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Investigating 55 years of mass shooter statements in the United States: A study of perpetrators' stated motivations and their association with attack severity

Katherine Schibler^a, Lindsay Hahn^a and Adam Lankford^b

^aDepartment of Communication, University at Buffalo, State University of New York, Buffalo, NY, USA;

^bDepartment of Criminology & Criminal Justice, University of Alabama, Tuscaloosa, AL, USA

ABSTRACT

Mass shootings are a prevalent and terrible problem in the U.S. As a foundation for communication-focused research into the media-related causes and effects of mass shooters' stated grievances, and guided by the model of intuitive-morality and exemplars (MIME), we content-analyzed $N = 178$ statements from 119 U.S. perpetrators who committed mass shootings between 1966 and 2021 to identify the motivations they communicated for their attacks. Findings revealed that mass shooters who communicated any motivation – possibly indicative of their rationalizations – killed and injured more people than those who did not communicate their motivation(s). Overall, shooters most often described their motivations as driven by power and relatedness concerns. Those who expressed ingroup-loyalty and relatedness motivations injured the most people, while power-motivated shooters injured the fewest.

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Mass shootings are a tragic problem in the United States. Between the years 1966 and 2021, deadly public mass shootings – referring to gun violence in which four or more people were killed in public, not related to commonplace crimes or conflicts – took the lives of nearly 1300 victims and injured more than 2000 survivors (The Violence Project, 2020). Unfortunately, this problem seems to be getting worse: the five deadliest mass shootings in U.S. history have all occurred since 2007, and the average number of victims killed per incident has risen by 47% (Lankford & Silver, 2020). These disturbing trends underscore the importance of understanding what drives mass shooters to commit their heinous attacks.

Past research has revealed that many mass shooters communicate about their attack motivations (Duong, 2020; Lankford et al., 2019). These communications come in many forms, including pre-attack written manifestos, videos in which shooters speak to an anticipated audience, and social media posts that identify a perceived societal problem or enemy. Shooters' communications can also occur during or after the attack, with some perpetrators expressing their grievances by livestreaming or posting to social media as they carry out violence, and others discussing their reasons for attacking in court afterward. We label the overt attack-related communication of a shooter's

frustrations, perceived enemies, motivations for violence, or goals as a *statement* (Arango et al., 2019). Perpetrators' statements about their attacks offer researchers an opportunity to examine their stated motivations for attacking.

Although explaining one's reasons for committing mass violence is fundamentally a communication phenomenon, this subject has received comparatively little attention from communication scholars, despite its social exigence, perhaps because it is so difficult to study. In an attempt to clear one of the major hurdles and provide a foundation for theoretically-driven research that could advance understandings of both the media-related antecedents and effects of shooters' communications, we compiled a database of public mass shooters' statements and classified their communications according to a theoretically meaningful scheme.

The model of intuitive-morality and exemplars (MIME) provided guidance for this investigation. The MIME (Tamborini, 2013) outlines a relationship between media and audiences wherein audiences exposed to exemplars (i.e., examples) of behavioral motivations in media are thought to place greater importance on those motivations, ultimately shaping their behaviors according to these motivations, and prompting them to select more media containing their favored motivational exemplars. These motivations are thought to underlie all human behaviors: the MIME distinguishes motivations according to whether they are altruistic (i.e., providing benefit to others) or egoistic (i.e., providing benefit to oneself).

The MIME is applicable to mass shooters because their statements are not produced in a social vacuum: many of these perpetrators were originally audience members shaped by their consumption of news media, entertainment media, social media, and other forms of communication (Helfgott, 2023; Lankford & Madfis, 2018). Their preference for media containing favored motivational exemplars may function to gradually radicalize their thoughts in pursuit of their favored motivations (e.g., loyalty to their ingroup) while ignoring others (e.g., losing compassion for outgroups; Lankford & Silver, 2020; Schildkraut et al., 2021; Silva & Capellan, 2019; Silva & Greene-Colozzi, 2019; Tamborini, 2013). In turn, when mass shooters communicate their motivations for attacking, this information is publicly disseminated via news media and social media, which can then have a reciprocal effect of influencing future mass shooters and copycats, whose own statements are then disseminated, and so on (Lankford & Madfis, 2018; Murray, 2017; Sidhu, 2017; Silva & Greene-Colozzi, 2019).

