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# Guns, Culture or Mental Health? Framing Mass Shootings as a Public Health Crisis

Ruth DeFoster[a,b] and Natashia Swalve[b]

[a]Department of Communication Studies, St. Catherine University; [b]Department of Psychology, Alma College

**ABSTRACT**

In recent years, public health scholars and policymakers have been calling for increased research on the public health implications of gun violence. However, scientific research on this issue has been stifled by a 1996 budget rider that eliminated Centers for Disease Control and Prevention's (CDC) funding for gun research. In this study, we examined newspaper coverage of three mass shootings that took place over a 20-year period before and after the passage of this budget rider. We found that sources and frames provided by news media to contextualize gun violence shifted markedly over time, progressing from episodic and individual-level frames to broader thematic societal-level concerns, with increased discussion of mental health but limited discourse explicitly related to public health.

## Introduction

On the morning of October 1, at Umpqua Community College in Roseburg, Oregon, a 26-year-old student opened fire in a classroom, killing nine people before turning the gun on himself after a brief firefight with police (Miller, Wines, & Turkewitz, 2015). The gunman, Christopher Harper-Mercer, was armed with six weapons, a flak jacket, and numerous rounds of ammunition ("Oregon shooter had 13 guns," 2015). Police later recovered additional seven weapons at Harper-Mercer's home. All 13 weapons had been purchased legally.

In the earliest hours of coverage, many news organizations speculated about the role that the shooting might play in future gun control legislation (Peters, 2015). Eventually, a larger theme rose to prominence in some media coverage in the aftermath of the shooting, buoyed by a growing clamor among health organizations, physicians' groups, and policymakers who held that the issue of American gun violence should be framed as a public health issue. This focus among policymakers and scholars was tied to a little-known rider (the so-called Dickey rider) on a 1996 bill that eliminated the Centers for Disease Control and Prevention's (CDC) funding for research into gun violence, stipulating that no CDC funds could be used to "advocate or promote gun control," (Omnibus Consolidated Appropriations Act).

This study investigates whether the exhortations for a paradigm shift among these scholars, medical professionals, and policymakers were correlated with an increase in the framing of gun violence as a public health issue, examined using a snapshot of media and public discourse over three separate incidents spanning the history of the Dickey rider.

## CDC rider and gun violence as public health issue

The study of gun violence, including mass shootings, once fell under the purview of the CDC. Prior to 1995, the CDC's National Center for Injury Prevention and Control consistently produced peer-reviewed articles on violence associated with gun use and gun control issues in general, with approximately $2.6 million annually spent on this work (Rovner, 1996). In 1993, an influential article funded by the CDC (Kellermann et al., 1993) found a significant positive relationship between the number of guns kept in the home and risk of homicide by a familiar person, suggesting that guns in the home may serve a more dangerous than protective function.

The publication of this study combined with previous research funded by the CDC described as anti-gun led to a campaign from the National Rifle Association (NRA) against CDC funding for any studies related to gun violence. A small group of senators were vocal critics of gun control advocacy, including then-Majority Senate leader, Trent Lott, who called CDC research on guns agenda-driven and redundant, vowing to eliminate this line of research (Lott et al., 1995). Initially, the primary goal of the NRA was to eliminate the budget for the entire department in which gun research took place, the National Center for Injury Prevention and Control; however, this attempt was unsuccessful (Rovner, 1996).

Changing tactics the next year, the NRA lobbied for Congress to limit government-funded research on the topic. Congress bowed to the pressure, proposing a new amendment to the spending bill that was passed by the House. The amendment specified a decrease in the CDC budget by $2.6 million in the initial House bill, an amount almost identical to the amount spent by the CDC on gun violence research in previous years (Jamieson, 2014). The senate and White House came to what they considered a

compromise between gun control advocates and those sympathetic to the NRA: the budget for the CDC would not be cut outright. Rather, the budget previously earmarked for research into firearms would instead be specified for traumatic brain injury prevention. In addition, a rider would be added to the budget to stipulate that CDC funding would not be used "to advocate or promote gun control" (Omnibus Consolidated Appropriations Act, 1996). This new bill, titled the "Omnibus Consolidated Appropriations Bill" (colloquially titled the "Dickey rider" after the House representative who proposed it), effectively ended the ability of the CDC to openly research gun violence and other issues related to gun use that had previously fallen under their purview (Adashi & Cohen, 2015; Jamieson, 2014).

Since the inclusion of the 1996 rider, funding for research into firearms has dropped significantly (CDC, 2013). However, in recent years, a renewed interest in gun violence has emerged as it relates to public health and a specific focus on eliminating the rider on CDC funding. In 2013, President Obama signed an executive action directive stating that the CDC and other scientific agencies funded by the government should be allowed to conduct or sponsor research into gun violence. This executive action expressly claimed that a "broader public health perspective is imperative" in studying this topic (White House, 2016). Obama released the order at the same time as his national plan on combating gun violence. On the first page of this plan, the White House advocated for "ending the freeze on gun violence research," and outlined explicit future studies that he would recommend (White House, Office of the Press Secretary, 2016). While the executive order directive was meant to expand the role of government-funded agencies in examining gun violence, the Dickey rider remained in place, as the spending bill included identical language in its latest iteration. Despite this continuing obstacle to funding research on gun violence, public health advocates, medical professionals, policymakers, and scholars have increasingly been pushing to frame gun violence as a public health issue—an issue that should be covered by CDC research.

The link between gun violence and mental health—and the increasing consensus among public health experts that the American epidemic of gun violence could be best combated through a public health approach—goes back at least 20 years. In 1995, the American College of Physicians issued their first statement raising concern about the epidemic of gun violence in the United States and advocating for renewed research on gun violence as a public health problem. Twenty years later, in April 2015, eight national health organizations (whose members included almost all American physicians), in collaboration with the American Bar Association, issued a "call to action," giving specific recommendations to counter the public health problem of deaths and injuries related to firearm usage, including a specific call to allow CDC research on the issue (Weinberger et al., 2015). A year later, a coalition of 141 major medical organizations issued an even more strongly worded public letter to senior members of the House and Senate Appropriations Committees, urging them to restore CDC funding for gun violence research (Masters, 2016).

