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The News Media's Framing of Mass Shootings: Gun Access, Mental Illness, Violent Entertainment, and Terrorism

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ABSTRACT AND ARTICLE INFORMATION

The present study uses a media distortion analysis to examine the news media's framing of gun access, mental illness, violent entertainment, and terrorism in *New York Times* coverage of mass shootings in America between 2000 and 2016. Specifically, this work examines these four frames to identify the news media's framing of the overall mass shooting problem, changes in framing over time, mass shooting characteristics influencing coverage including each of the four frames, and potential news media distortions of the phenomenon. Findings illustrate gun access frames were the most commonly used of the four frames and increased the most over time. Mental illness frames were slightly more common than terrorism frames, although terrorism frames increased more over time. Violent entertainment frames were the least common overall. The most significant predictors of the four frames, across three comparative analyses, include Arab-descent perpetrators (terrorism), jihadist-inspired motivations (terrorism), mental illness (mental illness), school targets (gun access, mental illness, violent entertainment), and government targets (gun access, terrorism). A discussion of findings identifies news media distortions in mass shooting framing and provides implications for scholars, media outlets, and the public.

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After every high-profile mass shooting the same question is raised: "How could this happen… again?" The news media provides the main source of public information about mass shootings (Schildkraut & Elsass, 2016; Silva & Capellan, 2019b) and attempts to answer this complex question using easily digestible frames of reference (Scheufele & Tewksbury, 2007; Schildkraut & Muschert, 2013). In light of this coverage, scholars have examined the news media's framing of mass shootings (Schildkraut & Elsass, 2016; Schildkraut & Gruenewald, 2019; Schildkraut & Muschert, 2013). Framing analyses are useful for interpreting the frames of reference media outlets utilize for generating the public's understanding of a social problem (Druckman, 2001; Entman, 1993; Goffman, 1974). Current studies examining the news media's framing of mass shootings provide qualitative summaries of the "usual suspects" used to explain the phenomenon (Schildkraut & Elsass, 2016; Schildkraut & Muschert, 2013). Additionally, quantitative studies often use Chyi and McComb's (2004) two-dimensional measurement scheme to examine the framing of school shootings (Holody, 2020; Holody et al., 2013; Muschert & Carr, 2006; Park et al., 2012; Schildkraut & Muschert, 2014) and mass shootings (Holody & Daniel, 2017; Schildkraut & Gruenewald, 2019; Schildkraut & Muschert, 2019). In general, mass shooting studies have highlighted four frames of reference used for explaining the problem: gun access, mental illness, violent entertainment, and terrorism.

Despite the value of current framing research, mass shooting studies have not quantitatively examined the news media's coverage of these four frames using a large sample size capturing the entirety of the phenomenon. Nonetheless, three mass shooting studies (Schildkraut et al., 2018; Silva & Capellan, 2019a, 2019b) and two terrorism studies (Gruenewald & Chermak, 2006; Mitnik et al., 2020) provide a framework for addressing this limitation. These five studies use a media distortion analysis (MDA) to examine the *New York Times* (*NYT*) coverage and potential distortions of the given phenomenon. However, these studies predominantly examine media *coverage*, and overlook media *framing* within coverage. Understood together, current news media and mass shooting research has two key limitations. They either provide (1) a small sample and/or qualitative examination of framing or (2) a large-scale quantitative examination that only captures news media coverage, without considering the frames within said coverage.

The present study addresses these limitations by providing a quantitative MDA examining the news media's framing of gun access, mental illness, violent entertainment, and terrorism in *NYT* coverage of mass shootings in America between 2000 and 2016. Specifically, this work examines the news media's framing of the overall mass shooting problem, changes in frames over time, and mass shooting characteristics influencing coverage including each of the four frames. Additionally, this work identifies potential news media distortions of the reality of mass shootings. The purpose of this study is to identify the news media frames potentially shaping public understanding of the phenomenon. A discussion of findings provides implications for scholars, media outlets, and the public.

Literature Review

News Media Framing of Mass Shootings

Hayward (2010) argues that it is increasingly important for criminologists to familiarize themselves with the ways in which crime and the "story of crime" are framed within modern society. Goffman (1974) introduced framing as a means for explaining what guides individual and societal perspectives. In his formulation, "definitions of a situation are built up in accordance with principles of organization which govern events - at least social ones - and our subjective involvement with them; frame is the word… refer[ring] to such of these basic elements" (Goffman, 1974, p. 10). Entman (1993) later expanded this definition stating that

> to frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item prescribed. (p. 52)

In framing, salience refers to making a piece of information more noticeable, meaningful, or memorable to audiences (Druckman, 2001; Entman, 1993).[1] The salience of frames then contributes to defining problems, diagnosing causes, making moral judgments, and suggesting remedies in public consciousness and discourse around a social problem (Entman, 1993). News framing considers the dynamic process of communication involving frame building and frame setting (De Vreese, 2005). Frame building refers to the themes that emerge from a given text, while frame setting is the interplay between media frames and audience predispositions toward an issue (De Vreese, 2005; Wondemaghen, 2014). Media framing takes complex social issues and constructs

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them to be accessible and relatable for general public consumption (Scheufele & Tewksbury, 2007). The media acts as a "framing funnel" by dismissing certain perspectives and promoting others, developing into the dominant public frame (Hawdon et al., 2012). In other words, by emphasizing particular issues, framing can lead people to focus on those issues when constructing their opinions (i.e., the "framing effect"; Druckman, 2001).

Mass shooting research examining the news media's framing focuses extensively on school shootings (see Chyi & McCombs, 2004; Holody, 2020; Holody et al., 2013; McCluskey, 2016; Muschert & Carr, 2006; Schildkraut & Muschert, 2013, 2014). Quantitative framing studies often use a small sample of incidents, examining either a single mass shooting (Chyi & McCombs, 2004; Holody, 2020; Holody et al., 2013; Holody & Daniels, 2017) or a few school shootings (McCluskey, 2016; Muschert & Carr, 2006; Park et al., 2012; Schildkraut & Muschert, 2014). The most common quantitative approach involves Chyi and McComb's (2004) two-dimensional measurement scheme (space and time) to examine the news media's framing of mass shootings (Holody, 2020; Holody & Daniel, 2017; Holody et al., 2013; Muschert & Carr, 2006; Park et al., 2012; Schildkraut & Gruenewald, 2019; Schildkraut & Muschert, 2014, 2019). Taken together, current framing research is often limited by the use of small samples, the exclusive focus on school shootings, and/or the Chyi and McComb's (2004) two-dimensional measurement scheme. Additionally, one of the primary purposes of framing research is to explore the perceived causes of a social problem (Entman, 1993), and this is largely overlooked in current studies examining the news media's framing of mass shootings.

Currently, three framing assessments stand out as overcoming previous limitations by focusing on the "usual suspects" attributed to mass shootings (McCluskey, 2016; Schildkraut & Elsass, 2016; Schildkraut & Muschert, 2013). The two qualitative summaries (Schildkraut & Elsass, 2016; Schildkraut & Muschert, 2013) find the three "usual suspects" include gun access, mental illness, and, to a lesser extent, violent entertainment. McCluskey's (2016) mixed-methods examination of 11 school shootings between 1995 and 2012 provides similar findings; however, he suggests "popular media" is slightly more common than mental illness in national news media mentions. However, two of these three studies focus exclusively on school shootings, and a contribution of the current study is an examination of all mass shootings. As such, it is important to consider framing of the problem beyond the original three "usual suspects." Studies find that in the aftermath of 9/11, terrorism is often linked to the mass shooting phenomenon (Altheide, 2009; Silva & Capellan, 2019a, 2019b). Recently, Schildkraut and Gruenewald (2019) used Chyi and McComb's (2004) two-dimensional measurement scheme to compare ideological and non-ideological shootings. In general, these works identify a link between mass shootings and terrorism; however, they suggest the need for more research to determine the extent of terrorism framing in mass shooting coverage. As such, the current study expands the original three "usual suspects" to include an examination of terrorism frames.

Media Distortion Analyses of Mass Shootings and Terrorism

News outlets have become the most significant communicator through which the average person comes to know the world outside their own experiences (Barak, 1994). Since the public has limited immediate experiences with crime, the news media has become the primary source of public information and contributes to shaping public understanding of crime (Chermak, 1994; Surette, 2007). The problem is the news media's presentation of crime often has little relationship with the reality of the crime (Chermak, 1994; Jewkes & Linnemann, 2018; Surette, 2007). This is often because news values cater to the perceived interests of the audience and attempt to capture the general public mood. This is summed up by news outlets as "giving the public what it wants" (Jewkes & Linnemann, 2018). The public is fascinated by violent and sensational forms of crime, supporting the generally accepted media axiom, "if it bleeds, it leads" (Lawrence & Muller, 2003). As a result, the news media distort the reality of crime and criminality. For example, homicide is more newsworthy than property crimes, despite property crimes being far more common (Chermak & Chapman, 2007). In general, the decision to cover a particular crime incident is often determined by the rare and sensational nature of the crime (Duwe, 2000), the number of victims (Chermak & Chapman, 2007; Chermak & Gruenewald, 2006), and demographic characteristics of offenders (Gruenewald et al., 2009). Importantly, Duwe (2000) found that mass shootings receive disproportionate amounts of coverage in relation to other forms of crime and homicide.