In the present study, we attempted to provide a foundation for future communication-centered research on the antecedents and effects of mass shooters' public statements by (a) compiling a database of statements from mass shooters across five decades, (b) identifying and classifying mass shooters' stated motivations according to the MIME's theoretical scheme, and (c) examining the extent to which stated motivations predict the severity of mass shooters' attacks. Below, we first review the social urgency of this research and previous work on mass shooters' motives. We then highlight the value of situating this area of research in communication theory, particularly the MIME, and go on to describe the present study.

The social exigency of studying mass shooter statements

The definition of a mass shooting lacks consensus. For the purpose of this study, we adopt The Violence Project's (2020) definition, which conceptualizes a public mass

shooting as an incident in which four or more victims are killed with firearms in one event.¹ Although mass shootings are less common than other forms of gun violence, understanding their proximal causes remains socially exigent for at least three reasons. First, mass shootings are, by definition, incidents that result in more victims harmed (injuries or fatalities) per attack than other (non-mass) shootings. Second, mass shooters often direct their atrocities toward “soft targets,” or unprotected public areas, causing public spaces such as schools, workplaces, religious institutions, and entertainment venues to seem vulnerable and unsafe (Lankford & Silver, 2020). Prior research suggests the U.S. has more public mass shootings than every other country – and that U.S. mass shooters were more likely to attack soft targets, including schools and workplaces, than perpetrators in any other nation (Lankford, 2016a; Silva, 2022).

Third, whereas the motivations for perpetrators to commit other forms of gun violence against known victims appear comparatively overt (e.g., argument, drug trafficking, robbery), it is often unclear why someone would decide to shoot a large number of bystanders. As a result, mass shooters often create statements that explain their motives and contain rationalizations for violence. These statements could potentially influence subsequent attackers because they are publicly disseminated by news media and on social media. Without more knowledge of mass shooters’ stated motives, however, it is difficult to provide counter-messaging that could undermine their arguments for violence and reduce the appeal for potential copycats. In an effort to provide an initial foundation for theoretically-informed interventions focused on perpetrators’ statements, the present work takes a first step toward scaffolding mass shooters’ motivations onto communication theory by systematically analyzing their communicated motivations.

Research into stated motivations for mass shootings

Previous scholars have suggested that individuals are driven to commit mass violence as a result of a *motivational imbalance* (Kruglanski et al., 2019, 2021) wherein some need (e.g., protecting one’s ingroup, seeking fame, etc.) dominates and crowds out all other needs an individual would typically have (e.g., compassion for other humans). While most citizens recognize the value of striving to satisfy different needs in different contexts (e.g., it might be reasonable to give my ingroup priority, but not if it means seriously harming an outgroup member), those experiencing an imbalance have motivations that are pronounced in intensity and duration. Although motivational imbalances can occur in non-violent “extremists” – for instance, in extreme athletes who will do anything to summit a mountain despite safety risks – violent extremists like mass shooters are characterized by their willingness to harm others in pursuit of their superordinate motivation (Kruglanski et al., 2021).

In general, previous research suggests several common motives are expressed by public mass shooters. First, many claim they have been profoundly suffering – that they lack friends, romance, sex, fun, or the ability to make meaningful changes in their life that would give them power and independence (Duong, 2020; Newman et al., 2004). As a result, they are often suicidal and do not expect to survive their attacks (Newman et al., 2004). Second, perpetrators often express a grievance or perception of being victimized that they argue justifies their violence against enemies. The grievances

vary widely. Some mass shooters claim they belong to a category of people (e.g., white supremacists, neo-Nazis, Christians, incels, etc.) that supposedly has been persecuted, marginalized, or mistreated – even if they are not active members of an extremist group (Clemmow et al., 2022; Lankford, 2018a; Pfaffendorf & Davis, 2021; Schildkraut et al., 2021). Others claim they have personally been bullied, demeaned, ignored, discriminated against, or mistreated at school, work, or elsewhere in their lives (Lankford, 2018a; Newman et al., 2004; Silva & Capellan, 2019). As a result, mass shooters often attempt to portray themselves as either altruistically fighting for some larger cause or righteously fighting for revenge for themselves (Lankford, 2018a; Silva & Capellan, 2019). Whether perpetrators' stated altruistic motives are genuine is unknown. However, it is worth mentioning that even perpetrators who passionately insist they are fighting for a social cause are commonly socially disconnected (Lankford, 2018a; Newman et al., 2004).