In a 2017 analysis of mortality rates versus public funding for 30 leading causes of death in the United States, Stark and Shah found that funding for the study of the causes and solutions to gun violence lags far behind other significant public health crises, with just a tiny fraction of all funding for public health (less than 2%) going to research on gun violence. Indeed, the authors found that, while gun violence killed about the same number of people per year as sepsis, funding for gun violence research comprised less than 1% (0.7%) of funding for sepsis research.

Building on the medical case for viewing gun violence through the prism of public health, Green, Horel, and Papachristos (2017) found that a public health approach applies even more directly to patterns of gun violence than previous researchers had thought. The results of this study demonstrated that *social contagion* was behind significant patterns of gun violence in Chicago, suggesting that gun violence literally spreads like a disease. These results led the authors to suggest a new paradigm for viewing risk and intervention in gun violence, using parameters that have long been used to model the spread of infectious diseases.

Other researchers have noted the many other proximate factors, in addition to mental health considerations, that affect rates of gun violence. Alcohol abuse, for example, is linked to higher risks of domestic gun violence, as well as a higher risk of suicide (McGinty & Webster, 2017). Gun owners are more likely than non-gun-owners to report high-risk alcohol use (McGinty & Webster, 2017). Social marginality may play an important role as well, as Katherine Newman (2004) noted in her thorough analysis of social roots of mass shootings. This social marginality may be particularly pronounced for male subjects, who comprise the overwhelming majority of perpetrators of gun violence (Federal Bureau of Investigation, 2011).

Although the causes of gun violence are many, a growing body of research supports the consensus among medical experts that the crisis of American gun violence represents a significant public health threat, a threat that requires the kind of urgent interventions that have stemmed the tide of other endemic public health crises (see Weinberger et al., 2015). Consequently, examining mass shootings through the lens of public health can help to explicate the ways in which these highly newsworthy events are approached and understood in the powerful meaning-making sphere of the mass media. Analyzing media coverage of mass shootings through this lens can also shed light on the efficacy and success of widespread and sustained campaigns to reframe the scope of the American crisis of gun violence.

## Framing and the social construction of problems

One of the central assumptions of media scholarship is a recognition of the powerful role that the mass media play in shaping perception, understanding, and public discourse surrounding key issues that affect audiences. This is accomplished in a number of ways. News media provide context for the public discussion of important social issues (priming), they identify which issues are most important and thereby "set the agenda" for news audiences (agenda-setting), and they select and interpret information in certain ways for consumers of news (framing). Framing theory is key to this analysis, because as the critical cultural theorist Stuart Hall noted in

2002, the way mass media frame important issues for audiences does not simply *reflect* the lived realities of news consumers—it *shapes* the way audiences conceptualize and live out key assumptions about society.

In 1993, Robert Entman conceptualized news *framing* as "essentially involv[ing] selection and salience. 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 described" (p. 52).

In this study, we align our vision of the function of framing with the now-classic Entman definition. More specifically, we agree with Papacharissi and Oliveira (2008) that framing "emphasizes the ability of any entity—media individuals, or organizations—to delineate other people's reality, highlighting one interpretation while de-emphasizing a less favored one … Frames guide the conceptual union of words and images and thoughts" (p. 54).

Framing decisions are important for media audiences because of the considerable role news frames play in influencing certain "trains of thought" among news consumers. To a large degree, mass media help to shape the perceived reality of audiences, influencing not only the issues media consumers think about, but *how* they think about these issues—altering patterns of knowledge activation, affecting audience decision-making on matters of public policy, and encouraging particular conclusions about social phenomena (Fairhurst & Sarr, 1996; Gitlin, 1980; Price, Tewksbury, & Powers, 1997). These patterns of framing—which Entman (2007) later categorized alongside agenda-setting and priming under the umbrella of *bias*—have been found to substantially affect public opinion about controversial topics. Travis Dixon (2000, 2006, 2008a, 2008b) has consistently found that news framing decisions substantially alter viewers' perceptions of race and crime, while Boydstun, Glazier, and Pietryka (2013) found that political elites can effectively use agenda-setting and framing, especially when deployed in alignment with their existing, established platforms, to raise the salience of certain frames among viewers. Guggenheim, Jang, Bae, and Neuman (2015) found a dynamic, reciprocal relationship between prominent frames in media coverage of mass shootings and the attention paid to mass shootings on social media—a close link between how news consumers frame the issue and how traditional media choose to report it. For example, Meyer, Roberto, and Atkin (2003) found a significant link to public health messaging about gun safety, finding that gun owners who were exposed to carefully crafted public service announcements were able to identify significantly more gun safety practices than those who were not.

In this study, as we consider the ways in which these mass media framed high-profile acts of violence for consumers of news, it is important to clearly delineate our own definition of "public health." For the purposes of this analysis, we align our definition of "public health" with the definition offered by the CDC: the science of protecting and improving the health of families and communities, specifically in terms of research for disease and injury prevention and control of diseases, both on a small scale and on a large—national and global—scale.

## Framing gun violence and mass shootings

Many other scholars have examined media framing of gun violence and mass shootings; however, it is important to note that there is little scholarly or policy consensus on how to define "mass shootings." This lack of precision can lead to significant discrepancies among scholars and journalists regarding the number of mass shootings and overall trends in mass shootings. For example, an exhaustive, influential, multi-year investigation by *Mother Jones* (Follman, Aronsen, & Pan, 2016) defines "mass shootings" narrowly, excluding several categories of shootings that would fall under the umbrella of the (2008) FBI classification of "mass murder"—crimes that are extensions of previous incidents, for example, as well as most domestic violence and gang violence. These discrepancies can lead to key differences in the way scholars who use these data understand trends in mass shootings over time.

