

Mass shootings and the media: why all events are not created equal

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ABSTRACT

Due to their sensational nature, mass shootings receive a considerable amount of attention in the media. Despite their rarity, not all shootings garner the same coverage. The present study examines characteristics of newsworthiness among 90 shootings between 2000 and 2012. Using a media distortion analysis of articles in *The New York Times*, specific consideration is given to how offender characteristics, victim counts, and locations of the events impact the newsworthiness of each case. The findings indicate that race/ethnicity and victim counts are the most salient predictor of whether or not a shooting was covered, with perpetrators of Asian and other descent and those events with higher victim counts generating more prominent coverage (measured as higher article and word counts), whereas incidents occurring in locations other than schools yielded less coverage. Implications from the findings, both for the general public and media practices, as well as study limitations, also are considered.

ARTICLE HISTORY

Received 14 October 2016
Accepted 17 January 2017

KEYWORDS

Mass shootings; media distortion; analysis; bias; newsworthiness; media coverage

The 20 April 1999 rampage at Columbine High School has been categorized as a watershed event (Larkin 2009; Muschert 2002) and, for many news consumers nationwide, helped propel mass shootings as a phenomenon into the national discourse. Certain events, such as Columbine and the more recent shooting at Sandy Hook Elementary School in Newtown, Connecticut, have been perceived as reflecting broader issues within society ('Washington Post-ABC News Poll,' n.d.), including gun control, access to mental health care, and the impact of violent media (Schildkraut 2014, 2016; Schildkraut and Elsass 2016; Schildkraut, Elsass, and Muschert 2016; Schildkraut and Muschert 2014a). The continuous coverage of these events also has perpetuated beliefs that mass shootings happen more frequently than is reality, regardless of the phenomenon's low statistical probability of occurrence (Elsass, Schildkraut, and Stafford 2014; Schildkraut, Elsass, and Stafford 2015). Similarly, the abundance of attention has led people to overestimate their likelihood of falling victim to a similar attack (Elsass, Schildkraut, and Stafford 2014; Schildkraut, Elsass, and Stafford 2015). Collectively, these perceptions foster punitive attitudes, a demand for increased security and prevention, and an appeal for legislative change, despite that such attempts have been largely unsuccessful in the past (Schildkraut and Hernandez 2014).

As most people will never directly experience such an event, the way in which these shootings are understood almost solely is shaped by the media, and the amount of attention they garner is a driving force behind these public perceptions. Accordingly, understanding how these and other stories are presented is critical to assessing the broader impact of the social problem of mass shootings. Generally, research indicates that news coverage particularly is skewed toward stories about crime (Chermak 1995;

Graber 1980; Maguire, Sandage, and Weatherby 1999; Surette 1992). Violent crimes, and homicides in particular, often are the most newsworthy because they have the ability to capture and keep the audience's attention, even though property offenses are considerably more common (Chermak 1995; Gruenewald, Pizarro, and Chermak 2009; Meyers 1997; Paulsen 2003; Pritchard 1985). Still, due to time and/or space constraints, not all cases of crime, no matter how sensational, will be covered and there exists variation in the amount of attention that is received (Chermak 1995; Pritchard and Hughes 1997).

In order to understand these disparities, researchers have employed a technique known as a 'media distortion analysis' (Gruenewald, Pizarro, and Chermak 2009, 264). This allows researchers to assess why some cases are covered over others and what factors increase the prominence of the coverage (Chermak 1995, 1998; Johnstone, Hawkins, and Michener 1994; Paulsen 2003; Schildkraut and Donley 2012; Sorenson, Manz, and Berk 1998; Wilbanks 1984). While previous researchers (e.g., Chyi and McCombs 2004; Leavy and Maloney 2009; Muschert 2002; Muschert and Carr 2006; Schildkraut 2012; Schildkraut and Muschert 2014b) have analyzed media representations of school and mass shootings, they often explore only a single event and focus on how the stories are framed rather than why the cases are (or are not) covered. Given the impact of such events, understanding the factors that influence the amount of coverage is critical.

Most media distortion analyses have focused on explaining why victims of general homicide receive disparate coverage. Yet as Gladwell (2008) asserts, 'we learn more from extreme circumstances than anything else ... [and] it's those who lie outside ordinary experience that have the most to teach us' (6). It is these outlier examples that not only have the greatest ability to shape public perceptions, but policy as well. To date, however, only two studies (Chermak and Gruenewald 2006; Duwe 2000) have examined a specific form of homicide to determine why such variation in coverage between attacks exists. Chermak and Gruenewald (2006) analyzed coverage of terrorist attacks, while Duwe (2000) examined cases of mass murder more broadly.

Like acts of terrorism and mass murder, not all mass shootings receive equitable media coverage, despite the sensational nature of the phenomenon as a whole (Schildkraut 2014, 2016). Absent from the body of research, however, is an exploration as to *why* this coverage is disparate. Further, as public mass shootings have become their own distinct phenomenon, separating from both general homicide as well as mass murder, an examination is warranted into the coverage patterns as they relate to these particular events. Accordingly, the present study seeks to fill this gap by examining news stories of mass shootings to understand selection and prominence – that is, why certain events are featured over others and how much attention each receives – within the coverage. Articles in *The New York Times* were analyzed for 90 events occurring between 2000 and 2012.

Review of literature

The commodification of crime news

The mass media play a critical role in the social construction of society. As many people never will be directly affected by crime, their individual beliefs and perceptions of crime typically are shaped by the media (Chermak 1994; Graber 1980; Maguire, Sandage, and Weatherby 1999; Mayr and Machin 2012; Pollak and Kubrin 2007; Robinson 2011; Surette 1992; Warr 2000). Studies have shown that the mass media are the primary source of information about crime for nearly 95% of the general population (Graber 1980; Surette 1992). Consequently, researchers must understand the process of newsmaking as it contributes to shaping the public discourse about crime, which begins with examining news as a commodity.

Mayr and Machin (2012) note that the present-day media are characterized by an intense commodification of crime news, which often results in increased market competition. Indeed, crime news essentially is a product that the media want to sell to its consumers because it is what will keep an audience hooked (Buckler and Travis 2005; Chermak 1995; Johnstone, Hawkins, and Michener 1994; Leavy and Maloney 2009; Pritchard and Hughes 1997; Robinson 2011; Shoemaker 2006; Surette 1992).

As such, the news media have been reduced to 'what is commercially viable, popular, easily digestible, mainly unchallenging, and uncritical' (Mayr and Machin 2012, 12). Stories about crime, in particular, are both inexpensive and easy to cover (Chermak 1995; Robinson 2011), and therefore account for the largest proportion of coverage.

Agger (1989) refers to the dependence on the mass media as *fast capitalism*, whereby the media operate in an economic model that serves the public by 'objectifying and commodifying all human experience' (6). Tuchman (1978) also refers to the news as 'a depletable consumer product that must be made fresh daily' (179). In addition to the need to keep the content fresh, media producers also must keep the content interesting enough to attract viewers (Kellner 2008; Lawrence and Mueller 2003; Leavy and Maloney 2009). The format needs to account for the fact that the news is not solely for informational purposes, but entertainment purposes as well (Kellner 2003; Lawrence and Mueller 2003), a format Kellner (2003) refers to as *infotainment*. The format and ultimate sensationalism of these stories also results from intense market competition between numerous mass media outlets (Kellner 2008).

The newsworthiness of homicide

Despite their popularity, a number of stories about crime will never be presented by the media due to the overabundance of incidents (Chermak 1995; Pritchard and Hughes 1997). Accordingly, in order to capture (and keep) the audience's attention, the media typically focus on those cases that are the most extreme (Chermak 1994; Gans 1979; Lawrence and Mueller 2003; Pollak and Kubrin 2007; Weiss and Chermak 1998). Audiences often favor those stories that are graphic or violent in nature (Chermak 1995; Gans 1979). Even still, there are a number of cases for the media to choose from when deciding what to cover. Selection decisions must be made by newsmakers, whereby values of newsworthiness are assigned to cases to determine what crimes are worth presenting (Chermak 1994, 1995; Gans 1979; Weiss and Chermak 1998). The need to produce news both quickly and efficiently also influences values of newsworthiness (Chermak 1995; Gans 1979).