Finally, mass shooters often appear to be fame-seeking or attention-seeking. By killing large numbers of innocent people, perpetrators know they will garner outsized attention from news media (Lankford, 2016b; Silva & Greene-Colozzi, 2019). Unfortunately, they are correct about this, and news media's coverage of mass shooters often functions to reward their violent behavior (Lankford & Madfis, 2018). As with their grievances, some mass shooters frame this in self-serving terms (e.g., they want to become infamous and have fans and followers), while others suggest they primarily want attention for a cause (Lankford & Silver, 2020).

Despite these findings, the largely atheoretical nature of these investigations limits our ability to understand mass shooters' stated motivations. There is no doubt that most mass shooters are struggling in some aspects of their lives, but that does not explain what motives they are most likely to embrace, or how they attempt to rationalize their acts of mass violence to themselves and others in their manifestos, suicide notes, and other statements. From a descriptive standpoint, without guiding theory, it is difficult to tell whether the motivations that have been identified so far are comprehensive, or whether some other motivations that have been overlooked may be cited by a majority of perpetrators. Similarly, without a multidimensional framework capable of classifying a range of motivations, the boundary conditions between what might be considered an altruistic, group-benefitting motive compared to an egoistic, self-benefitting motive seem challenging to discern. From an explanatory standpoint, researchers attempting to uncover meaningful antecedents to mass shooters' grievances for violence, let alone intervene in them, seem doomed to fail without guiding theory that specifies the variables (and relationships among them) on which researchers should focus. We argue that the model of intuitive-morality and exemplars (MIME; Tamborini, 2013) can help to provide a foundation for theoretically-driven work attempting to examine violent actors' statements about their motivations, along with their media-related antecedents and effects.

The MIME

The MIME suggests a model of recursive influence between audiences' motivations and motivationally-laden media. More precisely, the MIME outlines the processes by which exposure to media content emphasizing certain motivational exemplars (i.e., examples)

can affect audiences' judgments, behaviors, and media selection, as well as how media content comes to feature specific motivational exemplars in the first place.

The MIME (Tamborini, 2013; Tamborini et al., 2021) outlines a multidimensional scheme of motivations that are both altruistic (i.e., focused on benefitting others) and egoistic (i.e., focused on benefitting one's self). The model draws its list of five altruistic motivations from moral foundations theory (MFT; Haidt & Joseph, 2007), and more recent considerations of the model (Tamborini et al., 2021) have incorporated a list of six egoistic motivations from self-determination theory (Deci & Ryan, 1985) and research on universal human values (Schwartz, 1994). The five altruistic motivations are: *care*, focused on compassion or concern for others; *fairness*, related to reciprocity and equality/equity; *ingroup loyalty*, describing a preference for ingroup members, and enmity toward outgroups; *authority*, associated with respect for benevolent leaders and traditions; and *purity*, concerned with a desire to avoid social contamination (Tamborini, 2013). The six egoistic motivations conceptualized and operationalized by Tamborini et al. (2021) are: *competence*, defined as a desire to appear capable; *autonomy*, a desire to be in control of one's own actions; *relatedness*, the desire to connect to and create relationships with others; *hedonism*, exemplifying the pursuit of pleasure; *power*, a desire for control over resources, money, or people; and *security*, the desire to feel safe and secure.

The existence of the MIME's 11 motivations is thought to be universal for all humans. However, different environmental factors can lead people to value one (or one set of) motivation(s) more than others. The comparatively greater value that humans place on some motivations over others is referred to as *salience*. Salient motivations are thought to be afforded greater weight in driving human behavior and decision making (Tamborini, 2013). Although many environmental factors are capable of increasing the salience of motivations in audiences, the MIME focuses specifically on exposure to media content as responsible for governing audiences' motivational salience.