At its most general, the term "mass shooting" generally refers to an event in which multiple people become victims of gun violence in a single incident. Three elements of what are commonly considered "mass shootings" include (1) the *exclusion* of crimes that are extensions of previous incidents or feuds, such as gang violence, as well as robberies—the event must be at least somewhat indiscriminate in terms of the way victims are targeted; (2) the attack must take place in a public (or semi-public) place, in a single incident (rather than multiple incidents over time); and (3) the killer(s), in accordance with pre-2013 FBI guidelines, must take the lives of at least four people (Morton & Hilts, 2010). In 2013, a mandate from President Obama lowered this threshold to three victims killed (Investigative Assistance for Violent Crimes Act of 2012), but most scholars and journalists who study the phenomenon of mass shootings continue to cleave to the four-fatality threshold.

Many scholars have examined the ways in which mass shootings have been framed by news media, parsing the key explanatory variables that have emerged in coverage of high-profile shootings, the volume of coverage afforded to different shootings, and key differences between coverage of shootings that differ along axes of venue, identity (race, gender, and religion), and time. In their agenda-setting analysis of mass (school) shootings, for example, Lawrence and Birkland (2004) found that common "problem definitions" among news media for the problem of mass shootings included gun control, inadequate school security, the need for tougher law enforcement intervention, lack of parental involvement, pop culture, mental illness, illicit drug use, individual character, secularism, and a breakdown of social mores. Other researchers, such as Willis-Chun (2011) and Leavy and Maloney (2009) have found stark differences in how similar mass shootings committed by perpetrators with differing racial identities have been framed in the news media. Olufowote and Matusitz (2016) also examined, through the lens of framing theory, the ways in which clergy members framed Adam Lanza's mental health issues in the aftermath of the Sandy Hook shootings, noting that members of the clergy are key mental health gatekeepers who have the power to substantially influence understandings of mental health and mental illness. The results of their analysis found that mental illness and

social support were common frames used when discussing recent mass shootings, attributing many of the problems that Lanza (and others like him) suffered to insufficient care, affection, and social support for individuals suffering from mental illness—as well as a fundamental lack of crucial treatment, and easy access to guns.

Accordingly, in our content analysis, we drew upon these categories of common problem definitions and frequently used frames describing mass shootings to guide our analysis. We critically examined public discourse on gun violence using three high-profile mass shootings as case studies that serve as snapshots of public discourse immediately prior to and throughout the now 20+-year span of the rider barring the CDC from conducting rigorous scientific inquiry into the problem of American gun violence. The evolution of media coverage from 1991 to 2015 was examined, analyzing the way gun violence was framed before the rider barring CDC gun research was introduced, midway during the period when gun research was banned, and in 2015, following the Umpqua shooting, when some media coverage began to focus on the link between gun violence and public health.

Our research questions are as follows:

(1) To what degree did news coverage include discussion of gun violence as a public health issue, and how did this angle of coverage change over time, throughout the span of our three case studies?
(2) How did news media frame high-profile acts of gun violence before and after the passage of the Dickey rider? There are three components to this research question:
    a. Which sources were granted primacy to explain and contextualize the event?
    b. Which explanatory frames for the shootings rose to prominence in media coverage?
    c. Was "public health" present as an explanatory frame in coverage of these shootings?
(3) How did public opinion on gun violence evolve during this time period in conjunction with media framing of the issue?

## Case studies

Three case studies were chosen for this analysis using specific criteria to examine events that were as similar as possible, while limiting external factors that would likely have a strong effect on media reporting. The first case study, the 1991 Royal Oak Postal Office shooting, occurred 4 years prior to the Dickey rider banning gun violence research by the CDC. The second case, the 2007 Virginia Tech shooting, took place 16 years after the rider was approved. The third case, the 2015 Umpqua Community College shooting, is the most recent example of a mass shooting that fits within the specific parameters we identified. These three cases are analogous in several important ways. First, all three examples are mass shootings or killings as defined by the most recent iteration of the definition put forth by the FBI (Morton & Hilts, 2010), as each involved a single-incident murder of three or more individuals.

Second, all three shooters were in their early 20s to early 30s, planned and performed the attacks individually, and committed suicide before being taken into custody by the police. Third, all shootings took place in the former or current workplace or educational institution of the shooter. Fourth, the guns used in the attacks were legally obtained by the shooters, reflecting a potential problem frame of legal access to firearms. Finally, the three shooters had either a diagnosed history of severe mental illness or a non-diagnosed history strongly implicated by family members after the fact, reflecting a potential problem frame of mental illness, mental health, or public health policy. These events were chosen because of their similarities and their occurrence at progressive points in time before and after the passage of the Dickey rider. While we controlled for many significant factors that could have influenced media coverage in the choice of these case studies, we also recognize that media coverage on these events could have been influenced by other factors—temporal, cultural, or proximate—outside the purview of the parameters of this study.

### The 1991 Royal Oak shooting

Early on the morning of November 14, 1991, a 31-year-old former postal office worker named Thomas McIlvane walked into his previous place of employment, the Royal Oak Postal Office, and began shooting. Using a single rifle, McIlvane shot nine people during an approximately 6-minute shooting spree, killing four people and injuring an additional five. Three other workers were injured, not by gunshots, but by jumping out windows to escape the attack. McIlvane shot and killed himself before police arrived (Levin, 1991).

The day before the shooting, McIlvane had received a written notice that he was not going to be rehired as a postal clerk after having been fired for time card fraud and insubordination. Many coworkers claimed that McIlvane had threatened violence against his coworkers in the event that he was not rehired. After the incident, a strong history of mental illness and previous erratic behaviors became evident. The "conceal and carry" weapons (CCW) permit that McIlvane was issued a year before the shooting was revoked after police concluded that he was mentally unstable (Levin, 1991). McIlvane also had a long prior history of violence, including an incident during his military career in which he drove over a car with a tank, and a suspension from his workplace for physical altercations with customers. McIlvane's weapons were legally obtained at a local gun store, and these purchases occurred after the military incident with the tank (Levin, 1991).