Studies providing large-scale examinations of the news media's coverage of mass shootings have primarily used a quantitative MDA (Schildkraut at al., 2018; Silva & Capellan, 2019a, 2019b). Gruenewald and colleagues (2009) coined the term "media distortion analysis" in reference to the examination of the mediated distortion of crime and homicide in relation to the reality of the problem. They do not

explicitly define the methodology, and there is currently no specific approach for carrying out an MDA. However, they suggest using existing evidence as a starting point and then comparing this evidence to media coverage to identify potential distortions of reality (Chermak & Gruenewald, 2006; Gruenewald et al., 2009). Despite this ambiguity, the current study models the general framework of three mass shooting studies (see Schildkraut at al., 2018; Silva & Capellan, 2019a, 2019b) and two terrorism studies (see Gruenewald & Chermak, 2006; Mitnik et al., 2020) using an MDA to examine the *NYT* coverage and distortion of reality. These five studies have essentially outlined a three-step process for conducting an MDA.

First, these five studies identify the reality of the problem using descriptive summaries of perpetrator and incident characteristics. For instance, the mass shooting studies (Schildkraut at al., 2018; Silva & Capellan, 2019a, 2019b) find that perpetrators are largely White males in their mid-thirties. During their incidents, they most often use handguns, target the workplace, and incur an average of three deaths and four injuries. Next, these five studies examine the news media's coverage of the given phenomenon. They do this through a variety of different descriptive, temporal, and comparative analyses. Nonetheless, they all identify whether an incident receives any coverage, as well as the number of articles covering each incident. They then provide a comparative analysis of the characteristics (i.e., perpetrator and incident) and the coverage of the phenomenon (i.e., any coverage and number of articles). Findings indicate that perpetrator characteristics influencing the amount of coverage an incident receives include perpetrators who are younger (Silva & Capellan, 2019b), Asian (Schildkraut et al., 2018), Arab-descent (Schildkraut et al., 2018; Silva & Capellan, 2019a, 2019b), and motivated by terrorism (Silva & Capellan, 2019a, 2019b), particularly jihadist-inspired terrorism (Mitnik et al., 2020). Incident characteristics influencing the amount of coverage include school shootings (Schildkraut et al., 2018; Silva & Capellan, 2019a, 2019b), a combination of weapons (Silva & Capellan 2019b), and the number of fatalities and injuries (Gruenewald & Chermak, 2006; Mitnik et al., 2020; Schildkraut at al., 2018; Silva & Capellan, 2019a, 2019b). The final step in these five studies is determining whether the reality of the problem matched the media coverage, and if the media is distorting the reality of the phenomenon. This is done during the discussion of results and not within a specific analysis. For example, the mass shooting studies found that news media distorts the reality of the phenomenon by focusing on school and terrorist attacks, despite workplace incidents being more common. Similarly, all of the studies found that by focusing on only the deadliest events, the news media is skewing perceptions of danger, since most attacks only incur a relatively small number of casualties, and mass shootings/terrorism are far less common than general crime and homicide.

Method

Research Design

The present study addresses previous news media and mass shooting research limitations surrounding the samples and methodological frameworks. Specifically, this work expands on previous research that focused on the following: (1) framing research involving small samples, exclusive focus on school shootings, and Chyi and McCombs's (2004) two-dimensional measurement scheme, as well as (2) MDAs providing large-scale quantitative examinations of coverage that overlook the news media's framing within said coverage. To address these limitations, this study provides a quantitative MDA examining the *NYT* framing of all mass shootings in America between 2000 and 2016.[2] This work examines the overall coverage of gun access, mental illness, violent entertainment, and terrorism frames; changes in these four frames over time; and the perpetrator and incident characteristics influencing coverage including each of the four frames. Additionally, this work identifies potential news media distortions of the reality of mass shootings. Taken together, this study examines four research questions:

> *(RQ1)* How is the news media framing the overall mass shooting problem?
>
> *(RQ2)* How has the news media's framing of mass shootings changed over time?
>
> *(RQ3)* How do mass shooting characteristics influence the news media's framing?
>
> *(RQ4)* How is the news media's framing of mass shootings distorting the reality of the phenomenon?

Mass Shooting Definition

When designing mass shooting research, it is important to provide a comprehensive definition of the phenomenon. This study defines a mass shooting as a gun violence incident involving four casualties, carried out by one or two perpetrators, in one or more public or populated locations, within a 24-hour period

(Krouse & Richardson, 2015; Newman et al., 2004; Peterson & Densley, 2019; Schildkraut & Elsass, 2016; Silva & Capellan, 2019b). The contentious nature of defining a mass shooting is primarily rooted in the motivation and victim-count criteria (Silva & Greene-Colozzi, 2019a). As such, it is important to provide explicit detail for each. In consideration of motivation, at least some of the victims need to be chosen at random and/or for their symbolic value (Newman et al., 2004; Schildkraut & Elsass, 2016). Qualifying incidents do not include instances of familicide, profit-driven criminal activity, or state-sponsored violence (Krouse & Richardson, 2015; Schildkraut, 2018; Silva & Capellan, 2019b).[3]

In consideration of victim-count, this definition is rooted in the four or more death-toll threshold (Krouse & Richardson, 2015; Peterson & Densley, 2019). However, Krouse and Richardson (2015) suggest one limitation of the four-death mass shooting criterion is that it overlooks attacks with fewer than four deaths, which nevertheless involve many victims shot and/or seriously injured. As such, the three previous mass shooting MDAs (Schildkraut et al., 2018; Silva & Capellan, 2019a, 2019b) all include any number of fatalities and injuries, as long as they were *attempting* to incur four or more deaths. However, this also raises issues, as it can be interpretative and/or difficult to determine if an attacker with a small victim count was actually striving to kill/injure more individuals (Silva & Greene-Colozzi, 2019a). As such, this study provides a balance between the two schools of thought around the victim count issue (i.e., four or more deaths versus any number of deaths/injuries) by including any incident involving four or more casualties (i.e., deaths + injuries; Silva & Greene-Colozzi, 2019b).[4] Taken together, this definition allows for a relatively robust sample size, while also providing a targeted and unambiguous assessment of a specific gun-violence phenomenon.

NYT Justification

The *New York Times* (*NYT*) was used to gauge media coverage of the phenomenon. The *NYT* was chosen because it is the most commonly used news source in media assessments of mass shootings (Chyi & McCombs, 2004; Muschert & Carr, 2006; Schildkraut et al., 2018; Schildkraut & Muschert, 2014; Silva & Capellan, 2019a, 2019b; Silva & Greene-Colozzi, 2019b). This is because the *NYT* is the most well-regarded news-source in the US (Benoit et al., 2005; Lule, 2001), representative of national coverage at-large (Benoit et al., 2005; Denham, 2014; Golan, 2006; Lule, 2001), and a reliable indicator of issue salience for over half a century (Althaus & Tewksbury, 2002; Chernomas & Hudson, 2015; Landriscina, 2012). The *NYT* has been called the "flagship" of serious journalism in the United States (Bowden, 2009) and the "national paper of record" (Benoit et al., 2005). Lule (2001) argues that "cases might be drawn from various media, such as the *Wall Street Journal*, *USA Today*, the weekly news magazines, *CNN*, the evening news…. But more than any other U.S. news medium, the *NYT* has become crucial reading for those interested in the news, national politics, and international affairs" (p. 6). Additionally, it is considered a key gatekeeper to national and international news coverage, with most other newspapers and television news outlets following what it emphasizes (Benoit et al., 2005). In this way, the *NYT* sets the agenda for other news media (Golan, 2006; Lule, 2001), and it is representative of national coverage at-large (Denham, 2014). For example, Golan (2006) found that what is published in the morning edition of the *NYT* significantly determines what is broadcasted on television news. Similarly, Denham (2014) found that the salience of policy issues will be transferred to other news outlets and will be covered according to what was first emphasized in the *NYT*. Finally, the *NYT* has been identified as a consistent means for determining issue salience for over half a century (Chernomas & Hudson, 2015). Despite media becoming more fragmented and personalized, the *NYT* remains a reliable indicator of issue salience that significantly impacts the public agenda (Althaus & Tewksbury, 2002; Landriscina, 2012; McCombs, 2004). Atkinson and colleagues (2014) conducted a comprehensive assessment of media coverage, finding that for issues with high levels of coverage (i.e., mass shootings), a cohesive national agenda almost certainly exists, and virtually any major news source will show similar patterns in coverage. Taken together, despite drastic changes in media technology, the *NYT* remains an influential source for determining the public agenda (Althaus & Tewksbury, 2002; Chernomas & Hudson, 2015).