In particular, the MIME describes a reciprocal relationship between media content and audiences wherein specific motivations that are exemplified in media content (e.g., via news or social media) can influence audiences' motivational salience, and audiences subsequently prefer to consume media content that exemplifies their salient motivations. For example, an individual may choose to consume news about a recent immigration policy that emphasizes threat to their salient ingroup concerns, rather than an article about the same topic emphasizing compassion for immigrants. Outside of shaping audiences' media selection behaviors, the MIME suggests salient motivations are afforded more weight in shaping audiences' non-media behaviors. For example, the salience of ingroup loyalty would be expected to motivate other pro-loyalty behaviors such as flying one's country flag, participation in a protest against the new immigration policy, or even loyalty-motivated violence against an outgroup (Berry et al., 2021). As a result of audience preferences, content creators are thought to produce more content exemplifying audiences' preferred motivations, which places more of the same motivational exemplars in audiences' media environments, and starts the recursive process over again (Tamborini, 2013; also see Hahn et al., 2024). According to the MIME, this process creates a reciprocal positive feedback-loop in which people's beliefs are reinforced due to the types of information they consume.

Although average audience members affect media content creation based on their consumption preferences (which media are responsive to), mass shooters also affect media coverage based on their attacks and the statements they make about their motives, which then are widely covered and disseminated by news media. In the United States, some mass shooters have received more media coverage than many of America's top celebrities (Lankford, 2018b), and this coverage largely focuses on what they have revealed or communicated about their motives. In fact, some researchers have specifically criticized "the media's obsession with shooters' motives," because the attention given to that factor is so excessive (Knoll & Pies, 2019, p. 1).

Examples from media headlines include the following (and of course, the articles provide additional details):

"Killer's manifesto: 'You forced me into a corner'" (CNN, 2007)

"Fort Hood gunman vented on Facebook about Sandy Hook shooter, Iraq" (Bennett, 2014)

"Racist website appears to belong to Charleston church shooter" (Chuck, 2015)

"Pittsburgh synagogue gunman said he wanted all Jews to die" (Chavez et al., 2018)

"El Paso suspect appears to have posted anti-immigrant screed" (Biesecker et al., 2019)

"Details of note left by Lewiston, Maine gunman revealed" (CBS News, 2023).

As one scholar suggested, the longer-term risk is that "by plastering *motive* all over the media, it gives would-be future shooters more of an opportunity to identify with past shooters ... and maybe more encouragement" (Gollom, 2020, para. 3–4, emphasis added). This only becomes possible due to the widespread media coverage of mass shooters' stated motives, which could subsequently influence future mass shooters.

Analyzing mass shooters' motivations according to a theoretical scheme

Although the MIME's scheme has typically been applied to motivations exemplified in entertainment or news media, its multidimensional framework of basic human motivations is also useful for investigating the stated motivations of violent offenders (Hahn et al., 2023, 2024). As Kruglanski and colleagues (2021) suggest, the drives that motivate perpetrators of mass violence may be no different than the drives motivating regular citizens; extremists' motivations may just differ in duration and intensity. For instance, one study demonstrated predictable patterns in the extent to which terrorist organizations were motivated by MFT's scheme of moral motivations (what the MIME refers to as altruistic motivations; Hahn et al., 2019). Although many different schemes of basic human motivations exist, the MIME's attempt at combining multiple theories (MFT, SDT, and research on universal human values) into one multidimensional scheme could provide as comprehensive a scheme as possible for identifying individuals' drives in any context (or all contexts; Kruglanski et al., 2021).

Applying the MIME to understand mass shooters' statements

Although communication theories can help scholars predict and explain mass shooters' statements, to date, they have not been applied to this subject. This is likely because even though many mass shooters' statements are a matter of public record and have been widely disseminated by news media and on social media, they have not been collected

and compiled into a single, useable database. In the present study, we attempted to address this challenge by systematically compiling content produced by mass shooters that researchers can use to advance understandings in this area. In particular, leveraging communication theory with this sample of content affords scholars a starting point for analyzing the content, causes, and effects of mass shooters' statements, and ultimately provides a foundation for theoretically informed interventions aimed at preventing violence and the media-related consequences of it.