The Royal Oak shooting was one of several shootings that took place in post offices over the course of a several-year span in the late 1980s and early-to-mid-1990s. These postal service shootings were widely covered by the media and frequently packaged together. Several books were subsequently written about the subject and these incidents have had long-lasting influence in colloquial speech. The commonly used slang term, "going postal" derives its origin from this set of mass shootings that took place in post offices between 1986 and 1997 (Vick, 1993).

### The 2007 Virginia Tech shooting

On April 16, 2007, 23-year-old Seung-Hui Cho, a senior at Virginia Tech, opened fire at the university he was attending, killing over 30 people. Around 7 am, Cho left his dorm room and went to West Ambler Hall, where he shot and killed two residents of the dormitory. After the first attack, Cho went back to his room in a separate building, changed out of his clothes, deleted his emails, and removed the hard drive from his computer. Between the first and second attacks, Cho also mailed a package containing several recordings and a written manifesto to a news organization. After this 2-hour break, Cho entered another building on the Virginia Tech campus, Norris Hall, chaining the doors behind him. He left a note on one of the chained entryways, stating that a bomb would detonate if anyone tried to open the doors. He then proceeded down the hallway and shot into four separate rooms, killing a total of 30 additional people and wounding 17. Another six people were injured by jumping out of the windows to escape the attack. Cho shot and killed himself before he could be apprehended by police (Hauser & O'Connor, 2007; "Virginia Tech Shooting," 2015). At the time, the Virginia Tech shooting was the most deadly mass shooting to date in the United States (Hauser & O'Connor, 2007). No other mass shooting surpassed the Virginia Tech shooting in terms of casualties until the Orlando nightclub shooting of 2016.

Cho had a long history of mental illness prior to the shooting. He had been diagnosed with a severe anxiety disorder and several other disorders including severe depression and selective mutism, which led to years of therapy (Virginia Tech Review Panel, 2007). During his time at the university, he was investigated for stalking two female students. The college students did not press charges, but Cho was evaluated by a state doctor. A year and a half before the shooting, the doctor ruled Cho an "imminent danger to [him]self or others" (Potter & Schoetz, 2007), and required Cho to undergo follow-up care as an outpatient. However, Cho was still able to legally purchase the guns he used to commit the Virginia Tech shootings (Alfano, 2007).

The media response to the Virginia Tech massacre was swift and all-consuming. The dossier of video and text statements that Cho had mailed to NBC before the second shooting aired on almost all major news networks and was relentlessly analyzed by both national and international news networks. The latent effects of the shooting and coverage resulted in a newly revived debate on gun control. This debate renewed public and legislative interest in both stricter measures to prevent the severely mentally ill from purchasing guns as well as a push for the ability to carry concealed weapons in public universities.

### The 2015 Umpqua Community College shooting

On the morning of October 1, 2015, 26-year-old Christopher Harper-Mercer went into a classroom on the Umpqua Community College campus and fired a single warning shot. He then shot a professor and 17 students, killing a total of 9 people. During the shooting, Harper-Mercer asked students about their religious affiliation, and gave another student a package of his writings to distribute. The police were called and responded to the scene shortly after shots were fired. Harper-Mercer fired shots at the police officers and they returned fire, hitting him once. Harper-Mercer then returned to the classroom and committed suicide (Sidner, Almasy, & Ellis, 2015; Vanderhart, Johnson, & Turkewitz, 2015).

Prior to the shooting, Harper-Mercer displayed several symptoms of mental illness or general emotional disturbance. He attended Switzer Learning Center, a school primarily for teenagers with emotional issues or learning disabilities (Altman & Green, 2015). He joined the army as a teenager but was discharged after basic training. Several officials have linked this discharge to a suicide attempt, and Harper-Mercer's mother also noted that he had Asperger syndrome (Crilly, 2015). The guns used in the attack were all legally purchased by either Harper-Mercer or his mother (Healy, McIntire, & Turkewitz, 2015).

As details of the horrific attack emerged—details that soon made clear that the shooter had studied previous mass shootings, created a media kit for dissemination, and targeted students with detached calculation—policymakers and journalists swiftly turned their attention to the shooting, situating it within the cultural and political climate of American gun violence. The shooting at Umpqua Community College was the third high-profile mass shooting of 2015, following deadly attacks in Charleston, South Carolina, and a Chattanooga military recruitment center. It was the 45th campus shooting in the United States that year. In the distributed "media package," Harper-Mercer alluded to the 2014 Isla Vista shooting in California, wherein the gunman responsible released videos and texts blaming women for spurning his romantic advances and pushing him to the brink of mass murder. At a press conference, President Barack Obama remarked upon the cyclical nurture of these events, lamenting that "somehow this has become routine" (Harris & Shear, 2015).

### Methods

We conducted a quantitative content analysis of coverage, starting the day of each shooting and extending for 6 weeks after each shooting. We analyzed coverage of each shooting in *The New York Times, USA Today*, and the *Washington Post*, three national newspapers with enormous reach, large circulations, and substantial influence in American print journalism (Chyi & McCombs, 2004; Muschert & Carr, 2006). *The New York Times* and *USA Today* are among the top three newspapers by total average circulation, including print and digital content, with 2,134,150 and 4,139,380 subscribers, respectively. The *Wall Street Journal* rounded out the top three by total circulation, but as its content focuses primarily on business news, we did not include it. The *Washington Post* does not release its digital circulation, but its daily print circulation is just shy of 500,000 (making it the seventh-largest newspaper in the country by circulation), and *Post* representatives have said that digital circulation has grown 145% since 2015 (Moses, 2016; Yu, 2014). Individual newspaper articles were our units of analysis, drawing upon Chyi and McCombs (2004) and Muschert and Carr (2006). We obtained articles via keyword search in the newspaper index of the LexisNexis database for references to "gun violence,"

"shooting/s," "mass shootings," and "public health." Both hard news stories and editorials were included in this content analysis.