Data Sources

Modeling the three original mass shooting MDAs, this work uses open-source data to identify incidents and perpetrator/incident variable information. Open-source data refers to publically available information, and it is the primary source for research on rare and extreme forms of violence (LaFree & Dugan, 2004). Mass shooting incidents were predominantly obtained from the FBI (Blair & Schweit, 2014; Federal Bureau of Investigation, 2018; Schweit, 2016) and NYPD (Kelly, 2012; O'Neill et al., 2016) active shooter datasets. These two datasets are the only sources (see, for example, Duque et al. 2019; Lankford 2015; Osborne & Capellan 2017) or primary

sources used in the majority of investigations of the phenomenon. Additionally, 50 other government reports, scholarly datasets, peer-reviewed journal articles, books, news outlets, and online crowd-funded sources were reviewed. The majority of these sources came from Capellan and Gomez (2018), who provide a comprehensive list of publicly available mass shooting datasets. Finally, after beginning this project, two additional sources were released and subsequently reviewed: Peterson and Densely (2019) and Schildkraut (2018).

Data Collection

Mass Shooting Incidents and Variables

Mass shooting data collection began with a review of the FBI and NYPD active shooter reports. Cases not relevant to the study were dropped (e.g., incidents with fewer than four victims). A total of 141 incidents were identified across these two data sources. Next, incidents were identified, and incident information was validated via 50 other government reports, scholarly datasets, peer-reviewed journal articles, books, news outlets, and online crowd-funded sources. Despite this extensive review, the majority of sources provide the same incidents collected from the FBI and NYPD datasets, and only 17 additional incidents were identified. Finally, two additional sources were reviewed: Peterson and Densely (2019) provided five more incidents, and Schildkraut (2018) provided three additional incidents. In the end, a total of 166 mass shooting incidents were identified.

This work includes perpetrator and incident characteristics used in previous mass shooting MDAs (Schildkraut et al., 2018; Silva & Capellan, 2019a, 2019b). These include the age, race, mental health, ideology, target, and gun type. Variable operationalization is often self-explanatory; however, a few variables require further description. History of perpetrator mental illness is binary coded as (0 = no history of mental illness, 1 = history of mental illness). Outside of a formal diagnosis, mental illness can be quite complicated to measure accurately, as a significant portion of criminal offenders have never been diagnosed, despite suffering from serious mental health problems (Fazel & Danesh, 2002; Lankford, 2016; Silva & Capellan, 2019a). Therefore, relying solely on formal diagnoses is likely to skew the results. To overcome this limitation, this study used a conceptualization that also accounts for suggested history of mental illness. In line with previous research (Capellan, 2015; Lemieux, 2014; Silva & Capellan, 2019a, 2019b), statements from the perpetrators themselves, family members, witnesses with close knowledge of offenders, law enforcement investigators, experts, or previous scholars were used to determine history of mental illness. In line with the Global Terrorism Database and Extremist Crime Database, ideologically motivated perpetrators refer to those who use force against civilian targets in order to further their extremist beliefs (Freilich et al., 2014; LaFree & Dugan, 2007). The ideological types were divided into jihadist-inspired, far-right, and far-left motivations (see also Schildkraut & Gruenewald, 2019, and Silva et al., 2019, for the in-depth definitions used for these three categories). As such, the ideology variable was coded as (0 = non-ideological, 1 = jihadist-inspired, 2 = far-right, 3 = far-left). The targets were not coded as mutually exclusive, and each of the five targets (i.e., government, opens-space, religious, school, workplace) were binary coded (0 = no, 1 = yes). This is because perpetrators may carry out an attack in more than one location, and/or a target may be considered more than one type. Finally, a common criterion for typifying firearms is length of the barrel, shoulder support, and hands required for firing. Handguns (0 = no, 1 = yes) apply to pistols and revolvers, which are firearms that can be fired with one hand, with a barrel length under 16 inches, and no shoulder support. Long-guns include rifles and shotguns (0 = no, 1 = yes), weapons with longer barrel lengths requiring two hands and shoulder support for firing.

Variable information was largely collected using the aforementioned datasets/open-source materials. Most of this information was easily collected and validated from the FBI and NYPD datasets. Nonetheless, these sources only make up 85% of the cases. Additionally, these two sources do not provide in-depth information on mental illness and ideology. As such, more open-source data were collected by searching keywords for each incident (e.g., incident name, perpetrator name, victim name) in four primary online search engines: Dogpile, Google, Nexis-Uni, and Newspapers. All of this combined information was used to create comprehensive case files, which were then used to further code, compare, and validate each variable. When coding conflicting information, more weight was given to sources deemed more credible (i.e., government data over news outlets, credible news outlets over online encyclopedias, etc.; Freilich et al., 2014; Silva & Capellan, 2019b). However, open-source data often derives from news media coverage. As such, more weight was given to news stories published weeks, months, or even years after the shooting occurred - rather than articles in the immediate aftermath of the attack - when journalists have more time and information for more accurate reporting (Freilich et al., 2014). However, conflicting information did not commonly occur, given the simple

characteristic variables involving limited levels of discretion and/or room for reporting error.

NYT Articles

To identify *NYT* articles, a search was conducted of each incident in Proquest's *New York Times* Historical Database (Silva & Capellan 2019a, 2019b; Silva & Greene-Colozzi, 2019b). This study included all *NYT* coverage dedicated to each incident over the entire 17-year period.[5] A variety of general and specific words related to the issue were employed to avoid generating "false negatives," referring to missed articles associated with the keyword being too precise (Deacon, 2007). The search began with the word "shooting" in articles appearing within the first week of the incident. This was followed by all years using individual keyword searches. This would start with a search of the incident location and/or the commonly referenced title for the event (e.g., Columbine, Sandy Hook), then perpetrator names, and then victims' names. In the end, this data collection process identified 2,185 articles addressing the 166 mass shootings between 2000 and 2016.

Once articles were collected, they were binary coded (0 = no, 1 = yes) for each of the four frames: gun access, mental illness, violent entertainment, and terrorism. Gun access frames refer to any mention of a perpetrators' ability to access weapons (e.g., stolen, purchased from gun show, etc.), as well as any discussion of gun access at-large (e.g., gun control, gun rights, etc.). Mental illness frames referred to the perpetrators' mental health diagnoses, medications the perpetrators used, and the role mental illness played in contributing incidents, as well as articles referring to the societal role of mental illness or mental health coverage in contributing to all mass shootings. Violent entertainment frames refer to any articles that mention the influence of violent video games, movies, music, and television, on the perpetrators' decisions to engage in attacks, as well as the overall impact on violence and/or mass shootings at-large. Finally, terrorism frames refer to any mention of the perpetrators' potential involvements in terrorist ideologies, as well as issues with terrorist violence in America. Continuous variables also measured the number of articles including each of the four frames across each of the 166 incidents. In the end, the coding involved two variables for each of the four frames, resulting in eight total variables. For example, the Virginia Tech shooting included a total of 193 articles, and each of the four frames were included in at least one article (i.e., the four binary no/yes variables). This included 70 articles with frames that address gun access, 66 mental illness, 5 violent entertainment, and 9 terrorism (i.e., the four continuous variables).

Inter-coder Reliability

All of the mass shooting (i.e., perpetrator and incident) variables and *NYT* variables were also reviewed for reliability. This dataset is part of a larger project, involving a dozen RAs coding and recoding the data over a five-year period. As such, this study used Krippendorff's (1980) alpha index to ensure inter-coder reliability. Krippendorff's alpha allows for any number of coders and is explicitly designed for variables at different levels of measurement (e.g., nominal, ordinal, ratio). Since there were so many RAs on this project, inter-coder reliability was assessed by comparing each of their work to my own. I withdrew a 10% sample of each RAs coded data. This sample was then recoded, and the double coded incidents were compared. The general methodological consensus is anything above .80 provides an acceptable level of reliability (Lombard et al., 2002; Neuendorf, 2002), and after proper RA training, all of the variables were above this base-value.

Analytic Plan

This study follows the general analytic approach used in the five original MDAs (Gruenewald & Chermak, 2006; Mitnik et al., 2020; Schildkraut at al., 2018; Silva & Capellan, 2019a, 2019b). First, this work begins by using simple descriptive statistics of the perpetrator and incident variables to identify the reality of mass shootings. Next, the overall news media framing of the mass shooting problem (RQ1) is summarized in a descriptive table identifying the total number of articles that include each frame, the mean number of frames for all incidents, and the standard deviation for all frame means. Additionally, this study details the high-profile incidents with the most articles including each of the four frames. A temporal analysis is then used to identify changes in framing over time (RQ2). Specifically, the temporal analysis illustrates the share of frames each year from 2000 to 2016.

Three different comparative analyses are used to identify the perpetrator and incident characteristics influencing the news media's framing of mass shootings (RQ3). These analyses include (1) a cross tabulation comparison of perpetrator and incident characteristics by any coverage and the number of articles, (2) a logistic regression of characteristics by any coverage, and (3) a negative binomial regression examining characteristics by the number of articles. In line with previous mass shooting research (Blau et al., 2019; Yelderman et al., 2019) and MDA (Gruenewald et al., 2009), negative binomial regressions are used because the framing variables are over-dispersed (i.e., means and variances were not equal).