Given the centrality of media content as both a potential influencer of mass shooters' statements, and as something affected by mass shooters' statements, the MIME is particularly applicable to this area of research. Before they attacked, most, if not all, perpetrators were audience members who may have been shaped by their consumption of news media, entertainment media, social media, and other forms of communication (Helfgott, 2023; Lankford & Madfis, 2018). In accordance with the MIME, if would-be violent perpetrators prefer media that feature certain motivational exemplars (e.g., self-sacrifice for the group or power for oneself), they would be more likely to consume content that reinforces those messages, which would be thought to contribute to the type of extreme motivational imbalance that often precedes violence (Hahn et al., 2023; Lankford & Silver, 2020; Kruglanski et al., 2021; Schildkraut et al., 2021; Silva & Capellan, 2019; Silva & Greene-Colozzi, 2019).

Thus, per the MIME, to the extent that the present study reveals aggregate patterns of motivations depicted in mass shooters' public statements, this evidence could reveal the types of media content in which perpetrators may have immersed themselves prior to their attacks (see, e.g., Hahn et al., 2022). For example, the perpetrator responsible for the 2022 racist supermarket mass shooting in Buffalo, New York, was a known white supremacist who frequented fringe news and social media websites known for espousing white nationalist views. His public statements about his motivations for the attack were largely drawn from previous racist mass shooters and his identification with racist movements. From the perspective of the MIME (Tamborini, 2013; see also Slater, 2007), this consistent diet of white supremacist media may have increased the salience of the loyalty motivation for this perpetrator, ultimately shaping his behaviors to be driven by loyalty considerations (in this case, loyalty to a racist conflict and its supporters). Indeed, such loyalty concerns featured prominently in his manifesto and his stated reasons for attacking.

The MIME also offers insight into the types of media-related effects we might expect to occur *after* a mass shooter publicly communicates their motivations. Logic from the MIME suggests shooters' different motivations, when known and stated publicly, could influence responses from the general public, news media, politicians, and even other violence-prone individuals. In line with the MIME's recursive loop (Tamborini, 2013), when mass shooters communicate their motivations for attacking via statements that are publicly disseminated by news media and on social media, that could have a reciprocal effect of shaping news frames of the attacks and discussion of the shooters' motive (s) (Cheng & Shen, 2022; Zhang et al., 2023), which becomes media content that feeds back to audiences, and could potentially influence future mass shooters and copycats, whose own statements would then be disseminated, and so on (Lankford & Madfis, 2018; Murray, 2017; Sidhu, 2017; Silva & Greene-Colozzi, 2019). Put simply, the MIME's recursive process outlines how media can influence a mass shooter, whose

actions can then influence media coverage of their attack, which can then influence both (a) other audiences' reactions to the attack and (b) future mass shooters' motivations, and so on (i.e., media content → audience response → media content → audience response, and so on). Thus, the present study's ability to shed light on the stated motivations of mass shooters also could indicate (a) the motivations that would feature prominently in news coverage of their attack, (b) some audience responses to their attack, and (c) the motivations that might be cited by future mass shooters and shape their own statements and behavior.

Ultimately, understanding how mass shooters shape and are shaped by media content is the first step to intervening in these harmful (and potentially recursive) processes. Investigating the entire reciprocal loop outlined by the MIME would require a multi-study approach that would involve studies of (1) mass shooters and their communications, (2) studies of mass shooters and their media consumption, and (3) studies of media coverage of mass shooters' statements – all over an expansive time period to allow for examinations of multiple generations of mass shooters and media cycles. Due to the social exigence of this issue, we attempt the first step of this multi-stage research agenda by investigating mass shooters and their communications.

Although we primarily focus on logic from the MIME in the present study, other communication theories could also prove useful for investigating the antecedents and consequences of mass shooters' public statements. In particular, the theory of planned behavior (Ajzen, 1991) could be useful in explaining the process by which shooters' expression of violence-prone attitudes, perceived behavioral control, and subjective norms in their public statements are predictive of their violent action. In the next section, we expand on the theoretical logic for the present study's primary research questions and describe our attempt at an initial investigation leveraging both the MIME and the theory of planned behavior to study mass shooter communications.

The present study

In this study, we applied the MIME's taxonomy of motivations to mass shooters' publicly stated grievances in an attempt to not only identify their communicated motivations according to a theoretically-derived meaningful scheme, but also to provide a foundation for future research that can leverage communication theory to study the antecedents and consequences of mass shooters' statements. Although not all mass shooters communicate about their reasons for attacking, previous research suggests that a significant proportion do (Lankford et al., 2019; The Violence Project, 2020). These statements provide an opportunity to examine the motivations that shooters claim led them to commit their atrocity.