The authors undertook a pilot study of 20 articles (drawn from coverage of the 2008 Northern Illinois University shooting) and assessed the results from this initial round of coding for intercoder reliability. The two authors completed the coding for both the pilot and full study. For our second research question, articles were coded for the following components: (1) sources cited or quoted, and (2) explanatory frames offered to explain/contextualize the shooting. Each article was read in entirety and the coders checked the presence of an explanatory frame whenever one was suggested (i.e., each article could have multiple explanatory frames and multiple sources cited or none). A source could be either paraphrased or directly quoted.

Examining sourcing as a way to identify and describe dominant news frames is a particularly useful way to approach for framing research (Peng, 2008; Strömbäck, Shehata, Dimitrova, & Muḥammad, 2008). Peng (2008) wrote that most of the biases and orientation of frames can be attributed to the influence of the sources, and Entman (1993) wrote that in breaking news, the initial interactions between sources and journalists initiate the framing process. Accordingly, and drawing upon previous research examining sources in framing of mass shootings to address the first part of our second research question, sources were categorized as *politician, journalistic, outside institutional* (involving an institutional affiliation *outside* the school or workplace where the shooting took place, such as a psychological association, think tank, or government agency), *law enforcement, internal institutional* (affiliated with the school/workplace where the shooting occurred), *shooter* (when the shooter himself was cited as a source), *informal* (friends, family, colleagues, eyewitnesses, or classmates of the shooter), and *ambiguous* (reserved for sources that were unnamed or imprecise (such as "officials," "authorities," "neighbors," or "family friends")). After our initial round of coding, we discovered (and added) an additional source category: *mental health professionals*.

Drawing upon the categories identified by Lawrence and Birkland (2004), explanatory variables for the shootings were categorized as *gun control/policy, school/workplace security, criminal justice, pop culture* (such as violent video games or music), *mental health—specific* (the specific mental health history of the shooter), *mental health—broad* (mental health access/issues as a larger societal health crisis), *illicit drugs, social breakdown*, and *individual character*. Gun control policy was additionally divided into whether the frame of increased gun control (*pro gun control*) or more relaxed gun control (*anti gun control*) measures were suggested as explanatory frames involved in the shooting. After our initial round of coding, we added three more emergent frames: *media coverage/contagion effect* (suggesting that the news media have some complicity in prompting "copycat" shootings), *social isolation* (a frame that suggested that a shooter's isolation led to his violence), and *bullying* (a frame suggesting that the shooter was led to "snap" by mistreatment in his school or workplace).

The inter-rater reliability for the pilot coding produced a Cohen's kappa coefficient of 0.959. For a subsample of 29 articles used in the actual study, we also examined intercoder reliability for each variable and produced Cohen's kappa coefficients ranging from 0.707 (for the "ambiguous source" category) to 1.00 (for "mental health" sources, editorial vs. hard news, the social breakdown and criminal justice frames and mentions of public health). Separate $\chi^2$ tests were used to examine three main factors in the articles: sources cited, explanatory frames, and the presence or absence of the term "public health" to address the first research question. Further analyses involving individual $\chi^2$ were performed to examine specific effects (e.g., differences between two specific shootings).

To address our third research question by gauging public interest and the nature of public opinion regarding gun violence over the course of the period we examined, public opinion research data on gun violence were compiled from Gallup and the Pew Research Center. Public interest was also considered in part by examining Google Trends data of targeted connected keywords.

## Results

Our analysis produced nine articles on the Royal Oak shooting, 85 articles on the Virginia Tech shooting, and 80 articles on the Umpqua shooting. According to our LexisNexis search, out of all of the indexed newspaper articles that contain references to our search terms, the majority of coverage linking these two topics was in 2015, with a spike in October and November 2015, following the Umpqua shooting. In reference to our first and third research questions, only a handful of articles linking the topics of gun violence/mass shootings and public health were published before January 2013, the year President Obama issued an executive order aimed at loosening the 20-year funding restriction inhibiting the CDC from studying gun violence. Similarly, Google Trends data show that public interest in the relationship between gun violence and public health (which was only high enough to be measurable beginning in 2013) peaked twice—once following Obama's executive order, and a second time following the Umpqua shooting. Search terms linking gun violence and the CDC peaked at the same two points (see Figures 1 and 2).

