *** (0.07)**	**0.30 *** (0.09)**	**0.22 *** (0.09)**	**0.20 *** (0.09)**	**0.22 *** (0.09)**	**0.20 *** (0.08)**
Perpetrator mentally ill (strict, drop unknown)	---	2.10 (1.03)	---	---	---	2.26† (1.08)	---	---	---
Perpetrator mentally ill (loose, drop unknown)	---	---	**3.99 ** (1.02)**	---	---	---	**1.18 *** (0.93)**	---	---
Perpetrator mentally ill (strict, keep unknown)	---	---	---	2.14 (1.05)	---	---	---	2.26† (1.07)	---
Perpetrator mentally ill (loose, keep unknown)	---	---	---	---	**3.13 *** (1.02)**	---	---	---	1.68 (0.77)
Number killed	---	---	---	---	---	**1.08* (0.03)**	1.03 (0.03)	**1.08* (0.03)**	1.03 (0.03)
Multiple perpetrators	---	---	---	---	---	**0.28 *** (0.07)**	**0.34* (0.15)**	**0.28 *** (0.07)**	**0.34* (0.15)**
Perpetrator(s) unknown	---	---	---	---	---	omit	omit	**0.08* (0.08)**	**0.07* (0.08)**

Note: Logistic regression models. Constants not reported. Odds ratios are presented with standard errors clustered on the attack in parentheses. Significant results in bold.
†p < 0.10. *p < 0.05. **p <0 .01. ***p< 0.001.

Online Appendix B – Coding Search Terms for Dependent Variables

Terrorism: terrorism, terror (when used in reference to an action meant to induce intimidation, e.g. "act of terror" or "reign of terror"), terrorist inspired attack, terrorize, terrorism task forces, terror activity, counterterrorism, terrorism suspect, terror attack, terroristic

Terrorist: terrorist, terror suspect, suspected terrorist, terrorist group, terror group, terror ties, terror watch list and terror screening center (both of these are databases of people), police terror, terrorist attack

*Note: omitted if specifically said no ties to terror group, terror, or terrorism
*For analyses, we merged coding for *Terrorism* and *Terrorist* into a single category

Mental Illness: mental illness, crazy, insane, disturbed, insanity, unbalanced, delusional, delusion, psychiatric, troubled, obsessive compulsive, obsess, unhinged, unstable, bipolar, depression, suicide, PTSD, mental health, mental state, mentally incompetent, mental defect, paranoia, schizophrenia, deranged, snapping, madness, crazed, psycho, wacko, suicide mission, suicide attack, madness, crazed, mental, crackpot, sick, suicidal thoughts, "killing himself", references to psychiatric or mental evaluations and screenings, competency hearings, sanity trials, legally sane, mental stress, evaluation for anger and violence issues, reference to mental hospitals and maniac.

We did not include "competent" except in the context of discussing an evaluation, the perpetrator being restored to competence, or the competence of the perpetrator being called into question. (i.e., affirming that the perpetrator is competent or discussing the legal ramifications of being found competent did not count but references that introduced doubt or discussed the ramifications of being found incompetent did). This is because the latter introduces doubt about the perpetrator's mental state. Instances where codable terms were applied to histories of family members or close friends of the perpetrators were also coded, as this indicates potential social environmental factors contributing to the attack.