An understanding of mass shooters' motivations may prove useful for those interested in developing counter-messaging interventions meant to deter shooters by potentially addressing their superordinate needs before they escalate to violence. Indeed, the fact that an increasing number of mass shooters are prone to discuss motivations for violence in internet posts or on social media (Lankford et al., 2019) suggests that they spend a great deal of time in online spaces that could serve as useful places to target messages as part of an intervention. We opted to investigate mass shooters' stated motivations, rather than the motivations ascribed to them by retrospective news reports or law

enforcement commentaries, as any counter-messaging effort that attempts to address motivations the shooter does not willingly acknowledge seem doomed to fail. Thus, we ask:

RQ1: Which altruistic/egoistic motivations do mass shooters most often claim drove their attacks?

According to the MIME and logic regarding extremists' motivational imbalances, motivations that are more intensely salient should be more likely to guide individuals' behaviors across a range of contexts (Kruglanski et al., 2021; Tamborini, 2013). The behavioral outcomes likely of greatest interest to scholars, citizens, and law enforcement concern shooters' attack severity, which we define using two mutually exclusive categories: the number of injuries (people who were physically harmed but did not die, as a direct result of the shooting) and fatalities (people who died as a direct result of the shooting). Given the MIME's claim that a primary contributor to motivation salience is media content, and the fact that media coverage is believed to contribute to mass shooters' motivations (Lankford, 2016b; Lankford & Madfis, 2018; Sidhu, 2017; Silva & Greene-Colozzi, 2019), we might expect that different motivations' association with particularly severe attacks would shed light on the insular capacity of different types of motivationally-laden media. For instance, many mass shooters (e.g., the Buffalo supermarket shooter) cite media that emphasized loyalty to an in-group as a catalyst for their actions. To the extent that loyalty-motivated shooters commit more injurious attacks, that might reveal a particularly important subgroup of mass shooters for which future researchers could focus on understanding and designing interventions.

Although many factors contribute to the severity of shooters' attacks, previous work has demonstrated that violence associated with some motivations can be deadlier than others. In particular, some work has indicated that fame-seeking motivations may be associated with particularly deadly mass shootings (Lankford, 2016b; Lankford & Silver, 2020; Silva & Greene-Colozzi, 2019). If so, we may expect the power motivation to be associated with fatalities in the current study. Yet because extant research identifies motives that are disconnected from any cohesive theoretical scheme, questions remain about whether other motives may emerge as related to attacks' severity. To the extent that shooters' communicated motivations are connected to the severity of their attacks, the MIME's scheme should provide great utility for media scholars attempting to understand the proximal causes of mass shooters' violent actions. With that in mind, we ask:

RQ2: Are the specific motivation(s) communicated in mass shooters' statements associated with greater (a) injuries or (b) fatalities?

We are also interested in whether mass shooters' decisions to discuss their reasons for attacking is itself a meaningful variable. Although extant research has suggested that many mass shooters communicate openly about their attacks (Lankford et al., 2019), not all mass shooters communicate their reasons for attacking. Previous research using a smaller sample suggests the deadliest mass shooters may be more likely to signal both their interest in violence in general, and their interest in mass killing specifically, than the average perpetrator (Lankford et al., 2019). The theory of planned behavior provides a framework for investigating whether communicating one's reasons for attacking may be associated with the deadliest attacks.

The theory of planned behavior (TPB) specifies that behavioral intentions are one of the most robust predictors of actual behavior (Ajzen, 1991). Behavioral intentions are thought to arise as a result of perceived behavioral control and social norms, and more positive attitudes toward the behavior. TPB has been applied to explain behavioral decision making in a wide variety of contexts, including health, media, and politics, to name a few (Bosnjak et al., 2020). Given our interest in the severity of perpetrators' attacks, it is therefore worth testing whether there are significant differences in attack severity between mass shooters who did or did not communicate their intentions to harm others. According to TPB, we might expect that mass shooters who made statements would commit attacks of greater severity, as their communicated intentions could signal greater perceived behavioral control, as well as perceived social norms and more positive attitudes toward the behavior.