Finally, this work examines the media distortion of mass shootings via framing (RQ4). In other words, a comparison of the reality and news media framing identifies potential news media distortions. The reality is determined by the descriptive characteristic information, as well as previous research on mass shootings. The news media framing is assessed throughout all of the analyses and interpreted within the discussion section.

Results

Table 1 provides the perpetrator and incident characteristic information.[6] The average perpetrator age was 36 years old. Perpetrators were predominantly White ($n = 89$, 54%), followed by Black ($n = 42$, 25%), Latino ($n = 18$, 11%), Arab-descent ($n = 9$, 6%), and Asian ($n = 6$, 4%). Just over half of the perpetrators ($n = 86$, 52%) were identified as having a history of mental illness. A large majority of perpetrators were not motivated by ideology ($n = 132$, 79%). Of the 21% that were, they were predominantly far-right ($n = 21$, 13%), followed by jihadist-inspired ($n = 7$, 4%), and far-left ($n = 6$, 4%).

Table 1. Mass shooting characteristics, 2000–2016 ($N = 166$)

Characteristic	*N*	Percent
Age		
≤ 20	21	13%
21-40	82	49%
≥ 41	63	38%
Race		
White	89	54%
Black	42	25%
Latino	18	11%
Asian	6	4%
Arab-descent	9	6%
Mental Illness	86	52%
Ideological type		
Non-ideological	132	79%
Jihadist-inspired	7	4%
Far-right	21	13%
Far-left	6	4%
Target		
Government	15	9%
Open-space	58	40%
Religious	13	8%
School	21	13%
Workplace	46	27%
Gun Type		
Handgun	135	81%
Long-gun	70	42%

The most common target was open-space locations ($n = 58$, 40%). Open-space locations included such locations as malls, restaurants, clubs, bars, and events (Silva & Capellan, 2019b). The second most common was the perpetrator's workplace ($n = 46$, 27%). The third most common target was schools ($n = 21$, 13%), including K-12, college, and vocational schools. The least common targets were government ($n = 15$, 9%) and religious institutions ($n = 13$, 8%). Finally, handguns were the most common ($n = 135$, 81%). Long-guns were less common ($n = 70$, 42%). It should also be noted that 23% of incidents involved both handguns and long-guns.

General Framing of Mass Shootings

The first research question is concerned with the news media's framing of the overall problem. The data collection process identified 2,185 articles addressing the 166 mass shootings between 2000 and 2016. Similar to previous research (Schildkraut et al., 2018; Silva & Capellan, 2019a, 2019b), 28% of incidents ($n = 47$) did not receive any *NYT* coverage. Additionally, 48 of the mass shootings that had at least one *NYT* article covering the event did not have any focus on the four frames within these articles. However, these incidents also had very little coverage, with only 83 articles (an average of 1.7 articles per incident).

Table 2 details the news media's framing of the overall problem. Using the same approach as previous MDAs (Gruenewald & Chermak, 2006; Silva & Capellan, 2019b), this descriptive table identifies the total number of articles that include each frame, the mean number of frames for all incidents, and the standard deviation for all frame means. Gun access framing was the most popular, with 725 articles. In other words, one-third of all *NYT* articles covering mass shootings included some discussion of gun access. Mental illness frames were the second most common with 469 articles (22%). Terrorism framing was included in 401 articles (18%). Violent entertainment frames were the least common of the four frames examined, with only 58 articles (3%). Table 2 also indicates that there was a great deal of variability (i.e., mean versus SD) in the number of articles focused on gun access, mental illness, violent

Table 2. Summary statistics of mass shooting news framing

Frames	Articles	Mean	SD
Gun access	725	3.83	16.52
Mental illness	469	2.48	9.38
Violent entertainment	58	0.35	1.45
Terrorism	401	2.09	12.56

entertainment, and terrorism framing. In line with previous news media coverage research (Schildkraut et al., 2018; Silva & Capellan, 2019a, 2019b), this suggests that media framing is skewed by a few high-profile incidents. As such, it is worth highlighting the incidents most commonly receiving each of the four analyzed media frames.

Similar to other MDAs (Mitnik et al., 2020; Schildkraut et al., 2018; Silva & Capellan, 2019b), this study details the high-profile incidents with the most articles including each of the four frames. Table 3 finds the gun access frame was most commonly used in coverage of the Sandy Hook Elementary School shooting (n = 134). In general, five incidents account for 58% of articles including gun access frames (422/725). The mental illness frame was most commonly used in coverage of the Virginia Tech attack (n = 66). The five incidents account for 54% of articles including mental illness frames (254/469). The violent entertainment frame was most commonly used in coverage of the Aurora attack (n = 13). The five incidents account for 60% of articles including mental illness frames (35/58). Finally, the terrorism frame was most commonly used in coverage of the San Bernardino attack (n = 115). The five incidents account for 77% of articles including terrorism frames (310/401).

Frames over Time

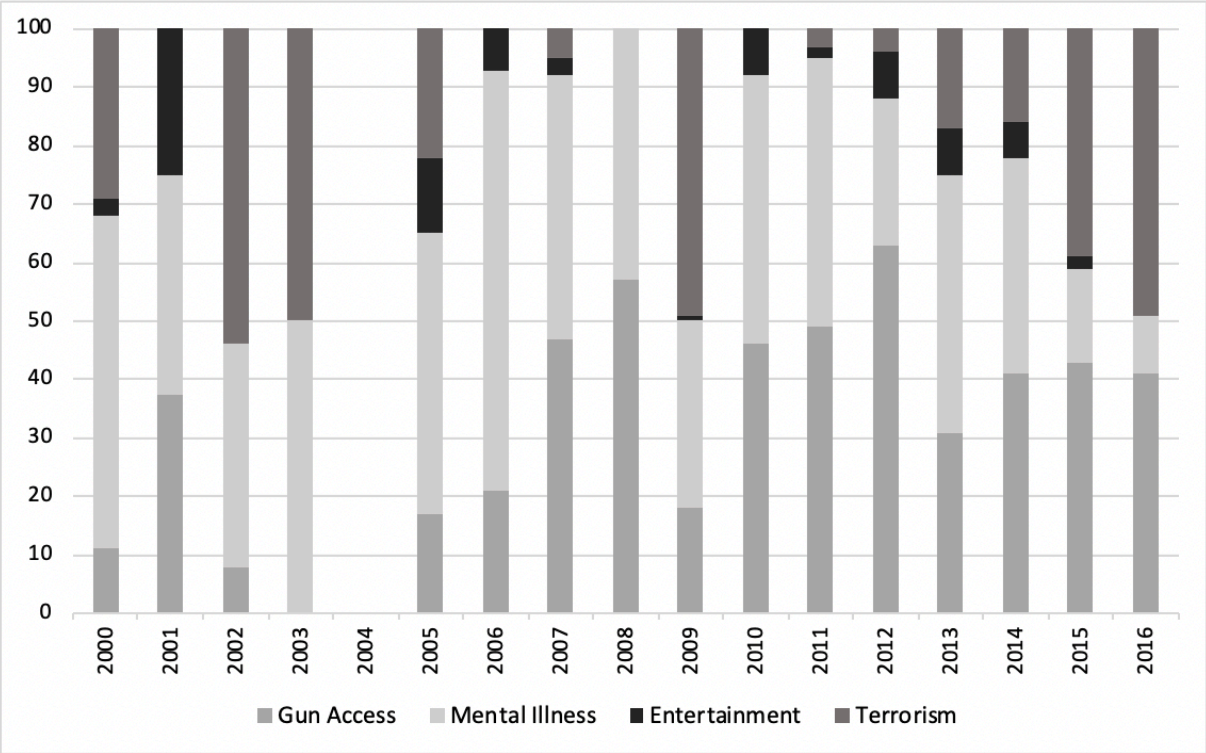
The second research question considers changes in the news media's framing over time. Figure 1 presents the share of frames each year from 2000 to 2016. Gun access framing was the most common over the entire time period with the greatest number of frames during eight of the 17 years examined. Mental illness framing was the second most common, with the greatest number of frames during seven of the 17 years examined. However, two of these years had an equal number of gun access and mental illness frames: 2001 and 2010. Nonetheless, mental illness framing was more common during the earlier period examined, being the most common of the four frames in 2000, 2001 (tied with gun access), 2003, 2004 (tied with terrorism), 2005, and 2006. Alternatively, gun access framing was the most common during the later years examined, including 2007, 2008, 2010 (tied with mental illness), 2011, 2012, 2014, and 2015. Terrorism frames were the most common during four of the years: 2002, 2003 (tied with mental illness), 2009, and 2016. Violent entertainment was never the most common of the four frames during any of the years.

In general, it is also important to acknowledge the enormous increase in coverage over the analyzed time period. There were 77 incidents between 2000 and 2009 (46%) and 89 incidents between 2010 and 2016 (54%). However, there were only 614 (28%) total articles during the 2000s. When dividing the data into these two time periods (2000-2009 and 2010-2016), gun access framing increased the most. In other words, 83% of articles with gun access framing were between 2010 and 2016, which was higher than mental illness (62%), violent entertainment (78%), and terrorism (72%).