Ultimately, the level of newsworthiness assigned to a particular case or event will be contingent upon a number of different factors, including (but certainly not limited to) the organizational goals and journalistic style of the news outlet and its target audience (Schildkraut and Donley 2012). Chermak (1995) has suggested that newsworthiness may be assessed based on five criteria – the violent nature of the crime, demographic characteristics of the victim and offender (such as age, gender, race, and occupation), characteristics of the news agency, the uniqueness of the event, and the event's saliency. Greater values of newsworthiness regularly are assigned to the most serious or violent crimes – those that are statistically rare, have atypical elements, or are what Johnstone et al. (1994, 869) called 'high amplitude' (see also Chermak 1994; Mayr and Machin 2012; Paulsen 2003; Pritchard and Hughes 1997). These stories receive such elevated levels of coverage because they are more likely to generate increased interest among news consumers (Schildkraut and Donley 2012).

It is for these reasons that homicides routinely receive the most media attention of any type of crime story (Chermak 1994, 1995; Maguire, Sandage, and Weatherby 1999), in some instances accounting for up to 40% of coverage (Chermak 1995; Graber 1980; Paulen 2003; Pollak and Kubrin 2007). Still, as noted, not all cases of homicide will be covered. To better understand why certain homicides are highlighted while others are not, researchers (e.g., Buckler and Travis 2005; Chermak 1998; Gruenewald, Pizarro, and Chermak 2009; Johnstone, Hawkins, and Michener 1994; Lundman 2003; Paulsen 2003; Pritchard and Hughes 1997; Schildkraut and Donley 2012; Sorenson, Manz, and Berk 1998; Weiss and Chermak 1998) have examined predictors of both general and prominent coverage. Utilizing the media distortion analysis technique, these researchers have identified several key patterns associated with highly newsworthy cases.

One of the most salient predictors of coverage of a homicide is whether or not it involved a 'worthy victim' (Gruenewald, Pizarro, and Chermak 2009; Sorenson, Manz, and Berk 1998). Specifically, this refers to those who are 'White, in the youngest and oldest age groups, women, of high socioeconomic status, killed by strangers' (Sorenson, Manz, and Berk 1998, 1514; see also Duwe 2000, 2004; who similarly found

that mass murders committed by strangers increased newspaper coverage) or who are perceived as more vulnerable (Boulahanis and Heltsley 2004). The presence of one or more of these attributes has been found to increase the likelihood that a homicide receives any media attention, as well as the prominence of the coverage in the form of more articles and increased word counts (Gruenewald, Pizarro, and Chermak 2009; Johnstone, Hawkins, and Michener 1994; Lundman 2003; Paulsen 2003; Pritchard and Hughes 1997; Wilbanks 1984). It is important to note, however, that the groups who are considered to be worthy victims often are overrepresented in the media in relation to their actual prevalence in the patterns of homicide (Chermak 1995).

In the same vein, when homicides include offenders that are atypical in nature, as compared to official statistics, these cases also are considered more salient. The majority of homicides, for example, are perpetrated by males, yet researchers (e.g., Chermak 1998) have found that crimes involving female offenders are more likely to be covered. Similarly, homicides committed by juveniles (Boulahanis and Heltsley 2004; Chermak 1995) and individuals over 35 (Chermak 1998) are more likely to be covered, despite that over 66% of offenders are between the ages of 18 and 35. Further, with respect to race, black offenders typically are found to be less newsworthy; when black perpetrators are juxtaposed against white victims, their crimes are more likely to be covered at least once and to receive more continuous attention in the form of additional stories (Lundman 2003; see also Duwe 2000, 2004).

Beyond individual-level correlates, several additional factors also have been found to predict increased newsworthiness among homicide events. Specifically, the presence of multiple victims, regardless of their individual characteristics, is correlated with both general coverage, referring to whether a story receives at least one article (Chermak 1998; Duwe 2000, 2004; Gruenewald, Pizarro, and Chermak 2009; Johnstone, Hawkins, and Michener 1994; Paulsen 2003; Wilbanks 1984), and prominent coverage, which emphasizes how much attention a story receives (in respect to number of articles and word counts) and where (e.g., first page, front section) this coverage is placed in the newspaper (Buckler and Travis 2005; Chermak 1998; Gruenewald, Pizarro, and Chermak 2009; Johnstone, Hawkins, and Michener 1994; Paulsen 2003; Wilbanks 1984). Similarly, the presence of multiple offenders has been found to increase the newsworthiness of a homicide (Johnstone, Hawkins, and Michener 1994; Lundman 2003; Paulsen 2003), particularly as nearly 80% of all murders involve a single perpetrator. Paulsen (2003) also found a positive, significant relationship between median income and prominent coverage, in that homicides occurring in wealthier areas were more likely to yield increased article and word counts. In sum, when a homicide contains elements that are considered unusual or out of the ordinary, they are more likely to be considered newsworthy in the media (Boulahanis and Heltsley 2004; Gruenewald, Pizarro, and Chermak 2009; Meyers 1997). Further, by focusing on only the most severe or extreme cases, the media give audiences a distorted understanding about crime or a related phenomenon (Lawrence and Mueller 2003; Maguire, Weatherby, and Mathers 2002; Robinson 2011), such as mass shootings.

Mass shootings in the media

As noted, homicide is exceedingly rare, accounting for just 1.2% of violent crimes and 0.1% of all offenses known to law enforcement.¹ Even rarer are incidents of mass shootings, though due to definitional issues, the exact number of events annually is unknown (see, generally, Elsass, Schildkraut, and Stafford 2016; Schildkraut and Elsass 2016). Still, when word breaks that a shooting has occurred, the media often begin a continuous cycle of streaming coverage that lasts for hours or days, and in the most extreme cases, even weeks. Understanding this coverage is critical given its ability to shape public opinion and related policies, such as gun control and mental health (Schildkraut and Hernandez 2014; Soraghan 2000).

Despite recent calls for a broader, more unified body of research (see Harris and Harris 2012), the majority of studies center on the media coverage of school shootings. This phenomenon, however, is exemplary of the overrepresentation and disproportionality of such extreme events in the news (Lawrence and Mueller 2003; Maguire, Weatherby, and Mathers 2002). Robinson (2011), for example, found that the 1999 Columbine High School shooting was the most covered crime story on evening

news broadcasts, with 319 stories about the event being aired that year. Muschert (2002) observed that when the Columbine story first broke, CNN aired over six hours of uninterrupted coverage from Littleton. Similarly, Robinson (2011) found that the three major news networks (ABC, CBS, and NBC) devoted more than half of their nightly news airtime to stories about Columbine for up to a month after the shooting. Maguire et al. (2002) had similar findings. Their analysis of the coverage of 14 school shootings for one-week period on ABC, CBS, and NBC found that 53 stories (and almost four hours of total airtime) were allocated to Columbine alone (Maguire, Weatherby, and Mathers 2002). By comparison, the remaining 13 school shootings shared just slightly more airtime combined (Maguire, Weatherby, and Mathers 2002).

The disproportionate coverage of school shootings is not limited solely to television news. One study found that approximately 10,000 articles were published about the Columbine shooting in the nation's 50 largest newspapers in the year following the shooting (Newman 2006). In the 30 days following the 2007 Virginia Tech shooting, 63 articles (excluding op-eds) were published in *The New York Times* alone (Schildkraut 2012). While this is an average of two articles per day, the majority of the coverage took place within the first five days after the shooting (Schildkraut 2012), a trend that was similar in the reporting of Columbine (Muschert 2002). Comparable coverage patterns also were found in the coverage of the 2012 shooting at Sandy Hook Elementary School (Schildkraut and Muschert 2014b). Despite younger victims and a higher death toll, however, the Sandy Hook shooting did not eclipse Columbine in terms of the amount of coverage, though it was found to represent an important discursive marker in a longer discourse about mass shootings in schools (Schildkraut and Muschert 2014b).