In regard to our second research question, coverage of the Royal Oak shooting primarily cited internal institutional sources (77% of Royal Oak articles), calling upon representatives of the postal service to explain the event. Other common sources in Royal Oak coverage were outside institutional sources (44%), informal sources (44%), and law enforcement (33%; see Table 1). In coverage of the Virginia Tech shooting, the sources most prevalently cited were informal sources, often eyewitnesses or students (55% of Virginia Tech articles), followed by law enforcement sources (39%), outside institutional sources (36%), and politicians (32%; see Table 1). Coverage of the Umpqua shooting shifted in a different direction—politicians dominated Umpqua coverage (present in 55% of Umpqua articles), followed by informal sources (45%), law enforcement (43%), and outside institutional sources (39%; see Table 1).
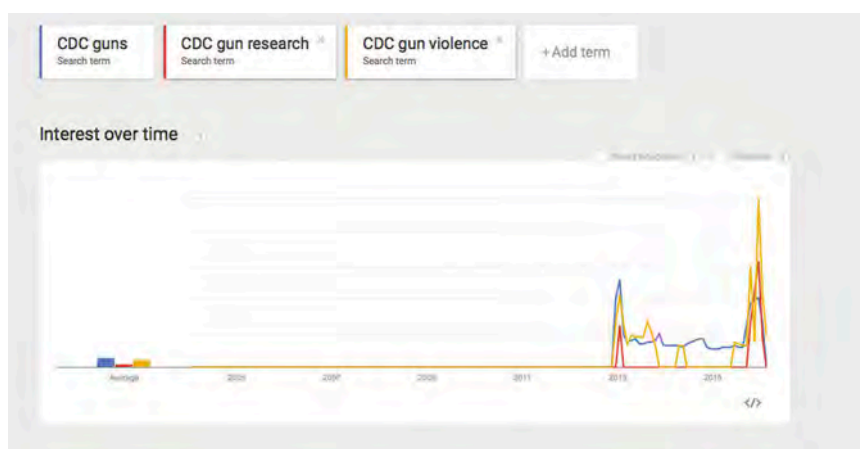
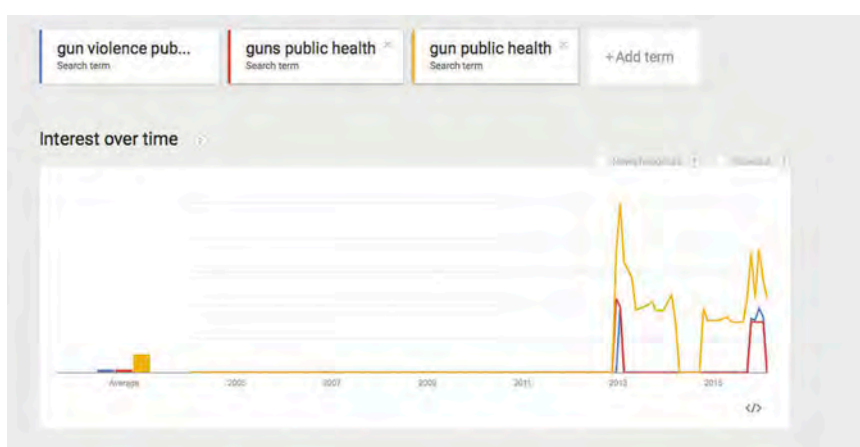**Figure 1.** Google trends data on searches for the CDC + information about gun violence over time.



**Figure 2.** Google trends data on searches for gun violence + "public health" over time.

**Table 1.** Sources.

| Royal Oak shooting | | Virginia Tech shooting | | Umpqua shooting | |
|---|---|---|---|---|---|
| Internal institutional | 77% | Informal | 55% | Politician | 55% |
| Outside institutional | 44% | Law enforcement | 39% | Informal | 45% |
| Informal | 44% | Outside institutional | 36% | Law enforcement | 43% |
| Law enforcement | 33% | Politician | 32% | Outside institutional | 39% |
| Politician | 22% | Journalistic | 28% | Journalistic | 20% |
| Shooter | 22% | Ambiguous | 28% | Shooter | 13% |
| Ambiguous | 22% | Internal institutional | 24% | Ambiguous | 11% |
| Journalistic | 11% | Mental health professional | 12% | Internal institutional | 9% |
| Mental health professional | 0% | Shooter | 7% | Mental health professional | 5% |

Our analysis also found marked differences in the most common explanatory frames that were offered for each of the three shootings. In coverage of the Royal Oak shooting, the three most common frames focused on the individual character of the shooter (present in 66% of Royal Oak articles), followed by workplace bullying (55%), and workplace security concerns (44%, see Table 2). Arguments regarding the specific mental health of the shooter were also present in 44% of Royal Oak articles.

In the case of the Virginia Tech shooting, coverage turned markedly away from bullying as a primary frame and toward mental health explanations—the most common frames present in Virginia Tech coverage focused on the specific mental health

**Table 2.** Royal Oak frames.

| Frame | Percentage of articles present |
|---|---|
| Individual character of shooter | 66 |
| Bullying | 55 |
| School/workplace security | 44 |
| Mental health—specific | 44 |
| Gun control—pro | 11 |
| Mental health—broad | 11 |
| Social breakdown | 11 |
| Criminal justice | 11 |

of the shooter (49%), the individual character of the shooter (46%), and broader mental health problems that led to the environment that produced the shooting (41%; see Table 3).

**Table 3.** Virginia Tech frames.

| Frame | Percentage of articles present |
| --- | --- |
| Mental health—specific | 49 |
| Individual character of shooter | 46 |
| Mental health—broad | 41 |
| Gun control—pro | 35 |
| School/workplace security | 25 |
| Media/contagion effect | 25 |
| Social isolation (of shooter) | 19 |
| Social breakdown | 18 |
| Criminal justice | 15 |
| Pop culture | 12 |
| Gun control—anti | 8 |
| Drugs | 2 |
| Public health | 2 |
| Bullying | 1 |

In coverage of the Umpqua shooting, a different pattern emerged—this coverage, which was driven primarily by politicians, coalesced around gun control policy. Arguments in favor of stricter gun control were present in 56% of articles, followed distantly by arguments *against* stricter gun control (31%), and a broad mental health frame that suggested systemic problems in mental health systems that should have prevented the shooting (19%, see Table 4).

One of the more surprising findings of our analysis was the relative dearth of explicit references to the term "public health," especially given the visibility of the public health angle following Obama's 2013 executive order and peaks in search volume combining public health with gun violence during this period. While we did find a pattern of increase in the prevalence of the term "public health" as a frame used to contextualize gun violence over time (see Figure 3), we found no significant differences in the $\chi^2$ analysis on total mentions of "public health" ($p > 0.05$), likely because of the small sample size.