Table 3. Top five mass shooting incidents per frame

Gun Access			Mental Illness		
Incident	***Year***	***Art.***	***Incident***	***Year***	***Art.***
Sandy Hook	2012	134	Virginia Tech	2007	66
Aurora	2012	82	Tucson	2011	62
Virginia Tech	2007	70	Aurora	2012	57
San Bernardino	2015	68	Fort Hood	2009	42
Tucson	2011	68	Sandy Hook	2012	27
Violent Entertainment			**Terrorism**		
Incident	***Year***	***Art.***	***Incident***	***Year***	***Art.***
Aurora	2012	13	San Bernardino	2015	115
Sandy Hook	2012	11	Orlando	2016	82
Virginia Tech	2007	5	Fort Hood	2009	76
Umpqua	2015	3	Chattanooga	2015	21
Red Lake	2005	3	Charleston	2015	16

Figure 1. Rate of mass shooting frames by year



Note: During 2004, there were two mass shooting incidents. However, only one received coverage (four articles), and none of this coverage included any of the four frames.

Mass Shooting Characteristics Influencing Frames

The third research question considers the characteristics influencing the news media's framing of mass shootings. Table 4 presents a cross tabulation of the four media frames by mass shooting perpetrator and incident characteristics. This includes the percentage of characteristics receiving any coverage including the four frames, as well as the average number of articles including each of the four frames. Findings show that younger offenders (under 21) were more likely to include any coverage involving all four frames. This aligns with previous research finding that younger perpetrators generally receive more coverage (Silva & Capellan, 2019b). However, the distinction in any framing is particularly prevalent for gun access (48%) and violent entertainment (33%) framing. Younger perpetrators actually increased the percentage of any violent entertainment frames and the average number of violent entertainment frames more than any other characteristics in the violent entertainment column. Nonetheless, across the four frames, the younger perpetrator category is not drastically different than the average number of frames for perpetrators aged 21-40, and in fact, coverage of perpetrators aged 21-40 actually includes a greater average number of mental illness and terrorism frames. All four frames (including any framing and the number of articles including each frame) are more common with incidents involving Asian and Arab-descent perpetrators. This aligns with previous research finding that Asian (Schildkraut at al., 2018) and Arab-descent (Silva & Capellan, 2019b) perpetrators increase newsworthiness. There is only one exception, with White perpetrators receiving a higher percentage of any mental illness framing (41%) than Asian perpetrators (33%). While Asian perpetrators have lower percentages of any coverage across all four frames than Arab-descent perpetrators, they have higher averages of mental illness and entertainment frames. Mentally ill perpetrators increase the framing of all four categories, with the highest percentage of articles being mental illness frames (48%) and the highest average number of frames being gun access frames (7.16). In terms of ideological motivation, jihadist-inspired perpetrators increased the percentage of any frames and the average

Table 4. Media framing by mass shooting characteristics

	Gun Access		Mental Illness		Entertainment		Terrorism	
	%	*Avg*	*%*	*Avg*	*%*	*Avg*	*%*	*Avg*
Age								
≤ 20	48	7.38	48	2.47	33	0.90	24	0.81
21-40	30	6.39	37	4.41	13	0.39	20	4.36
≥ 41	25	0.73	28	0.87	8	0.11	11	0.41
Race								
White	33	4.88	41	3.06	15	0.49	15	0.64
Black	21	0.66	21	0.90	4	0.04	9	0.31
Latino	11	0.61	16	0.77	5	0.05	11	0.55
Asian	50	12.60	33	11.50	16	0.83	33	1.66
Arab-descent	66	18.77	77	8.22	44	0.55	77	34.44
Mental Illness								
Yes	35	7.16	48	5.01	19	0.55	24	3.08
No	26	1.36	22	0.47	9	0.12	10	1.70
Ideological								
No	37	2.86	30	1.96	11	0.31	8	0.31
Jihadist	71	28.00	86	10.42	43	0.57	86	44.00
Far-right	38	8.19	48	6.04	24	0.23	43	1.95
Far-left	20	1.16	50	1.50	0	0.00	50	1.50
Target								
Government								
Yes	53	8.93	53	10.20	26	0.35	46	9.00
No	28	3.91	33	2.08	12	0.33	14	1.76
Open-space								
Yes	27	5.23	34	3.07	8	0.35	12	1.76
No	32	4.29	36	2.79	16	0.30	20	2.47
Religious								
Yes	30	4.15	61	2.91	15	0.37	23	1.74
No	30	4.48	33	2.76	13	0.31	17	2.77
School								
Yes	61	12.47	61	6.81	42	1.33	28	1.19
No	26	3.19	31	2.24	9	0.20	15	2.59
Workplace								
Yes	17	1.80	19	0.65	6	0.45	6	2.54
No	35	5.35	41	3.65	16	0.87	21	2.36
Gun Type								
Handgun								
Yes	31	5.14	36	3.16	14	0.40	17	2.84
No	25	1.00	32	1.32	12	0.12	19	0.54
Long-gun								
Yes	37	6.38	41	2.85	18	0.57	24	3.71
No	35	2.89	42	2.80	14	0.18	17	1.46

number of frames for all four frame categories. In fact, jihadist-inspired perpetrators had the highest average number of terrorism frames out of all average number of frames for all categories in the entire table.

Government targets increased the percentage of any frames and the average number of frames for all four frame categories. Gun access (53%) and mental illness (53%) frames were the most common, with the latter also having the highest average number of articles (10.2) of the four frames. With one exception (average number of mental illness frames), open-space locations had fewer frames across all four frames. Religious intuitions were also relatively even across all four frames, with the exception of any framing of mental illness (61%), which was exceptionally high compared to non-religious institutions (33%). Similar to government targets, school targets increased the percentage of any frames and the average number of frames for all four frame categories. The average number of frames was highest for gun access frames (12.47). Similar to open-spaces, workplace targets had fewer frames than non-workplace targets across all four frames. This aligns with previous research finding that open-space and workplace incidents generally receive less coverage, despite being more common (Silva & Capellan, 2019b). Finally, both handguns and long-guns increased the percentage of any frames and the average number of frames for all four frame categories, with one exception, percentage of terrorism frames involving handguns (17% versus 19%). However, the greatest differences in average number of articles were with handgun and long-gun framing of gun access.

Table 5 presents logistic regression analyses examining the news media's framing of mass shooting characteristics. Specifically, this table examines

Table 5. Logistic regressions of news media framing of mass shootings

	Gun Access	Mental Illness	Entertainment	Terrorism	
				Model 1	Model 2
	B (SE)	***B (SE)***	***B (SE)***	***B (SE)***	***B (SE)***
Age	-0.00 (0.01)	-0.00 (0.01)	-0.03 (0.02)	-0.01 (0.02)	-0.01 (0.02)
Race					
White[a]	-	-	-	-	-
Black	-0.20 (0.53)	-0.38 (0.54)	-0.31 (0.90)	0.17 (0.74)	-
Latino	-1.43 (0.86)	-0.81 (0.73)	-0.22 (1.18)	0.15 (0.92)	-
Asian	0.51 (0.98)	-0.57 (1.00)	0.02 (1.29)	1.52 (1.08)	-
Arab-descent	1.24 (1.50)	1.09 (1.50)	2.65 (1.63)	3.01 (1.01)***	-
Mental Illness	0.38 (0.41)	0.97 (0.40) **	0.46 (0.58)	1.04 (0.57)	0.68 (0.55)
Ideological					
No[a]	-	-	-	-	-
Jihadist	-0.07 (1.73)	0.95 (1.88)	-1.17 (1.79)	-	4.04 (1.24) ***
Far-right	0.08 (0.59)	0.19 (0.56)	0.91 (0.76)	-	2.24 (0.67)***
Far-left	-1.10 (1.22)	0.97 (0.98)	0.00 (0.00)	-	2.40 (1.06)*
Target					
Government	1.78 (0.79) *	1.00 (0.78)	1.47 (0.94)	1.70 (0.86) *	1.21 (0.88)
Open-space	0.44 (0.55)	0.56 (0.54)	0.01 (0.75)	-0.04 (0.71)	-0.22 (0.76)
Religious	0.26 (0.78)	1.69 (0.81) *	0.52 (1.00)	1.01 (0.95)	0.45 (0.96)
School	1.57 (0.67) *	1.46 (0.68) *	2.00 (0.86) *	0.61 (0.81)	1.53 (0.84)
Workplace	-0.02 (0.63)	0.14 (0.62)	0.40 (0.89)	-0.26 (0.86)	-0.01 (0.93)
Gun Type					
Handgun	1.20 (0.65)	0.67 (0.62)	0.51 (0.85)	0.80 (0.82)	-0.21 (0.86)
Long-gun	0.85 (0.49)	0.68 (0.49)	0.86 (0.64)	1.08 (0.63)	0.48 (0.64)
Year	0.08 (0.04)	0.03 (0.04)	0.02 (0.59)	0.12 (0.06) *	0.10 (0.06)
Constant	-170.32 (90.70)	-67.41 (83.59)	-59.24 (119.77)	-254.15 (128.49) *	-221.29 (122.27)
Pseudo-r^2	0.17	0.18	0.23	0.28	0.34
Chi-square	34.30 **	39.30 ***	30.60 **	42.52 ***	53.70 ***

[a] Reference category
*$p \leq 0.05$ **$p \leq 0.01$ ***$p \leq 0.001$

whether or not an incident characteristic influenced any articles including the four frames. Two incident characteristics significantly increased the likelihood of any gun access framing including government targets and school targets. Similarly, school targets influenced the likelihood of any mental illness framing. Mass shootings targeting religious institutions, as well as attacks perpetrated by mentally ill individuals, were also significantly more likely to increase any mental illness framing. School targets were the only characteristic to influence violent entertainment framing. Finally, due to issues with multicollinearity between Arab-descent and jihadist-inspired perpetrators, two separate logistic regression analyses were utilized for measuring terrorism framing.[7] In Model 1, Arab-descent perpetrators were significantly more likely than White perpetrators to increase any framing of terrorism. Terrorism framing was also significantly more likely with incidents involving government targets. In Model 2, all three terrorist types were significantly more likely than non-ideological incidents to include terrorism framing in coverage.