Disparities in coverage were particularly evident following shootings at Northern Illinois University (2008) and Chardon High School (2012), each of which received less media attention than the aforementioned shootings (Elsass, Schildkraut, and Stafford 2014; Schildkraut 2014). As with general homicide, the media focus on the most extreme examples when covering mass shootings, and continually refer back to these with each new shooting to reinforce just how tragic the current event is (Schildkraut 2014, 2016). This disparity may lead to distorted views about the actual occurrence of the events and more punitive responses, among other outcomes (Elsass, Schildkraut, and Stafford 2014; Schildkraut, Elsass, and Stafford 2015; see also Duwe 2000). With this in mind, it is critical to understand what specifically contributes to the newsworthiness of mass shootings.

Despite this growing body of literature, however, researchers have failed to consider *why* the coverage is so varied, particularly when the phenomenon as a whole generally elicits such jarring responses from the public, politicians, and media alike. Looking at 495 cases of mass murder more broadly, Duwe's (2000) research offers important insights into potential explanations for such variation. The results indicate that while nearly every event in his 21-year study was received attention in at least one newspaper, the majority of this coverage occurred at a nonlocal level (Duwe 2000). The strongest predictors of coverage related to the victims were higher death tolls and greater numbers of injured victims; both yielded more media attention (Duwe 2000). Similarly, the use of a firearm, particularly an assault weapon, also increased the likelihood that a killing would be covered (Duwe 2000). Further, greater coverage levels were found among those mass murders that occurred in public settings, and workplaces in particular (Duwe 2000). In later years (1982–1996), the prominence of coverage also increased as the age of the offender increased (Duwe 2000). Collectively, these findings are useful in guiding the present study's consideration of the variation among coverage of mass shooting events.

The present study

To date, most studies that focus on mass shootings in the media are limited by the type of events they examine, with an emphasis on those attacks occurring in schools (see, e.g., Chyi and McCombs 2004; Muschert and Carr 2006; Schildkraut 2012; Schildkraut and Muschert 2014b). Aside from considering the amount of media attention allocated to these shootings, these same studies often emphasize the way in which the narratives are framed rather than exploring a potential disparity in the coverage patterns. Initial evidence (see Schildkraut 2014), however, suggests that a disparity does in fact exist in the amount of coverage between these events, despite their rare and sensational nature (see also

Duwe 2000). Furthermore, previous research examining the media framing of school shootings often focuses on a single event or its comparison to one or several other attacks rather than considering the phenomenon as a whole.

The present study sought to expand the growing body of literature on media distortion analyses by examining the coverage of a specific phenomenon – mass shootings – in *The New York Times*. Specifically, this exploratory study was guided by two key research questions. First, *what attributes of a mass shooting are the best predictors of coverage of the event?* Second, *what characteristics lead to increased coverage among mass shooting events?*

Similar to researchers studying the newsworthiness of homicide (e.g., Buckler and Travis 2005; Chermak 1995, 1998; Gruenewald, Pizarro, and Chermak 2009; Johnstone, Hawkins, and Michener 1994; Paulsen 2003; Schildkraut and Donley 2012; Sorenson, Manz, and Berk 1998; Wilbanks 1984), the present study aims to examine the newsworthiness by identifying characteristics of the shootings themselves that influence their selection (whether or not the event receives coverage) and prominence (how much coverage it does receive). Drawing, in part, on Duwe's (2000) previous examination of factors influencing the newsworthiness of mass murder more broadly, it was hypothesized that

(H1) More serious events, in respect to the number of fatalities and injured victims, will be more newsworthy.

(H2) Shootings involving female perpetrators will be more newsworthy.

(H3) Shootings involving non-white perpetrators will be more newsworthy.

(H4) Shootings involving perpetrators who survive their attacks will be more newsworthy.

(H5) Shootings occurring outside of schools will be more newsworthy.

In addition to drawing on previous research, these hypotheses suggest that those characteristics of mass shootings that are 'atypical' in nature (within the context of the phenomenon) are expected to lead to a greater likelihood of the case receiving media attention and an increase in the amount of prominent coverage in the form of more articles and longer stories.

Methodology

The present study analyzed the newspaper coverage of rampage shootings that occurred between 2000 and 2012. This particular time period represents the post-Columbine era, as the 1999 shooting changed not only public perceptions about these tragedies, but news reporting practices as well (see, e.g., Maguire, Weatherby, and Mathers 2002; Schildkraut 2014). *The New York Times* was selected as the main news source for the project due to its impressive reach, with a weekly circulation of over 1.15 million readers and nearly 1.65 million readers with its Sunday edition² (Edmonds et al. 2012). *The Times'* weekday readership is exceeded by *The Wall Street Journal (WSJ)* and *USA Today* with 2.07 and 1.78 million daily readers, respectively (Edmonds et al. 2012). Contrary to the hard news format of *The Times*, however, the *WSJ* focuses more heavily on business and economic news, while *USA Today* utilizes a more infotainment approach (Muschert 2002). Further, a number of researchers (Altheide 2009; Chermak and Gruenewald 2006; Leavy and Maloney 2009; Muschert 2002; Wigley and Fontenot 2009) have identified *The Times* as the national standard for print news, and the paper has been used as a data source for a number of media studies of mass shootings occurring in schools (e.g., Chyi and McCombs 2004; Muschert and Carr 2006; Schildkraut 2012; Schildkraut and Muschert 2014b).

Mass shooting events

A total of 90 mass shootings was identified using the following definition and included in the database for the present study:

A mass shooting is an incident of targeted violence carried out by one or more shooters at one or more public or populated locations. Multiple victims (both injuries and fatalities) are associated with the attack, and both the victims and the location(s) are chosen either at random or for their symbolic value. The event occurs within a single 24-hour period, though most attacks typically last only a few minutes. The motivation of the shooting must not correlate with gang violence or targeted militant or terroristic activity. (Schildkraut and Elsass 2016, 28)

How such events are defined has been contested among scholars, practitioners, and members of the general public. Some definitions, such as those proposed by gun control groups like Everytown for Gun Safety or national agencies, including the Center for Disease Control, are overly broad in their parameters, thereby inflating the statistics associated with such events and encompassing incidents that share few common characteristics with the typical understanding of mass shootings (e.g., Columbine).

Similarly, the number of fatalities to be considered a mass shooting has been a point of controversy. Most definitions, including those proposed by the FBI (Morton and Hilts 2006) or a recent congressional report (Bjelopera et al. 2013), require that four or more people are killed to be included in the relative statistics, though a 2013 federal statute reduced this to three fatalities (see H.R. 2076, 2013).³ Such a requirement, however, is problematic as there are reasons why people who are injured in these attacks do not die, including the location and severity of their wound(s), their distance to the hospital, emergency response time, and advancements in medical practices. As the intention of the shooter was for the victims to die, their exclusion is problematic. This problem is highlighted by the 1998 shooting at Thurston High School in Springfield, Oregon, in which a sophomore student killed 2 people and wounded 25 others in his rampage. Under many definitions, this attack would not be considered a 'mass shooting,' despite that 27 people were struck by gunfire. Thus, Schildkraut and Elsass (2016) definition overcomes many limitations of these previous sources by being specific enough in its construction to exclude attacks that have little similarity to events like Columbine while being broad enough to include those events that do, regardless of fatalities.