We found nine main effects in the explanatory frames used to explain the shootings. The categories that differed most were in favor of stricter gun control ($\chi^2 = 11.956$, $df = 2$, $p = 0.003$), frames arguing against gun control ($\chi^2 = 18.389$, $df = 2$, $p < 0.0001$), school or workplace security ($\chi^2 = 14.512$, $df = 2$, $p = 0.001$), criminal justice ($\chi^2 = 10.247$, $df = 2$, $p = 0.006$), pop culture ($\chi^2 = 7.155$, $df = 2$, $p = 0.028$), mental health (broad context) ($\chi^2 = 11.238$, $df = 2$, $p = 0.004$), the mental health of the specific shooter ($\chi^2 = 20.240$, $df = 2$, $p < 0.0001$), individual character of the shooter ($\chi^2 = 32.746$, $df = 2$, $p < 0.0001$), and bullying ($\chi^2 = 64.880$, $df = 2$, $p < 0.0001$).

**Table 4.** Umpqua frames.

| Frame | Percentage of articles present |
| --- | --- |
| Gun control—pro | 56 |
| Gun control—anti | 31 |
| Mental health—broad | 19 |
| Mental health—specific | 16 |
| Media/contagion effect | 14 |
| Media/contagion effect | 25 |
| Individual character of shooter | 9 |
| Social isolation (of shooter) | 9 |
| Public health | 8 |
| School/workplace security | 6 |
| Social breakdown | 6 |
| Pop culture | 3 |
| Criminal justice | 1 |
| Bullying | 1 |
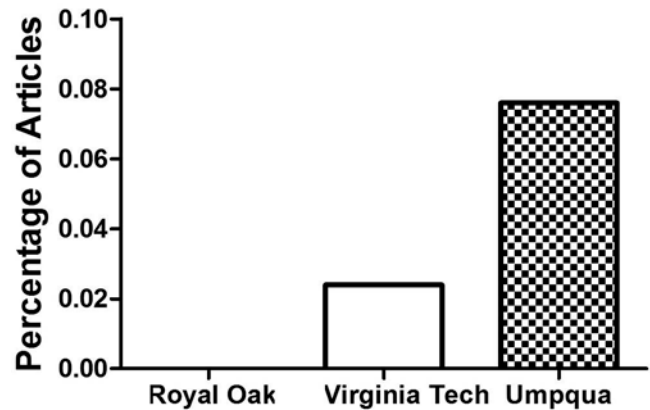


**Figure 3.** Presence of "public health" frame across events.

Many of the differences in coverage outlined above were found to be significant. Arguments in favor of stricter gun control were most prevalent after Umpqua, and were used significantly more than in both the Virginia Tech and Royal Oak coverage ($p < 0.05$). Similarly, the antithesis of this frame, arguments in favor of limiting gun laws, were also more prevalent after Umpqua compared with both Royal Oak and Virginia Tech ($p < 0.05$). School or workplace security was used as a frame more in Virginia Tech and Royal Oak in comparison with Umpqua ($p < 0.01$). In the same vein, criminal justice was discussed less after Umpqua compared with Virginia Tech ($p < 0.01$). Pop culture discussion peaked after Virginia Tech ($p < 0.05$). Mental health (in both broad and specific terms) was discussed less in the Umpqua shooting in comparison with Virginia Tech ($p < 0.01$) and the Royal Oak ($p < 0.05$). Umpqua coverage also used individual character as an explanatory frame less than the Royal Oak and Virginia Tech coverage ($p < 0.01$). Bullying was mentioned most in coverage of the Royal Oak shooting ($p < 0.01$).

Finally, we also found clear differences in framing between editorial (45 articles) and hard news coverage (129 articles). Cross-tabulation of news category with the most common frames found that editorial coverage heavily favored the pro-gun control frame (present in 64% of editorials, but just 37% of hard news articles). Editorials also focused more on broad mental health issues than hard news (51% of editorials and 22% of hard news articles).

## Discussion

Our findings for our first research question were mixed. While we did see a small increase in the number of articles explicitly framing the problem of American gun violence as a "public health" crisis through direct use of that term (see Figure 3), this frame was only present in a tiny proportion of the overall population of articles on these shootings. In this sense, it seems clear that despite growing pressure from medical organizations and policymakers exhorting the public to consider the public health implications of gun violence, the print media we examined did not embrace this frame as a dominant explanatory variable to contextualize and

understand mass shootings. This disconnect between policy-makers/health organizations and journalists aligns with Lawrence and Birkland (2004), who found that "problem definitions" for mass shootings generally cleaved to a fairly static set of explanations over time and were resistant to change, drawing upon previous coverage and previous problem frames (such as pop culture, security, and social mores).

However, we did find clear differences in coverage of the three events we examined—a trajectory of framing that moved away from simplistic external explanations like bullying (which was one of the most prevalent frames in coverage of the Royal Oak shooting) and toward more nuanced considerations of broader access to mental health care and gun policies that affect all Americans. This finding reflects a shift from what Iyengar (1991) called *episodic* framing—framing an event as a discrete, stand-alone event—to *thematic* framing, in which an event is presented within a broader, more contextualized, interconnected frame. The frame of broad access to mental health increased in salience in coverage of the Virginia Tech shooting in particular, where it was present in 41% of articles. This frame was the third most prevalent frame in coverage of both Virginia Tech and Umpqua, suggesting a broader move in public discourse toward understanding gun violence as a mental health problem—a frame that aligns closely with public opinion polling showing that Americans fault mental health systems most for gun violence (Saad, 2013). In this sense, we did find that, over time, the frames used to contextualize these events moved toward broader health explanations that indict public health shortcomings for failing to stem the tide of mass shootings, even if they were not explicitly framed in "public health" terms. Rather, we found a trend toward framing the issue of gun violence in terms of explicit exhortations to policymakers and public officials, urging broad changes to gun policies and broader access to mental health care for troubled individuals.

In our findings for our second research question, as described above, we found very few explicit references to the term "public health" in coverage of these shootings, although the overall trend revealed an incremental increase in this frame over time (see Figure 3). However, we did find many distinctions between shootings. The Royal Oak shooting, which took place before the passage of the Dickey rider, did not frame the shooting in public health terms at all—and only included a single reference to issues of mental health access that may have precipitated the shooting. The absence of this frame in the Royal Oak case is particularly interesting given the shooter's long and troubled mental health history.