Finally, Table 6 presents negative binomial regression analyses examining the number of articles covering each of the four frames. Similar to the logistic regression analysis, government and school targets significantly influenced gun access framing. Additionally, gun access framing was significantly more likely when incidents involved Asian perpetrators, handguns, and long-guns. Similar to the logistic regression analysis, mental illness framing

Table 6. Negative binomial regressions of news media framing of mass shootings

	Gun Access	Mental Illness	Entertainment	Terrorism	
				Model 1	Model 2
	B (SE)	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*
Age	-0.02 (0.01)	-0.01 (0.01)	-0.04 (0.02)	-0.01 (0.02)	-0.02 (0.02)
Race					
White[a]	-	-	-	-	-
Black	-0.10 (0.63)	-0.41 (0.51)	-0.83 (0.99)	0.72 (0.76)	-
Latino	-1.42 (0.95)	-1.18 (0.74)	-0.69 (1.27)	0.36 (1.01)	-
Asian	2.49 (1.00) **	1.81 (0.86) *	1.04 (1.10)	2.05 (1.15)	-
Arab-descent	0.00 (1.87)	-0.72 (1.75)	1.16 (1.88)	4.76 (1.06) ***	-
Mental Illness	0.86 (0.48)	1.71 (0.42) ***	0.57 (0.62)	1.71 (0.67) **	1.29 (0.60) *
Ideological					
No[a]	-	-	-	-	-
Jihadist	1.28 (2.06)	1.96 (1.94)	-0.73 (2.15)	-	5.27 (0.96) ***
Far-right	0.48 (0.76)	0.30 (0.59)	0.22 (0.80)	-	1.75 (0.78)*
Far-left	-1.43 (1.28)	0.54 (0.95)	0.00 (0.00)	-	2.87 (1.13)**
Target					
Government	2.72 (0.87) **	2.36 (0.73) ***	1.18 (1.11)	2.57 (0.97) **	2.20 (0.92) *
Open-space	0.95 (0.69)	1.01 (0.51) *	0.83 (0.79)	0.41 (0.79)	0.20 (0.76)
Religious	1.77 (1.06)	1.51 (0.75)	1.74 (1.24)	3.27 (1.10) **	1.67 (1.04)
School	1.88 (0.84) *	1.53 (0.64) **	1.83 (0.95) *	1.09 (0.99)	1.99 (0.92)
Workplace	0.71 (0.75)	0.51 (0.61)	0.24 (0.95)	0.19 (0.91)	0.36 (0.92)
Gun Type					
Handgun	2.28 (0.70)***	0.52 (0.60)	1.27 (0.93)	1.50 (1.04)	0.27 (0.87)
Long-gun	2.08 (0.53)***	1.03 (0.45) *	1.53 (0.66) *	1.66 (0.74) *	0.59 (0.65)
Year	0.19 (0.05) ***	0.05 (0.03)	0.10 (0.64)	0.05 (0.06)	0.10 (0.06)
Constant	-388.79 (102.42)***	-115.728 (78.00)	-208.57 (129.47)	-124.19 (121.15)	-206.82 (122.08)
Pseudo-r^2	0.14	0.12	0.17	0.17	0.20
Chi-square	71.71 ***	68.04 ***	35.51 *	57.36 ***	69.42 ***

[a] Reference category
*$p \leq 0.05$ **$p \leq 0.01$ ***$p \leq 0.001$

was significantly more likely when mass shootings involved mentally ill perpetrators, as well as school targets. Additional significant findings from the negative binomial regression indicate mental illness framing increases when incidents involve government and open-space attacks, as well as long-guns. Similar to the logistic regression analysis, violent entertainment framing was significantly more likely when mass shootings involved school targets. Violent entertainment framing was also significantly more likely when mass shootings involved long-guns. Finally, in terrorism framing Model 1, similar to the logistic regression, Arab-descent perpetrators were significantly more likely than White perpetrators to increase framing of terrorism. Terrorism framing was also significantly more likely with incidents involving government and religious targets, long-guns, and mentally ill perpetrators. Mentally ill perpetrators and government targets were also significantly more likely in Model 2. Additionally, all three ideological types were significantly more likely than non-ideological incidents to increase terrorism framing.

Discussion

This study provides a quantitative MDA of the news media's framing of mass shootings. In line with previous MDAs examining coverage (Schildkraut et al., 2018; Silva & Capellan, 2019a, 2019b), this work finds a few high-profile incidents are largely driving framing of mass shootings. This work also identifies changes in the news media's framing of the phenomenon over time. Additionally, some mass shooting characteristics influence the news media's decision to dismiss certain frames and promote others, thereby developing the dominant public frame. The fourth/final research question is concerned with the potential media distortion of the phenomenon via news framing. Findings identify gun access, mental illness, violent entertainment, and terrorism frames potentially skewing public perceptions of mass shootings.

Gun Access Framing

Scholars examining school shooting media framing find gun access is the most common frame (McCluskey, 2016; Schildkraut & Muschert, 2013). This has also been suggested in general mass shooting scholarship (Fox & DeLateur, 2014; Holody & Daniel, 2017; Schildkraut & Elsass, 2016); however, it has not been quantitatively identified in a large-scale examination of the news media's framing of the phenomenon. As such, the first key result from this study finds gun access is the most common frame used in the news media's coverage of mass shootings. Additionally, when dividing the data into two time periods (2000-2009 and 2010-2016), gun access framing increased the most out of the four frames. Taken together, these findings highlight the enormous amount of news media attention dedicated to gun access, reflecting the contentious public and political discourse around this issue (Winkler, 2013).

Handguns and long-guns increased the number of gun access frames.[8] This suggests the news media is consistently concerned with perpetrators' access to guns, regardless of the weapon type. Importantly, this suggests that gun access is not only discussed when mass shootings involve assault rifles (i.e., included in long-guns), as was previously assumed (see Fox & DeLateur, 2014). This is presumably because handguns can also generate large numbers of casualties, an important predictor of all media coverage (Silva & Capellan, 2019b). This was the case with the Aurora and Virginia Tech shootings, which only involved handguns, and incurred disproportionately large numbers of casualties. In this way, the news media is providing a balanced approach to gun access, especially considering findings from this study that mass shootings more commonly involve handguns.

The cross tabulation, logistic regression, and negative binomial regression all find gun access framing was more likely when mass shootings involved government targets. This finding is, in part, due to the Tucson shooting; the only government target in the top five incidents that included gun access framing. This supports previous research suggesting that rhetoric around the Tucson shooter often focused on how he was able to access his weapon, despite his history of mental illness, as well as his parents' attempts to take his guns away from him (Hollihan & Smith, 2014). This frame is also likely the result of the high-profile nature of one of the victims of the Tucson shooting. Representative Gabrielle Giffords's political affiliation incited fierce political debate about gun access in America (Hollihan & Smith, 2014). After her recovery, she became an advocate for gun control legislation and contributed to the passing of numerous highly publicized gun laws (Hollihan & Smith, 2014). Another, more general reason for potential gun access framing, is that government targets are viewed as "hard" targets (Capellan & Silva, 2019), and as such, the news media may want to determine how the perpetrator was able to bring their gun into this assumedly well protected location.

The three comparative analyses also find gun access framing was more likely when mass shootings involved school targets. However, school shootings also increased mental illness and violent entertainment frames. This supports previous research finding that school shootings are often framed using these three "usual suspects" (Schildkraut & Muschert, 2013).