Once the challenges of defining mass shootings were overcome, the researchers then assembled a database of events. First, existing sets of events, including the Federal Bureau of Investigation's active shooter database (Blair and Schweit 2014), were culled for shootings that matched Schildkraut and Elsass (2016) definition. From there, additional exhaustive web-based keyword searches were conducted for terms related to the phenomenon (e.g., mass shooter, active shooter, school shooter, rampage shooter). Incidents that appeared to match the definition were cross-referenced across at least three sources before being included in the database. It is important to note, however, that there is no database that is guaranteed to have all events, particularly as the classification of such attacks may change over time (e.g., an incident may or may not change from active shooter to mass shooter). Still, based on the above steps taken, it is expected that the database used in the present study is as inclusive as possible of all events.

Attributes of the shooters and the events more generally were used as independent variables, the coding of which is presented in Table 1. With regard to the shooters, dummy codes were created for each independent variable with the exception of age, which was measured continuously. Shooters ranged from 14 years old to 88 years old, with a mean age of approximately 35 years. For the remaining variables, 1 represented the presence of the characteristic, and its absence was coded as 0. Specifically, females were coded as 1, with males (accounting for over 94% of offenders) serving as the reference category. Four individual dummy variables – black, Hispanic, Asian, and other (including shooters who were Middle Eastern, Indian, Native American, or biracial) – were created to measure race and ethnicity, with whites, who comprise nearly 58% of all shooters, serving as the reference category. A final measure assessed whether the shooter died in the event, regardless of the circumstance (e.g., suicide, killed by law enforcement, or killed by a civilian). Individuals who died in the shooting (56%) were coded as 1, with those who survived (44%) serving as the reference category.

Table 1. Coverage of actual incidents by perpetrator and event characteristics.

| | Actual incidents | |
|-------------------------------|------------------|--------------------------|
| | N | Percent of all incidents |
| Shooter | | |
| Male ^a | 85 | 94.4 |
| Female | 5 | 5.6 |
| Shooter age | | |
| 17 and younger | 9 | 10.0 |
| 18–24 | 19 | 21.1 |
| 25–34 | 16 | 17.8 |
| 35–44 | 32 | 35.6 |
| 45 and older | 14 | 15.6 |
| Shooter race/ethnicity | | |
| White ^a | 52 | 57.8 |
| Black | 18 | 20.0 |
| Hispanic | 10 | 11.1 |
| Asian | 5 | 5.6 |
| Other | 5 | 5.6 |
| Shooter dead | | |
| Yes | 50 | 55.6 |
| No ^a | 40 | 44.4 |
| Time of incident ^b | | |
| 25 | 33 | 36.7 |
| 69 | 33 | 36.7 |
| 10 minutes | 24 | 26.7 |
| Median income | | |
| Less than \$55,000 | 10 | 11.1 |
| \$55,000–\$59,999 | 13 | 14.4 |
| \$60,000–\$64,999 | 17 | 18.9 |
| \$65,000–\$69,999 | 16 | 17.8 |
| \$70,000–\$74,999 | 16 | 17.8 |
| \$75,000 and greater | 18 | 20.0 |
| Location (eg) | | |
| Not at home | 11 | 12.2 |
| South ^a | 25 | 27.8 |
| West | 27 | 30.0 |
| Midwest | 27 | 30.0 |
| Location (type) | | |
| School ^a | 26 | 28.9 |
| Workplace | 21 | 23.3 |
| Restaurant/club/bar | 8 | 8.9 |
| Mall | 7 | 7.8 |
| Home | 5 | 5.6 |
| Other | 23 | 25.6 |

Note: Values are frequency percentages of actual incidents by category may differ slightly due to rounding errors.

^aReference category.

^bTime of incident represents aggregate time number of people killed and wounded in the event.

Measures related to the event itself focused on two key areas – the location and the victims. The 2014 median household income for the county in which the shooting occurred, drawn from the U.S. Census Bureau (2014), was used as a proxy measure for socioeconomic status of the community as a whole (see Paulsen 2003; Schildkraut and Donley 2012). This enabled the researchers to test whether those events occurring in wealthier areas would receive more coverage, as had been found in earlier studies (e.g., Johnstone, Hawkins, and Michener 1994; Paulsen 2003; Sorenson, Manz, and Berk 1998). The mean income was \$67,632 per year, with measures ranging from \$43,800 to \$107,100.

Three individual dummy variables – Northeast, West, and Midwest – were created to assess potential regional effects of the shooting. The South served as the reference category, as previous research (e.g., Erlanger 1976; Fox and Zawitz 2007; Grosjean 2014; Huff-Corzine, Corzine, and Moore 1986) has found homicides are more likely to occur in this area of the country. Both the Midwest and West were the site of

30% of the shootings each, with the fewest events (12%) occurring in the Northeast. Further, a variable was created for the year that the shooting occurred in order to control for time. Measures also were constructed to determine whether the type of location where the shooting occurred influenced the likelihood or amount of coverage. Specifically, dummy variables were created for workplaces, restaurants (including bars and nightclubs), malls, personal residences, and other (including places of worship), with schools (the most common with 29% of events) serving as the reference category.

Finally, two separate variables, measured continuously, were constructed for the number of people killed in the event as well as the number wounded, excluding the shooters. Fatalities ranged from 0 to 32, with a mean of 4.2 dead per event. Non-fatal injuries ranged from 0 to 58, with a mean of 4.6 individuals injured in each shooting. These then were aggregated into a third variable – total number of victims. The total number of victims ranged from 2 to 70, with an average of 8.9 victims per shooting.

News coverage

Articles relating to each mass shooting were retrieved using the Lexis-Nexis database, which archives over 300 newspapers including *The Times* (Weaver and Bimber 2008). The city or institution name was utilized as the primary search term rather than the shooters' names, which can lead to increased false negatives and missing data. False negatives can occur when the search term is so limited that articles are omitted because they do not meet the entered criteria (Deacon 2007; Soothill and Grover 1997). Institution names were used when the shooting took place at a school, as it is more common for the media to report this aspect.⁴ When the shooting did not occur at a school, the name of the city was used.⁵

Articles were collected on each of the 90 events for 30 days, including the day of the shooting. A study by Chyi and McCombs (2004) examining the media coverage of the Columbine High School shooting found the life span of the story to be limited to one month, despite that other issues of public importance, such as politics, often have a longer cycle of coverage (see, e.g., McCombs and Zhu 1995). Other researchers (e.g., Muschert 2002, 2007; Schildkraut 2012, 2014; Schildkraut and Muschert 2014b) examining the coverage of shootings in the media also have utilized the 30-day coverage period. The use of high profile shootings, including Columbine, Virginia Tech, Aurora, and Sandy Hook, in conjunction with articles about policy responses (e.g., gun control) or subsequent shootings may give the impression of continued coverage beyond this 30-day span, though this attention typically is limited to serving as a focusing example. Instead, coverage specifically devoted to understanding the event itself often is abbreviated, particularly in instances where the offender dies in the attack, thereby minimizing the amount of follow-up available or necessary.

Once the articles were downloaded and organized by case, they then were reviewed and culled to be consistent with these previous studies' parameters, meaning that letters to the editors, opinion pieces, blogs, and sports articles (e.g., containing the word 'shooting') were removed. Thus, only news stories and editorials were analyzed, though these articles may have focused specifically on reviewing the shooting or the aftermath (e.g., policy discussions) resulting from the attack. Attributes of the news stories, including the word count per story and number of articles per event, also were recorded and served as dependent measures in the analysis.

Analysis and findings

The findings of the current study are presented in three sections. The initial analysis explores the patterns of coverage of mass shootings occurring within the study period. Next, the results of the logistic regression analysis are presented to examine which variables influenced the likelihood that a shooting was covered at all. Finally, robust regression was utilized to determine which predictors influenced the amount of coverage a particular shooting received. Rather than the more common maximum likelihood estimation (MLE), Firth's (1993) method of penalized likelihood was employed in order to deal with the issue of small cells sizes faced by a number of the variables included in the analysis. As conventional

MLE suffers from bias in small sample sizes, the Firth method specifically is designed to reduce this bias (Allison 2012; Wang 2014).