Although many mass shooters communicate their intentions and motives prior to attacking, others communicate this information afterward. The social intuitionist model (SIM; Haidt, 2001) suggests that these *post hoc* rationalizations allow individuals to justify their motivation-driven behaviors to themselves and others. This logic is in line with the culpable control model of blame (CCM; Alicke, 2000), which suggests that individuals might say or do something wrong and defend their decision later if there is reason to do so (e.g., if law enforcement asks them the reason for the attack). We might expect that communicating one's intentions to harm others, regardless of whether that communication is *a priori* or *post hoc*, would be associated with more severe attacks. Perpetrators who communicate their motives might commit comparatively more severe attacks, either because they feel greater *a priori* conviction to their intentions, perceive more behavioral control and more positive social norms and attitudes toward the action (per TPB), or because they feel a greater need to rationalize their actions *post-hoc* (per SIM and CCM). We investigate this relationship by asking:

RQ3: Do mass shooters who make statements about their attack motives cause more (a) injuries or (b) fatalities than perpetrators who do not make statements about their attack motives?

Method

Data availability statement

Upon request to the corresponding author, the current study's data and database of statements are available to researchers interested in advancing knowledge in this area. In accordance with suggestions of the "No Notoriety" campaign and Lankford and Madfis's (2018) proposal to deny offenders the attention they often seek, we refrain from using the names of any mass shooters in this paper, and from posting our data in a public repository.

Sample

Population of mass shooters

We content analyzed statements from mass shooters who have acted in the U.S. to identify their stated motivations for attacking. Rather than study a subset of perpetrators, we searched for documented statements for all public mass shooters who attacked in the U.S. from 1966 (when records begin) to 2021, and who were responsible for killing four or

more victims. We used a list of qualifying perpetrators from The Mass Shooter Database (version four) compiled by The Violence Project (TVP), which was funded by the National Institute of Justice. To our knowledge, this is the most comprehensive database of U.S. public mass shootings in the United States, and it is updated annually with new perpetrators (The Violence Project, 2020). The Violence Project (2020) defined a mass shooting as:

A multiple homicide incident in which four or more victims are murdered with firearms – not including the offender(s) – within one event, and at least some of the murders occurred in a public location or locations in close geographical proximity (e.g., a workplace, school, restaurant, or other public settings), and the murders are not attributable to any other underlying criminal activity or commonplace circumstance (armed robbery, criminal competition, insurance fraud, argument, or romantic triangle).

All incidents meeting this definition are recorded in the TVP database, along with data on the mass shooter who committed each attack, the number of fatalities and injuries each caused, and other related information. We chose to focus on the deadliest mass shooters (i.e., those who killed four or more victims) in the present study because we were interested in studying mass shooter statements as communication phenomena, and these perpetrators were more likely to receive news media attention and stimulate social media discussion than less lethal perpetrators. Pragmatically, this also meant that finding statements from more deadly perpetrators was comparatively more straightforward than it would have been for less deadly perpetrators.

Mass shooter statements

Next, we attempted to gather documented statements for every mass shooter ($N = 178$) listed in the TVP database. In particular, we searched for any statement, communication, or message that (a) was created by the perpetrators in the TVP database and (b) referred to their reason(s) or grievance(s) for an attack. We intentionally left our definition of mass shooter statements broad so that it would include all instances of published/discovered content created by the mass shooter. This included manifestos, suicide notes, online posts, written letters, verbal statements, direct quotes, and court transcripts where a perpetrator discussed their motivations. To compile as much information on mass shooters' statements as possible, we included data from before, during, and after the shooters' attacks. This approach allowed for the inclusion of shooter interviews from police and court transcripts.

We compiled shooter statements in three phases. We began with 12 documents compiled by one of the authors for a previous study. Second, and in line with previous research, we consulted two websites that make primary source documents from mass shooters, such as their manifestos, suicide notes, letters, and other known statements, publicly available (Pfaffendorf & Davis, 2021). Specifically, we obtained 37 statements from schoolshooters.info, a website that stores various types of content created by mass shooters who carried out attacks in schools, and 39 statements from Murderpedia.org.