When using gun access frames, school shooting studies suggest frames often focus on how underage school shooters accessed their guns (McCluskey, 2016; Schildkraut & Muschert, 2013). This is somewhat supported by the cross tabulation table finding that younger perpetrators increase the percentage of gun access frames. As such, this suggests a potential media distortion, given findings from this study that the age-range of mass shooters is diverse, and not a youth exclusive problem, as has been socially constructed in the aftermath of Columbine (Silva & Capellan, 2019b). In addition to this, research finds that the majority of weapons obtained from mass shootings are purchased legally (Silver et al., 2018). As such, media outlets may be distorting concern over the gun access problem (i.e., younger perpetrators accessing illegal weapons), which can contribute to ineffective policy approaches to access prevention. However, the two school shootings included in the top five incidents using gun access frames were both perpetrated by individuals who were legally old enough to purchase their weapons. Therefore, this would not be the primary focus used in gun access framing. As such, further research should consider why school shootings increase gun access coverage, outside of the commonly connected younger perpetrator characteristic.

Finally, gun access framing was more likely when mass shootings involved Asian perpetrators. This is again, likely the result of a single incident: the Virginia Tech shooting. Studies found that the Virginia Tech shooting impacted overall coverage (Schildkraut et al., 2018), and the incident was often framed around the perpetrator's race and criminal culpability to his ethnic group (Holody et al., 2013; Park et al., 2012). This study adds to previous research by suggesting that Asian/Virginia Tech frames also emphasize gun access. Research suggests that gun access framing of Virginia Tech focused on stricter gun control legislation and the legal loopholes in Virginia's mental health laws that allowed the perpetrator to access his guns (Schildkraut, 2012). As such, this highlights a connection between gun access and mental illness framing.

Mental Illness Framing

Findings illustrate that mental illness was the second most utilized frame used for contextualizing mass shootings. This is likely because mental illness is one of the most common characteristics of mass shooters, with this study finding half had a history of mental illness. Unsurprisingly, the cross tabulation, logistic regression, and negative binomial regression all found that mental illness framing was more likely when mass shooting incidents involved mentally ill perpetrators. However, studies caution against the misuse of mental health diagnoses for predicting mass violence (Fox & DeLateur, 2014), with research suggesting that mental illness is likely a single component in the pathway to violence, that is neither necessary, nor sufficient, for predictive purposes (Lankford, 2016; Metzl & MacLeish, 2015). As such, while this is an important issue worthy of discussion, news outlets should cover mental illness with caution. The majority of individuals with mental illness never become violent, and as such, mental illness framing in news media coverage should consider the unintended consequences, such as mental illness stigmatization (McGinty et al., 2014; Metzl & MacLeish, 2015).

In terms of race, similar to gun access framing, the cross tabulation and negative binomial regression found that Asian perpetrators increased mental illness framing. Again, this is likely because of a single perpetrator: the Virginia Tech shooter. Schildkraut and colleagues (2018) suggested that this atypical race/ethnicity (i.e., mass shooters are most often White) is more newsworthy because they do not fit the "norm." In other words, this work found that Asians were the least common race to engage in an attack (4%). However, as shown in Table 3, the Virginia Tech shooter was the most common of all perpetrators to include mental illness frames within coverage. This suggests a media distortion, as there is no reason to believe mental illness is race based, with research showing mental health is relatively consistent across the mass shooter population (Capellan et al., 2018). The implications of the news media's framing, connecting Asian perpetrators with mental illness, may further the aforementioned stigmatization issues, particularly against the Asian community.

School shootings increased mental illness framing in all three comparative analysis tables. This is distorting the reality of mental illness, as research finds perpetrators of school, workplace, terrorism, and rampage attacks all have relatively similar levels of mental illness (Silva & Capellan, 2019a). However, the reason for this distortion is difficult to determine and is further confused by the finding in the logistic regression that religious institutions increase any mental illness framing, as well as the findings in the negative binomial regression that government and open-spaces increase the average number of articles including mental illness frames. This, at least in part, may be explained by the overall lack of coverage dedicated to workplace shootings (i.e., the only location that was not significant in any tables; Silva & Capellan, 2019a, 2019b). In other words, other locations received more coverage, and when it was difficult to explain the factors contributing to the problem, news media outlets turned to the mental illness frame. However, more research is required for

determining why these target-based findings were significant.

Violent Entertainment Framing

Qualitative research suggests that violent entertainment was one of the original three "usual suspects" (also including gun access and mental illness) associated with the mass shooting problem in the aftermath of Columbine (Schildkraut & Elsass, 2016; Schildkraut & Muschert, 2013). Additionally, McCluskey's (2016) quantitative examination of school shootings found that "popular media" is slightly more common than mental illness in national news media mentions. Despite previous research, this large-scale quantitative examination of all mass shootings found that violent entertainment is far less common in news media framing of mass shootings than the other three examined frames. Nonetheless, these differences between previous research and the current study are not necessarily contradictive. This is clarified by the characteristics influencing the rate of violent entertainment framing.

This study found that school shootings were the only characteristic influencing entertainment framing in the cross tabulation, logistic regression, and negative binomial regression. In other words, as suggested in previous research, school shootings are associated with violent entertainment (McCluskey, 2016; Schildkraut & Muschert, 2013). Additionally, the cross tabulation table suggests that younger perpetrators (under 21) increase the framing of violent entertainment as the problem. While this did not hold in the regression analyses, this is likely because of the overall small number of violent entertainment frames used in coverage, as well as the connection between school targets and younger perpetrators (i.e., 43% of attacks perpetrated by individuals 21 and younger occurred in schools). The implications of these findings is twofold. First, it is important to commend the overall responsible news media reporting that generally avoids associating these attacks with violent entertainment. While it is true that violent people are often attracted to violent entertainment, there is no causal link finding that consuming violent entertainment leads to mass shootings (Fox & DeLateur, 2014). Nonetheless, research has identified a link between incidents receiving sensational news media coverage and/or attention in popular culture and subsequent copycat crimes (Towers et al., 2015). As such, the news media needs to consider their own role in contributing to mass shootings. Second, it is important to highlight that 73% of all violent entertainment framing occurred in the last 5 years of this study. While overall coverage has generally gone up in the most recent decade, news media is nonetheless still dedicating attention to this empirically disproven "usual suspect," and may be distorting public perceptions of mass shootings and the danger of violent entertainment. This public perception is supported by a recent Gallop Poll finding that half of Americans still blame violent entertainment for mass shootings (Saad, 2019). The implications of this finding suggest that news media may still be enabling this convenient scapegoat, allowing politicians and policymakers to avoid dealing with the more fundamental causes of violence (Fox & DeLateur, 2014).

Terrorism Framing

The final frame was not one of the original three "usual suspects" associated with mass shootings (Schildkraut & Muschert, 2013; Schildkraut & Elsass, 2016). Nonetheless, recent scholarship has found that ideological mass shootings are more likely to receive coverage (Silva & Capellan, 2019a, 2019b) and should be considered in examinations of the overall framing of the problem (Schildkraut & Gruenewald, 2019). Importantly, this study found that terrorism is one of the primary frames used for understanding mass shootings in the news media. In fact, while gun access was the most common, and mental illness was the second most common overall, mental illness framing was actually less common than terrorism in the last five years of this study (221 articles versus 285 articles). In general, this research suggests that the three "usual suspects" for understanding all mass shootings in the news media should include terrorism instead of violent entertainment, as terrorism was substantially more common in framing of the phenomenon. However, it is important to emphasize this is also a distortion of the phenomenon, as only 20% of the mass shootings in this study were ideologically motivated.

It is also important to highlight the characteristics influencing terrorism framing. All three terrorist typologies were more likely than non-ideological perpetrators to increase terrorism framing in both regression analyses. However, a closer look at the cross tabulation shows that these significant differences are actually much different from one another. Jihadist-inspired extremists received 22 times as many average number of articles including terrorism frames (44 average frames) than far-right (1.95) and far-left (1.50) incidents. In other words, this study finds the terrorism framing of mass shootings is largely rooted in jihadist-inspired extremism. This is distorting the reality of the problem, given that far-right mass shootings were three times more common than jihadist-inspired mass shootings. This approach to terrorism framing is likely the result of the 9/11 attacks, which contributed to public perceptions of terrorism as being an inherently jihadist-inspired

threat (Silva et al., 2019). In addition, the 9/11 attacks occurred two years after Columbine, and the two social problems (terrorism and mass shootings) often became conflated in news media coverage and public discourse (Altheide, 2009).

Similarly, previous research has found that Arab-descent perpetrators increase coverage (Silva & Capellan, 2019a, 2019b), and the cross tabulation in this work shows Arab-descent perpetrators increase all four frames. However, there is only a significant difference in both the logistic and negative binomial regression in terrorism framing. The regression analyses only compare Arab-descent to White perpetrators; however, a closer look at the cross tabulation shows that Arab-descent perpetrators increase terrorism framing much more than all races. While the multicollinearity issues between Arab-descent and jihadist-inspired perpetrators highlight a link between Arab-descent perpetrators and ideological mass shootings, it is also important to recognize the small percentage of overall perpetrators who are either. In other words, Arab-descent and jihadist-inspired perpetrators only make up a small percentage of the mass shooting problem (6% and 4%). Despite this, as shown in Table 3, four of the five incidents with the greatest number of articles including terrorism frames fit these two characteristics. Taken together, this research finds the news media is stigmatizing Arabs-as-terrorists and highlighting the jihadist-inspired problem over other forms of terrorism. In general, research has found that the stigmatization of Arabs-as-terrorists in the news media has increased negative perceptions and hate crimes against the Arab population in America (Mitnik et al., 2020; Silva et al., 2019). As such, news media outlets need to take caution, and provide nuanced coverage of the overall mass shooting problem, when covering race/ethnicity and ideological motivations for mass shootings.