Prevalence of news coverage about mass shootings

Of the 90 shootings included in the present study, nearly 77% ($n = 69$) received at least one article in print. Compared with previous media distortion analyses of homicide, this rate is higher, albeit marginally. Paulsen's (2003) study, for example, had a coverage rate of 69%; his was one of the only studies to span multiple years. When examining studies with only a single year of cases, analyses of larger cities – including Chicago, Miami, and Baltimore – yielded lower coverage rates – 26, 60, and 70%, respectively (see Schildkraut and Donley 2012). Conversely, homicides in smaller cities often yielded higher rates of coverage, such as in Indianapolis (92%) and Milwaukee (100%), presumably due to the lower probability of such events occurring in these locations, thereby increasing their newsworthiness (Schildkraut and Donley 2012). As such, given that the data in the present study span multiple years and also vary in terms of the locations in which the shootings occur, a coverage rate of 77% in a single paper is particularly impressive, though not necessarily unexpected given the sensational nature of mass shootings.

Despite that every shooting did not receive coverage in *The Times*, 562 articles and nearly 490,000 words were printed about those cases that were featured. On average, each case garnered approximately six articles and five, 433 words of print. As noted, however, the overall coverage of these events is not equitably distributed. Specifically, 70 shootings (nearly 78%) receive fewer than five articles. Additionally, 50% of cases received less than 1,500 words in print; this figure increased to 77% when considering those shootings receiving less than 3000 total words of coverage.

Further illustrating this point, Table 2 presents the coverage patterns of the 10 most salient cases (those receiving more than 10 articles). In total, these 10 shootings account for 70% of the total number of articles printed, as well as 75% of the number of words written. Perhaps even more noteworthy is that it is actually the top five cases that are driving the coverage levels. Specifically, the attempted assassination of Congresswoman Gabrielle Giffords and the shootings at Sandy Hook Elementary School, Fort Hood, Virginia Tech, and an Aurora, CO movie theater account for 57% of all of the articles examined in the study and 62% of the total word count appearing in *The Times*. In addition to being the most covered stories, these also are among the most lethal events. In fact, the Virginia Tech shooting is the deadliest mass shooting in the data-set with 32 fatalities; the Sandy Hook massacre is second with 26 killed. The Aurora shooting, while having fewer fatalities (12) had more wounded, leading to a total victim count of 70. Similarly, the Fort Hood shooting claimed 13 lives but left an additional 32 people wounded.

It is important to consider why 21 shootings received no coverage. While initial speculation may suggest that this is due to lower victim or fatality counts, examination of the individual cases refutes such an idea. Two shootings had total victim counts over 10; this tally increased to 10 when considering cases with 5 or more total victims. When examining just the fatalities, 19% had between four and eight victims, while 19% of the shootings had no registered deaths, though they still had at least two injured. Further, all of the cases with no fatalities that also were not covered occurred in schools between 2000 (just after Columbine) and 2006 (just before Virginia Tech). Given the high death tolls of both events, it may explain, at least in part, why cases with no fatalities received no media attention.

Examining the temporal proximity to other shootings further fails to explain why some events received no coverage. Specifically, only three shootings occurred within 30 days of a highly prominent shooting. One shooting occurred 15 days after Virginia Tech, yet failed to receive coverage despite that there were 11 victims (as compared to the 32 people killed and 23 others injured in Blacksburg). Two other shootings occurred 6 and 23 days after the 3 April 2009 shooting at a Binghamton, New York immigration center. While these shootings each had two total victims (including one fatality in one event and none in the other), as compared to the 17 victims (of which 13 were fatalities) in the New York shooting, they also occurred in California and Virginia. Thus, *The Times* likely had a greater interest in covering a story that was more local in nature and potentially more relevant to its readers.

Table 3 presents the amount of coverage garnered based on the independent variables of the study, as well as the percentage of incidents with these characteristics that received media attention. These

Table 2. Term used to describe mass shooting - Cambodia

| | Year | Total articles | Total words |
|------------------------------------------|------|----------------|-------------|
| Sandy Hook Elementary School | 2012 | 130 | 118,354 |
| Shooting at the Washington State Capitol | 2011 | 89 | 91,715 |
| Ford Elementary School | 2009 | 36 | 35,097 |
| Virginia Tech | 2007 | 36 | 33,473 |
| Aurora, Colorado movie theaters | 2012 | 31 | 23,715 |
| Red Lake High School (MN) | 2005 | 19 | 18,519 |
| Santa Ana High School (CA) | 2001 | 17 | 14,045 |
| Wetzel Alabama-High School | 2010 | 12 | 12,872 |
| No. 1 High School | 2008 | 12 | 7,524 |
| Shooting at the NY 9/11 memorial | 2009 | 11 | 10,729 |

Table 3. Mean number of incidents covered, mean number of articles and mean number of words

| | Percent of incidents covered | Mean number of articles | Mean number of words |
|----------------------|------------------------------|-------------------------|----------------------|
| Shooting | | | |
| Male ^a | 77.6 | 6.45 | 5,589.15 |
| Female | 60.0 | 2.80 | 2,775.60 |
| Shooting type | | | |
| 17 and younger | 88.9 | 5.56 | 4,448.00 |
| 18-24 | 84.2 | 16.79 | 15,163.95 |
| 25-34 | 81.3 | 3.50 | 2,613.56 |
| 35-44 | 75.0 | 3.81 | 3,417.22 |
| 45 and older | 57.1 | 1.07 | 688.64 |
| Shooting location | | | |
| White | 84.6 | 7.81 | 6,737.75 |
| Black | 66.7 | 1.67 | 1,239.56 |
| Hispanic | 60.0 | 0.90 | 550.90 |
| Asian | 60.0 | 10.00 | 9,369.40 |
| Other | 80.0 | 13.40 | 12,785.00 |
| Shooting result | | | |
| Yes | 86.0 | 6.16 | 5,257.88 |
| No ^a | 67.5 | 6.35 | 5,651.55 |
| Time of day | | | |
| 25 | 60.6 | 1.45 | 966.88 |
| 69 | 81.8 | 2.42 | 1,889.73 |
| 10 and over | 91.7 | 18.08 | 16,445.33 |
| Media coverage | | | |
| Less than \$55,000 | 80.0 | 2.10 | 1,671.20 |
| \$55,000-\$59,999 | 69.2 | 10.38 | 10,241.54 |
| \$60,000-\$64,999 | 70.6 | 5.76 | 4,970.47 |
| \$65,000-\$69,999 | 75.0 | 2.81 | 2,252.31 |
| \$70,000-\$74,999 | 81.3 | 3.31 | 2,657.50 |
| \$75,000 and greater | 83.3 | 11.67 | 9,780.50 |
| Location type | | | |
| No. 1 | 81.8 | 15.82 | 14,000.73 |
| School | 68.0 | 4.52 | 4,036.16 |
| West | 77.8 | 7.04 | 6,213.78 |
| Midwest | 81.5 | 3.15 | 2,454.52 |
| Location type | | | |
| School | 80.8 | 9.73 | 8,409.42 |
| Workplace | 81.0 | 3.95 | 3,517.71 |
| Restaurant/club/bar | 50.0 | 1.63 | 1,403.75 |
| Mall | 85.7 | 6.86 | 4,944.57 |
| Home | 60.0 | 2.20 | 1,141.80 |
| Other | 78.3 | 6.70 | 6,299.48 |

^aRefers to category.^bTime of day is expressed in aggregate number of incidents per day.

findings provide varied support for the hypotheses proposed at the onset of this study. Consistent with prior research (e.g., Duwe 2000), more victims lead to a greater amount of coverage. Specifically, as the victim count rises, so too does the percent of incidents covered, the mean number of articles, and the mean word count by shooting. Interestingly, cases with 10 or more victims do not yield a 100% coverage rate, despite that these are the rarest to occur.