Many scholars have found that coverage of other mass shootings in the 1990s cleaved to a similar set of individual-level external frames—bullying, violent popular culture, and social alienation, in particular (e.g., Birkland & Lawrence, 2009; Chyi & McCombs, 2004; Frymer, 2009; Muschert & Carr, 2006). By Virginia Tech, 16 years later, we found a much more pervasive focus on mental health as an explanatory factor for these shootings—the most prevalent frame in this coverage invoked the specific mental health history of the shooter, followed by indictments of his personal character and broader issues regarding access to mental health care. Eight years later, in coverage of Umpqua, our results showed

a marked turn toward explicit policy appeals. While mental health frames (both broad and specific to the shooter) were among the top four frames in coverage of Umpqua, the two most common frames featured arguments both for and against increased gun control.

Sourcing choices were a large component that helped drive these differences in framing. The most prevalent sources cited in Royal Oak coverage were representatives of the shooter's employer, the U.S. Postal Service, who carefully framed the issue as an isolated incident that did not reflect a broader institutional problem. In Virginia Tech coverage, informal and law enforcement sources were most prevalent in coverage—often called upon by journalists to relate eyewitness accounts of the shooting or to describe their interactions with the shooter. However, in coverage of Umpqua, politicians dominated coverage. Politicians—particularly President Obama and prominent hopefuls seeking the 2016 presidential nomination—were quoted early and often to offer perspectives on the most common frame that dominated Umpqua coverage: the ostensible future policy showdown over gun control. Informal and law enforcement sources maintained a steady presence in coverage of all three shootings, while mental health professionals only emerged as sources in coverage beginning with the Virginia Tech shooting.

In our findings for our third research question, we found that one of the clearest shifts in public opinion over this time period relates to Americans' perspectives on the causes of gun violence and the role of weapons in public life. In 2014, for the first time in two decades, the Pew Research Center found that more Americans supported gun rights than gun control—52% of Americans in 2014 reported that it is more important to "protect the rights of Americans to own guns" than to "control gun ownership." This percentage is up markedly from 1993, when just 34% of Americans agreed with that statement. Nearly 6 in 10 Americans also reported that gun ownership does more to protect people from becoming victims than to place them at risk (Pew Research Center, 2014), which runs contrary to what the CDC found in one of the last papers published by the organization before the ban on gun violence research took effect (Kellermann et al., 1993). Similarly, Gallup research found a substantial drop in the number of Americans who favored stricter gun policies over the period of time we examined, from 68% of respondents in 1991 to just 55% in 2015, despite the fact that reported rates of gun ownership have remained fairly static over the same period (Gallup, 2016).

Public opinion polling after mass shooting events—including Virginia Tech—has consistently found that a significant majority of Americans do not believe stricter gun laws would have prevented the shootings (Jones, 2011; Saad, 2007). Rather, most Americans fault mental health systems for failing to prevent shootings, while fewer blame easy access to guns, making the mental health system the current perceived top cause of mass shootings (Saad, 2013).

These shifts in public opinion reflect the shifts we found in framing of the three mass shootings we examined—a clear move toward consideration of mass shootings (and gun violence as a whole) as a failure of mental health systems, not gun policy. However, it is important to note that while media accounts of

large-scale tragedies like the cases we examined tend to galvanize public attention and emphasize the ostensible link between mental illness and violence, epidemiologic research shows that the majority of severely mentally ill individuals never become violent. Mental illness *is* linked strongly with increased risk of suicide, however—a manner of death that accounts for more than half of all firearm-related deaths annually in the United States (Swanson, McGinty, Fazel, & Mays, 2015).

In this sense, while media framing of gun violence and mass shootings does seem to have moved toward ascribing blame for these events to broader breakdowns in mental health care and policy, these frames may obscure the much more pervasive realities of mental illness, scapegoating the mentally ill for shocking acts of public violence, when the data suggest that the mentally ill are not any more likely to commit acts of violence than those who are not mentally ill—although they are more likely to become *victims* of gun violence, especially self-inflicted violence (Applebaum, 2013; Swanson, 2013). This is an area where better research on the public health implications of gun violence (particularly from the CDC, the primary institute tasked with protecting American public health and safety) could offer much-needed data to help both journalists and policymakers make informed decisions about media coverage and policy.

## Conclusion

This study found that print media coverage of these three mass shootings was largely disconnected from growing threads of expert and policy discourse on the subject of "gun violence as public health crisis" that emerged between 2013 and 2016. Despite urgent appeals from leaders in the medical community to link gun violence and public health, and growing public interest in the link between gun violence, mass shootings, and public health, only a small proportion of the 2007 and 2015 coverage—and none of the 1991 coverage—explicitly made this connection. However, we did find substantial shifts in framing over time, moving from the individual-level external frames that dominated coverage of the Royal Oak shooting (presenting the case in terms of as an isolated incident rather than an exemplar of a broader problem), and toward the much broader societal-level thematic concerns around gun policy and access to mental health care. We also found a large shift toward explicit appeals to policymakers, especially in editorial coverage of the two later shootings, which heavily favored the pro-gun control frame. These dominant frames, particularly regarding broader access to mental health, reflected shifts during the same period in public opinion on Americans' reported beliefs about the primary causes of gun violence and mass shootings. Notably, these shifts in framing and public opinion have not been accompanied by meaningful, rigorous research into the public health implications of gun violence, because of the sustained presence of the Dickey rider that prevents the CDC from funding research. In the absence of this kind of research and data, the focus on "mental health" (which evokes more individual-level implications than the broader term "public health") as a causal factor precipitating violence may obscure the larger statistical realities of gun violence and victimhood in the United States—a landscape in which the mentally ill are considerably more likely to take their own lives than the lives of others.

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