Finally, government and religious institutions increased the framing of terrorism. However, research has found that only half of government attacks are perpetrated by terrorists (Capellan, & Silva, 2019). Similarly, while not included in the initial analyses, the data from this research found that terrorists perpetrated 47% of government attacks and 38% of religious attacks. In other words, by framing these government and religious attacks as a terrorism problem, the news media may be skewing public perceptions of the potential threat of terrorism and ignoring other threats within these locations. While beyond the scope of this work, studies should continue to explore the perpetrators of government and religious attacks to determine effective means for intervention and prevention.

Limitations and Future Research

It is important to acknowledge limitations inherent to the current research design and provide guidance for future research investigating the news media's framing of mass shootings. Scholars have routinely highlighted three mass shooting study limitations including definitional, data collection, and temporal issues (see Silva & Greene-Colozzi, 2019a). To address these concerns, this work provides a detailed definition and data collection strategy, with a framework for methodological replicability. Additionally, the use of a post-Columbine time period reduces issues with "publicity effects" and "time period effects" (Silva & Greene-Colozzi, 2019a) because mass shootings were popularized in the cultural lexicon and received more media coverage during this time. In other words, there is less concern over missing cases, case information, and *NYT* articles, often associated with more expansive 50-year analyses (Silva & Capellan, 2019a, 2019b). As such, the current limitations and future research discussion focuses on the strategies for advancing media framing analyses of mass shootings.

First, this study attempted to expand previous studies examining the news media framing of the "usual suspects" by including terrorism frames. Importantly, this study found that terrorism framing was much more common than the previously considered violent entertainment frame. This suggests that future research should continue to explore alternative frames used in the news media's coverage of mass shootings. For instance, McCluskey's (2016) examination of school shootings found that the news media often included frames involving criminal justice and religion, the latter of which may be particularly interesting in an examination of all mass shootings, given the emphasis on jihadist-inspired extremism (rooted in Islam) identified in the current study. Determining other frames used in the news media can help identify potential understanding of public and political discourse, as well as potential distortions in the American mindset.

Second, this work provides a general examination of four frames, including any coverage of frames and the number of articles including frames. In continuing this exploration, studies may wish to consider a greater focus on claims making in media framing (Holody & Daniel, 2017). For instance, this work does not consider a distinction between gun control and gun rights framing in gun access discourse. As such, this finding only reinforces the contentious debate surrounding gun access and mass shootings (Winkler, 2013). Similarly, previous MDAs have examined distinctions between "specific" coverage (focused on the perpetrator/incident) and "general"

coverage (focused on the mass shooting problem at-large; Schildkraut et al., 2018; Silva & Capellan 2019b). This is similar to what Iyengar (1991) called "episodic" framing (framing an event as a discrete, stand-alone incident) versus "thematic" framing (focused on a broader, more contextualized, interconnected frame). Taken together, research should continue to explore the current frames, with a greater focus on the nuances of these four frames, including claims making, specific versus general frames, and episodic versus thematic frames.

Third, this study is limited by the decision to focus on a single national newspaper. For example, this work found that gun access and mental health frames were the most prominent. However, these findings, as well as the characteristics influencing framing more generally, are likely to differ across national news sources catered to different audiences (Holody & Daniel, 2017; McCluskey, 2016). For example, far-left terrorism may receive more coverage in a conservative newspaper than the *NYT* - which is often considered left leaning in its overall framing (Chernomas & Hudson, 2015: Mitnik et al., 2020). As such, future research should provide a comparative approach to framing in different national news sources. This would also be particularly useful when examining aforementioned claims making within each of the four frames examined.

Finally, this work combines two historically separate approaches to examining the news media coverage of mass shootings by focusing on (1) news media framing and (2) using a quantitative MDA. This was valuable for identifying the characteristics influencing media framing and the potential news media distortions of the phenomenon. As such, further research should continue in this approach across all types of media studies, not just mass shootings. Studies may also wish to incorporate alternative mixed methods approach to media assessments. For instance, Mitnik and colleagues (2020) provide a mixed method analysis of terrorism coverage that incorporates components of the quantitative MDA with qualitative details of significant findings. Replications of the current study could benefit from more qualitative details that further develop the media framing of mass shootings.

Conclusion

This study uses an MDA to examine the news media's framing of gun access, mental illness, violent entertainment, and terrorism in *New York Times* coverage of mass shootings in America between 2000 and 2016. Findings provide valuable implications for scholars, media outlets, and the public. Gun access frames were the most common of the four frames and increased the most over time. This news media attention reflects the contentious public and political discourse surrounding gun access in America. However, scholars should further investigate gun control versus gun rights frames and the direct impact this has on public opinion and legislation surrounding gun access. Mental illness frames were slightly more common than terrorism frames, although terrorism frames increased more over time. While perpetrators often have a history of mental illness, media outlets should be cautious when reporting, particularly given the finding that perpetrator mental illness increases mental illness framing in coverage. Psychiatric diagnosis does not predict mass shootings, and sensational framing can stigmatize those with mental illness and result in unintended consequences. Similarly, the findings that Arab-descent and jihadist-inspired perpetrators increase terrorism frames suggest that news media is contributing to the stigmatization of Arabs-as-terrorists and the construction of jihadist-inspired terrorism as the primary threat. Terrorism framing may contribute to negative perceptions and hate crimes against the Arab population in America, as well as public perception and political discourse that overlooks other, more common, forms of terrorism (i.e., the far-right threat). Finally, unlike previous school shooting research (Schildkraut & Muschert, 2013) suggesting that the "usual suspects" were gun access, mental illness, and violent entertainment, this work found that violent entertainment frames were far less common than the other three frames in coverage of all mass shootings. Despite this, the current findings still support school shooting research, finding that school targets increase the gun access, mental illness, and violent entertainment frames. Nonetheless, future studies examining the media framing of all mass shootings should consider the inclusion of terrorism framing, as it was much more common than violent entertainment. Importantly, the increase in terrorism frames may be skewing public understanding of the problem, given that terrorist ideology only accounts for one-fifth of mass shootings.

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About the Author

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Endnotes

[1] In this way, framing sets the agenda of a particular social problem. Framing and agenda setting theories/frameworks are closely intertwined, and the distinctions between the two are historically complex (see Holody & Daniel, 2017). As such, this work draws from previous scholars using a simple approach suggesting framing is equivalent to second level agenda setting, or the salience of issue attributes (Maher 2001; McCombs & Ghanem 2001).

[2] In line with previous research (Schildkraut et al., 2018), this study only examined post-Columbine incidents (i.e., beginning in 2000), after mass shootings entered the cultural lexicon and began receiving more media attention.

[3] Despite the exclusion of familicide and criminal activity mass shootings, it is important to recognize that these are equally as important, and in fact more common than the currently examined mass shootings (Krouse & Richardson, 2015). Nonetheless, they are distinctly different types of gun violence problems that are examined separately (Krouse & Richardson, 2015).

[4] For example, cases were included if they involved four injuries, but zero fatalities. This casualty count does not include the perpetrator.

[5] In line with previous research (Schildkraut et al., 2018; Schildkraut & Gruenewald, 2019), this work excludes op-eds and letters to the editor, which are more concerned with opinions, rather than "objective" journalism.

[6] In line with the five previous MDAs, this study measures variables at the incident level, not the perpetrator level. As such, measurements of the two dyad incidents included in this study consider if one of the two perpetrators had any of the aforementioned perpetrator variable characteristics. For instance, in the case involving one female and one male, the variable was coded as female. The age of dyad perpetrators was also averaged between the two perpetrators. This was done so that perpetrator variables could be included in the regression models examining all variables at once. This approach was determined to be an effective strategy for identifying differences in characteristics in multiple models (see Silva, 2020).

[7] Issues with multicollinearity were also common in previous MDAs, and a similar approach using two models was used (Gruenewald & Chermak, 2006; Schildkraut et al., 2018; Silva & Capellan, 2019b). In the current study, the two model approach was also used for the other three regression analyses (i.e., gun access, mental illness, and terrorism); however, there was no difference in the significant variables between those that included both Arab-descent and jihadist-inspired and those that separated them. As such, for clarity, brevity, and space purposes, this work only includes the single model with all variables included for these three logistic regressions.

[8] Long-guns were also significant in all of the negative binomial analyses. This is likely because long-guns usually result in more fatalities and injuries, which are the most common predictors of mass shooting newsworthiness (Schildkraut et al., 2018; Silva & Capellan, 2019a, 2019b). In other words, this work shows that incidents with long-guns generally receive more coverage and, as a result, receive more frames. As such, the inclusion of long-guns in is essentially acting as control variable in the regression analyses.