Mixed support is found for the hypothesis that shootings occurring outside of schools also would yield greater coverage. While the majority of locations of incidents in the study may be considered 'public' when compared to private residences, there is variability in the ease of which one may access a specific site. Schools and workplaces, for example, tend to be more secure or restricted as compared to malls and restaurants. This disparity is reflected in the findings of Table 3. While schools yield the greatest average number of articles and words, shootings occurring at malls yield a higher proportion of events that are covered. Also partially consistent with Duwe's (2000) findings, workplace shootings had a greater coverage percentage, as compared to those attacks in schools, but yielded only about one-third of the number of articles and words.

When examining the hypotheses related to characteristics of the perpetrator (sex and race/ethnicity) as they are correlated to the newspaper coverage, mixed support is again found. Specifically, despite that a greater proportion of incidents involving white shooters receive media attention, the amount received in respect to the number of articles and word counts is greater among perpetrators who are Asian or of other descent. Similarly, the death of the shooter also yields a greater proportion of events being highlighted by the media, though cases in which the offender lives garner slightly more stories and increased length. Finally, the hypothesis that female shooters will yield more coverage is not supported, as depicted in Table 3. Not only are fewer incidents covered, but these cases receive approximately 40% as many articles and 50% as many words compared to male shooters, despite their infrequency of occurrence.

Factors predicting newspaper coverage

While such univariate analysis can provide an informative picture of the coverage and potential factors, more complex analysis is needed to better understand how these characteristics influence both selection and prominence. First, consideration was given to which factors would predict whether or not a shooting received *any* coverage in *The Times*. The results of logistic regression are presented in Table 4. Model 1 examines predictors of coverage when considering the total number of victims. As the results indicate, events in which the shooter died were more likely to be covered than those where they survived ($B = 2.490, p < .05$). Those events occurring in restaurants, bars, or clubs, however, were less likely to be reported on ($B = -2.100, p < .05$). When disaggregating victims by whether they were killed or wounded (Model 2), only one measure was significant. Specifically, mass shootings that took place at personal residences or at multiple locations within a particular neighborhood were less likely to be covered ($B = -2.070, p < .05$).⁶

Factors predicting salient coverage

Finally, robust regression was utilized to estimate the models presented in Table 5. Robust regression uses iteratively reweighted least squares to estimate the regression coefficient as well as the standard errors, whereby each observation is weighted by the size of its residual, allowing for influential cases to receive lower weights (see generally, Berk 1990; Hampel et al. 1986; Holland and Welsch 1977; Rousseeuw and Leroy 1987). Then, an equation is estimated with the weighted observations, using the residuals to compute new weights again; this pattern continues until there remains no differences between equations (Western 1995). This statistical technique was utilized in Chermak and Gruenewald's (2006) media distortion analysis focusing on domestic terrorism because of a few events that dominated the coverage of the phenomenon, thus impacting OLS results. The current study faced a similar issue

Table 4. Logistic regression analysis of coverage of mass shootings.

| Variable | Logistic coefficient (B) | | Standard error | | Odds ratio exp (B) | |
|------------------------|--------------------------|---------|----------------|---------|--------------------|---------|
| | Model 1 | Model 2 | Model 1 | Model 2 | Model 1 | Model 2 |
| Shooter gender | | | | | | |
| Male ^a | — | — | — | — | — | — |
| Female | -.760 | -.890 | .483 | .403 | .378 | .298 |
| Shooter age | -1.130 | -1.180 | .025 | .026 | .971 | .969 |
| Shooter race/ethnicity | | | | | | |
| White ^a | — | — | — | — | — | — |
| Black | -1.200 | -1.280 | .308 | .287 | .375 | .349 |
| Hispanic | -1.390 | -1.450 | .233 | .207 | .205 | .169 |
| Asian | -1.700 | -1.940 | .124 | .054 | .085 | .030 |
| Other | .400 | .490 | 3.457 | 3.662 | 2.070 | 4.591 |
| Shooter education | 2.490* | 1.910 | 4.876 | 4.876 | 6.483 | 6.483 |
| Total number killed | 1.250 | — | .105 | — | 1.123 | — |
| Number killed | — | 1.740 | — | .304 | — | 1.442 |
| Number wounded | — | .010 | — | .119 | — | 1.001 |
| Median income | .070 | .630 | .000 | .000 | 1.000 | 1.000 |
| Location of shooting | | | | | | |
| Northwest | .050 | -.270 | 1.256 | .886 | 1.059 | .720 |
| South ^a | — | — | — | — | — | — |
| West | .810 | .690 | 2.267 | 2.159 | 2.260 | 2.059 |
| Midwest | -.340 | -.410 | .659 | .635 | .739 | .686 |
| Location (type) | | | | | | |
| Suburban ^a | — | — | — | — | — | — |
| Workplace | .260 | .020 | 1.441 | 1.363 | 1.330 | 1.247 |
| Restaurant/club/bar | -2.100* | -1.870 | .094 | .120 | .077 | .095 |
| Mall | -.530 | -.130 | .677 | 1.274 | .460 | .810 |
| Home | -1.690 | -2.070* | .119 | .047 | .080 | .027 |
| Other | -.170 | -.450 | .790 | .614 | .856 | .654 |
| Constant | .100 | .160 | 2.542 | 3.163 | 1.221 | 1.426 |

Note: Model 1: $\chi^2 = 27.60^*$; Model 2: $\chi^2 = 29.92^*$.^aReference category.* $p < .05$.

with five influential events driving the media coverage of mass shootings, therefore making the use of robust regression with iteratively reweighted least squares appropriate.

Robust regression results were obtained to determine the impact of event characteristics on the prominence of coverage, which can be used to assess the saliency of events.⁷ Table 5 presents the robust regression results for the number of articles per mass shooting incident and the number of words per article.

When examining the models corresponding to the total number of articles in *The Times*, Model 1 (which utilizes total number of victims) and Model 2 (which disaggregates victims into those killed and wounded) have a number of interesting findings. In Model 1, shooters of Asian ($b = 4.861, p < .001$) or other ($b = 11.120, p < .001$) descent received significantly more articles than white shooters. These findings were reiterated in Model 2 ($b = 5.136, p < .001$, and $b = 10.171, p < .001$, respectively). With regard to median income, both models indicate that shootings occurring in more affluent communities result in a great number of articles ($b = .000, p < .01$, and $b = .000, p < .05$, respectively). Furthermore, in Model 1, events with higher numbers of total victims received more articles in *The Times* ($b = .559, p < .001$). When victims were disaggregated by type (Model 2), a higher number of fatalities ($b = .617, p < .001$) and wounded victims ($b = .398, p < .001$) per event each resulted in more articles. Additionally, both models show that the death of the shooter is correlated with fewer articles ($b = -1.670, p < .01$, and $b = -1.316, p < .05$, respectively). Similar findings were echoed with regard to location of the shooting, both in respect to region and type. Specifically, in both models, shootings occurring in the Northeast

Table 5. Descriptive statistics, bivariate correlations, and New York Times coverage.

| Variable | Total number of articles | | Total number of words | |
|----------------------|--------------------------|---------|-----------------------|------------|
| | Model 1 | Model 2 | Model 1 | Model 2 |
| Gender | | | | |
| Male ^a | — | — | — | — |
| Female | .178 | -.592 | 126.153 | -1116.296 |
| Age | -.021 | -.015 | -20.522 | -13.860 |
| Ethnicity | | | | |
| White ^a | — | — | — | — |
| Black | .863 | .466 | 644.918 | 752.263 |
| Hispanic | -.870 | -.870 | -274.835 | -915.113 |
| Asian | 4.861* | 5.136* | 3918.264* | 5714.260* |
| Other | 11.120* | 10.171* | 11233.580* | 10175.990* |
| Severity | -1.670* | -1.316* | -968.864 | -851.226 |
| Number of victims | .559* | — | 561.081* | — |
| Number of fatalities | — | .617* | — | 612.567* |
| Number of wounded | — | .398* | — | 284.980* |
| Median income | .000* | .000* | .072* | .039 |
| Location | | | | |
| North | 1.971* | 1.793* | 1499.935 | 1172.501 |
| South | — | — | — | — |
| West | -.074 | -.029 | -426.336 | 68.456 |
| Midwest | .581 | .638 | 243.140 | 256.963 |
| Location Type | | | | |
| School | — | — | — | — |
| Workplace | -1.302 | -1.771* | -1380.010* | -1423.476 |
| Restaurant/club/bar | -1.078 | -1.600 | -2122.472* | -658.676 |
| Mall | -.369 | -.670 | -1039.770 | -761.392 |
| Other | -.085 | -1.056 | -1484.859 | -2240.949 |
| Other | -1.945* | -2.210* | -2154.861* | -1914.564* |
| Year | .043 | .014 | 46.618 | 4.124 |
| Constant | -89.790 | -31.072 | -98123.980 | -10300.040 |

^aReference category.* $p \leq .05$; * $p \leq .01$; * $p \leq .001$.

were found to receive more articles, as compared to those taking place in the South ($b = 1.971, p < .05$, and $b = 1.793, p < .05$, respectively). Conversely, however, those attacks that occurred in other locations, when compared to school shootings, yielded less coverage ($b = -1.945, p < .01$, and $b = -2.210, p < .001$, respectively). Finally, Model 2 had one supplementary significant finding that was not present in Model 1. Specifically, those mass shootings that took place at workplaces ($b = -1.771, p < .05$) received fewer articles as compared to those at schools.

A similar analysis was conducted to examine the word counts within the articles and is also presented in Table 5. Findings regarding word counts largely mirror those with respect to number of articles. In both Models 1 and 2, shooters of Asian ($b = 3918.264, p < .001$, and $b = 5714.260, p < .001$, respectively) and other ($b = 11233.580, p < .001$, and $b = 10175.990, p < .001$, respectively) descents receive greater prominence of coverage, in this case measured by higher word counts. Consistent with the predictors of the number of articles by event, Model 1 indicates that the total number of victims is a significant predictor of a change in word count. Explicitly, greater total word counts are found among cases with higher victim totals ($b = 561.081, p < .001$). In Model 2, more fatalities ($b = 612.567, p < .001$) and more wounded victims ($b = 284.980, p < .001$) also predict increased word counts. With regard to median income, Model 1 indicates that shooting locations with higher median incomes result in a greater number of words ($b = .072, p < .001$); however, this finding was not replicated in Model 2. With respect to location type, Model 1 indicates that shootings occurring in workplaces ($b = -1380.010, p < .05$), restaurants and nightlife establishments ($b = -2122.472, p < .05$), and other locations ($b = -2196.093, p < .05$) receive fewer words than those shootings taking place in schools. Model 2 reiterates this finding with regard to shootings taking place in other locations ($b = -1919.201, p < .01$), though the coefficients

for mass shootings occurring in workplaces and restaurants did not reach the level of statistical significance. Findings are discussed further in the following section.⁸

Discussion

Mass shootings, while sensational in nature, do not always garner equitable coverage among events (Schildkraut 2014). Yet understanding what contributes to the newsworthiness of this phenomenon is important, given the reach of the media and its related impact of coverage on audiences, as well as corresponding policy (see also Duwe 2005). To date, while previous research (e.g., Buckler and Travis 2005; Chermak 1995, 1998; Gruenewald, Pizarro, and Chermak 2009; Johnstone, Hawkins, and Michener 1994; Paulsen 2003; Schildkraut and Donley 2012; Sorenson, Manz, and Berk 1998; Wilbanks 1984) has examined the newsworthiness of homicide more generally, these studies often focus on the victims, rather than the event more broadly. These studies also typically focus on homicides in a single city in a particular year, rather than examining a series of events within a phenomenon that spans a longer time frame and reaches across multiple locations. The present study sought to fill these gaps in the growing body of literature by investigating what attributes would predict greater coverage for mass shooting events. Specifically, it was hypothesized that (1) more serious events (e.g., more fatalities and/or injuries); (2) female perpetrators; (3) non-white shooters; (4) attacks where the offender survived; and (5) shootings outside of schools would be more newsworthy. Mixed support for these hypotheses was found.

While the number of victims had no bearing on whether or not the case received *any* media attention, it did influence the amount of coverage shootings garnered. The more total victims that a shooting had, the more articles and longer stories that were printed. When disaggregated by fatalities and injuries, this significance held, such that more victims in each group also yielded a greater prominence of coverage. This finding is consistent with the proposition 'if it bleeds, it leads,' in that more violence equates to more media coverage (Maguire, Weatherby, and Mathers 2002; see also Gruenewald, Pizarro, and Chermak 2009; Lawrence and Mueller 2003; Paulsen 2003; Sorenson, Manz, and Berk 1998). In fact, the level of violence in these shootings is one of the most influential factors that determines the amount of coverage a case receives in the present study.

In the same vein, it is important to consider that this violence does not only come in the form of fatalities. Even in instances where there is not a high fatality count, shootings still may be more newsworthy than other cases when more people are shot overall. Accordingly, this may explain why cases such as Northern Illinois University in 2008 (5 people killed and 21 wounded), Santee High School in 2001 (2 killed and 13 wounded), and a Tacoma, Washington mall in 2005 (zero killed and six wounded) receive more coverage than other shootings, even when they are less newsworthy compared to cases such as Virginia Tech and Sandy Hook.

Mixed support also was found for the hypotheses related to the shooters themselves. Despite that female mass shooters are exceedingly rare, accounting for just under 6% of all offenders, one's presence in an attack was not sufficient to guarantee that the story would be covered. Further, female shooters failed to generate significantly more prominent coverage than males. These particular findings not only fail to support the hypothesis of the present study, they also contradict previous research (e.g., Lundman 2003) that has found that cases involving female offenders are more likely to be covered due to their atypical nature. It is possible that the lack of media attention dedicated to female mass shooters is the result of these events being viewed as a 'crisis of masculinity,' whereby males act out violent fantasies based on their perceptions of society's expectations (Kellner 2013; see also Consalvo 2003; Kalish and Kimmel 2010; Kimmel and Mahler 2003; Tonso 2009). Further, women often are portrayed as victims of male violence rather than as offenders themselves (Boulahanis and Heltsley 2004; Meyers 1997).

Similar the findings related to victim counts, the race or ethnicity of the shooter was not a consistent predictor of whether the shooting received any coverage, yet it did account for differences in the amount of attention received. Specifically, those shooters who were Asian or of other racial or ethnic groups (e.g., Middle Eastern, Indian, Native American, or biracial / multiracial) were found to be more newsworthy, garnering more articles and longer stories as compared to white shooters. A cursory examination of

the amounts of coverage by individual cases, however, may offer context for this finding. As noted earlier, there are five cases that account for the majority of the coverage of these events examined in the present study. While the two most covered shootings are perpetrated by whites (Sandy Hook and the 2011 shooting of Congresswoman Gabrielle Giffords in Tucson, Arizona), both an Asian and Middle Eastern shooter garnered considerable attention in *The Times*. Specifically, the 2007 shooting at Virginia Tech and the 2009 shooting at Fort Hood in Texas each yielded 36 articles. Further, over 35,000 words were written about the Fort Hood shooting, while the Virginia Tech shooting garnered an additional 33,000 words of coverage, making these the third and fourth most covered stories. Other highly salient shootings perpetrated by non-white offenders included those at Los Angeles International Airport (2002), a Red Lake, Minnesota high school (2005), and a Binghamton, New York immigration center (2009), each which yielded coverage amounts (both articles and words) greater than the averages for the entire data-set. Thus, these cases are more newsworthy than the majority of events even if they are not the most covered. This may be due to the fact that in the context of mass shootings, perpetrators of these groups are considered to be atypical by comparison, and therefore are more newsworthy because they violate the 'norm.'

The status of the shooter (whether they lived or died in the attack) was a significant predictor of a case receiving any coverage when considering the total victim count; however, when disaggregating between fatalities and injuries, this effect did not hold. When examining the amount of press coverage these shootings garner, cases where the shooter died translated to significantly fewer articles in both models. The length of the stories was not significantly different regardless of the outcome for the perpetrator. This is not unexpected, as the death of the shooter provides an element of finality to the case; therefore, it reduces the need to follow up on details pertaining to them in terms of the number of stories published. When the perpetrator survives the attack, there may be increased interest the other aspects of their case, such as court appearances, recovery from any injuries they may have incurred during the event, or their response (e.g., remorse) to the shooting.

Finally, minimal support was found for the hypothesis that shootings outside of schools, the most common location in the data-set, would be more newsworthy than those occurring in that type of location. In fact, no location type reveals consistent findings across all models. Those attacks occurring at bars, restaurants, or clubs are less likely to be covered when considering all victims, yet when examining them in the context of fatalities and injuries, the effect does not hold; house shootings, however, are less likely to receive media attention in this instance. Similarly, workplace shootings receive significantly fewer articles when the victim count is disaggregated by type, and, when considering all victims collectively, garners shorter stories. Thus, while location appears to be a less dominant predictor of media salience, the consistent direction of the relationship indicates that all locations are less newsworthy when compared to those shootings occurring in schools. This latter finding is not unexpected, given that shootings in schools typically involve those victims who have been identified as the most newsworthy by Sorenson, Manz, and Berk (1998). In fact, the Sandy Hook shooting, which was the most covered event in the present study, met all six criteria for newsworthy victims (Sorenson, Manz, and Berk 1998, 1514), thus likely increasing its salience among news producers. Still, as the present study focused on offender and event-level characteristics, future research may wish to investigate to what extent, if any, variation exists within and between the victims of these events and how that relates to their coverage.

Several other patterns not explicitly related to the aforementioned hypotheses also were found. First, shootings occurring in the Northeast region, as compared to the South, which historically is more violent (Erlanger 1976; Fox and Zawitz 2007; Grosjean 2014; Huff-Corzine, Corzine, and Moore 1986), received more articles. Interestingly, there was no significant variation in the word counts of these stories. One potential explanation for this is what Maguire, Weatherby, and Mathers (2002) refer to as media accessibility – that is, the distance between the news source and the event. In this instance, the paper analyzed – *The New York Times* – also is located in the Northeast region, which may have improved reporters' access to the scene of the shooting and ability to allocate more resources to the coverage. At the same time, however, the tendency for this national news source to focus more attention on those shootings nearby also may be indicative of location bias, in that the coverage is reflective of the readers'

preference for stories that are more geographically proximate (Chermak and Gruenewald 2006). This location bias may be overcome by examining coverage of these events in local or regional papers; while the present study analyzed a single source, future research may wish to consider such analysis.

The median income of the county in which the shootings occurred, acting as a proxy measure for socioeconomic status, also was a significant predictor of a case receiving prominent coverage. The wealthier the location is, in which the shooting occurs, the more likely it is to receive more articles, albeit marginally, in *The Times*. When examining the length of the stories, median income is significant when considering the event in the context of all victims, though this effect does not hold when counts of fatalities and injuries are reported separately vs. aggregated victim totals. By reporting in aggregates, it may suggest a greater loss to readers, and when combined with greater affluence in a community, the case will be more newsworthy. In order to substantiate this proposition, however, additional research should be conducted examining the role of community context on the coverage of mass shootings. Further, these findings must be interpreted with caution. Though variability exists in the income in the counties in which these events occur, all localities included in the present study are well above the national poverty line in respect to their average earnings. Accordingly, the finding that greater socioeconomic status leads to greater newsworthiness of an event is specifically relative to the overall phenomenon of mass shootings and not necessarily comparable to low income-high homicide locations, such as Baltimore, New Orleans, or Detroit.

Lastly, it is important to note that there is a lack of a consistent predictor for whether or not a mass shooting receives *any* coverage. This finding suggests that selection decisions about reporting on these events likely goes beyond the shootings themselves. As Maguire, Weatherby, and Mathers (2002) point out, the media have a limited amount of time to cover all breaking news stories, mass shootings being just one. Thus, while not directly measurable in the present study, other events occurring around the country and the world at the same time as these attacks also must be considered as having an impact on whether a mass shooting is covered. Some cases, such as Virginia Tech (Pew Research Center 2007) and Sandy Hook (Pew Research Center 2012), were among the top stories of their month and year, despite other news events that also garnered considerable media attention, including (but not limited to) tensions with the Middle East, the 2012 presidential election, the shooting of Trayvon Martin, and Hurricane Sandy. Conversely, the 2008 shooting at Northern Illinois University did not have enough saliency to eclipse the coverage of the presidential election, the nation's financial crisis, and scandals involving Illinois Governor Rod Blagojevich and businessman Bernie Madoff; ultimately, the attack received just a fraction of the news share (Jurkowitz 2008; Pew Research Center 2008).

It is important to acknowledge, however, that a limitation of the present study is the analysis of these articles *prima facie*. In examining newspaper articles in their final form, any journalistic decision-making that went into the process of their creation is not accounted for. Therefore, while the data may provide insight into characteristics of shootings that predicted a greater likelihood of being covered or receiving more prominent attention, it is impossible to say with certainty why some cases were covered and others were not. Future research may wish to further explore the relationship between selection biases of news producers and the coverage of mass shootings (see also Gruenewald, Pizarro, and Chermak 2009; Lundman 2003).

Still, despite these limitations, the findings of the present study make an important contribution to the growing body of literature on the newsworthiness of homicide. As Schildkraut and Donley (2012) note, 'being statistically rare [is] not always a predictor of newsworthiness' (p. 191). While homicide in general is exceedingly infrequent, and incidents of mass shootings are even more extraordinary, the findings here indicate that these events still are not created equally when it comes to media attention. As Duwe (2005) further notes, increased saliency of particular cases is important to identify as 'greater media coverage [is] more likely to influence perceptions about the prevalence and pattern of mass murders' (60). Indeed, researchers have found that attitudes about these events are informed by the amount and type of media one consumes (see, generally, Elsass, Schildkraut, and Stafford 2014). The disparities in coverage highlighted in the present study also can have broader implications, particularly as it relates to policy stemming from these events (e.g., Schildkraut and Hernandez 2014; Soraghan

2000). Subsequently, scholars should continue to investigate the function of the media in framing mass shootings, as well as the role of the audience in understanding these events as they occur within today's society.

Notes

1. Based on data available from U.S. Department of Justice (2013) and author computations.
2. Circulation estimates as of September 2011.
3. The Investigative Assistance for Violent Crimes Act of 2012 amended 6 U.S.C. § 455(d).
4. For example, the majority of the coverage of the Virginia Tech shooting consistently references the name of the university rather than Blacksburg, Virginia, where the school is located.
5. Conversely, the 20 July 2012 movie theater shooting in Colorado is most commonly referenced as the Aurora shooting, rather than the shooting at the Century 21 movie theater.
6. Problematically high levels of collinearity were not found to exist among the variables included in the models.
7. While the use of negative binomial regression was considered, robust regression with iteratively reweighted least squares was determined to be a more appropriate analytical approach and therefore selected as the method of analysis. Robust regression models were run only on cases with at least one news article in order to assess which explanatory measures predict differences in coverage. Cases with no articles were omitted from these analyses ($N = 69$).
8. Problematically high levels of collinearity were not found to exist in the models.

Acknowledgements

The authors wish to thank Steven Chermak for his assistance on this research, as well as the reviewers for their invaluable feedback. A previous version of this manuscript was presented at the 2015 annual meetings of the Academy of Criminal Justice Sciences.

Disclosure statement

No potential conflict of interest was reported by the authors.

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