Finally, we conducted an internet search to obtain any other publicly available mass shooter statements. We used the search engines Google and DuckDuckGo powered through the Tor browser. We used five different search combinations, including (1)

“Shooter Name,” (2) “Shooter Name + Year of Shooting,” (3) “Shooter Name + Year of Shooting + Writing,” (4) “Shooter Name + Year of Shooting + Quote,” and (5) “Shooter Name + Year of Shooting + Manifesto.” We saved shooter statements that were returned on the first two pages of search results (resulting in an additional 90 statements), as well as the corresponding link for each relevant result. When a statement was identified in any of the above search stages, we cross-referenced its content using news reports to confirm the statement’s validity. Although most reputable, mainstream news organizations do not publish the full text of shooters’ statements, they often provide direct quotes and describe to readers what the statement contained. This allowed us to confirm that each statement we identified was valid. For all statements in our database, news media mentioned the shooters’ reasons for attacking if they were known.

In total, we collected 178 statements from 119 of the 178 (66.85%) U.S. mass shooters in the TVP population. Of the 119 perpetrators who made statements, we found one statement for 82 perpetrators and multiple statements for 37 perpetrators ($M = 1.50$, $SD = .94$; $Med = 1$; $range = 1-5$). According to the TVP database, all but three of the 119 mass shooters with statements in our sample were men; and the majority were White ($n = 73$; 61.34%), followed by Black ($n = 22$; 18.49%), Asian ($n = 9$; 7.56%), Middle Eastern ($n = 7$; 5.88%), Latinx ($n = 6$; 5.04%), and Native American ($n = 2$; 1.68%).

Measures

Shooting fatalities and injuries

First, we were interested in examining the *number of injuries* ($M = 9.49$; $SD = 11.25$, $range = 0-70$) and *fatalities* ($M = 9.04$; $SD = 7.48$, $range = 4-49$) caused by each mass shooter. We obtained this information from the TVP database.

Altruistic and egoistic motivations

Next, we were interested in measuring the purported motivation(s) driving mass shooters to commit their violent attack, as claimed in their statements. We instructed three coders to examine each statement for the shooter’s grievance prompting the attack, and then categorize it according to the MIME’s motivation coding scheme. The documents we obtained through our search served as the context units, and the shooters’ specific grievances served as the study’s coding units. Although automated procedures exist for extracting the altruistic motivations identified by MFT (Hopp et al., 2021), to our knowledge, no automated procedure currently exists for extracting the egoistic motivations identified by the MIME. Because we were interested in extracting all 11 of the MIME’s motivations, our methodology consists of a manual content analysis with human coders (rather than an automated coding procedure, which would have only allowed extraction of the 5 altruistic motivations; also see Weber et al., 2018).

Coding Protocol. To categorize each shooter’s grievance according to the MIME’s scheme of 11 motivations, we adapted a codebook that has been used extensively in previous research to extract the altruistic motivations of terrorists (Hahn et al., 2019) and the altruistic and egoistic motivations of narrative characters (see Eden et al., 2021 for review). The codebook defines altruistic motivations as those focused on providing benefit to others, and egoistic motivations as those focused on providing benefit to

oneself. Operational definitions of individual motivations and examples of each can be found in Table 1.

Coding Procedure. Three coders (two female undergraduates and one female graduate student at a northeastern U.S. university) were instructed to read each documented statement and identify whether it stated the mass shooter's grievance. Given the nature of these statements and those who produced them, much of the content was illogical or seemingly nonsensical. Due to this, coders were instructed to read each communication twice before coding it. Coders were instructed to code the motivations present in the statements only if they were directly related to the attack listed in the TVP database. They were instructed not to code for motivations associated with an unrelated grievance held by the shooter. Coders were instructed to code using a binary approach: "1" for any attack motivations that were present, and "0" for any that were absent. Coders were able to code for as many motivations as were present. We frequently checked in with the coders to ensure their mental well-being during the coding process.

Coders were trained in multiple phases. First, they were part of a larger team of coders who were trained over the course of 10 weeks to identify the altruistic and egoistic motivations in various media content unrelated to this project. In the second phase, they were trained for three weeks to identify the motivations in mass shooter statements specifically. Practice content that was similar to the statements in the present study's sample was compiled from schoolshooters.info (i.e., statements from offenders not classified as "mass shooters" by TVP). In the third training phase, $n = 15$ statements were randomly sampled from the present study's dataset to be used for practice coding. During each

Table 1. Operational definitions and examples of each motivations.

Motivation	Operational definition	Example
Care	Shooter expressed a desire to help others in need	"I'm freeing you all from a world that doesn't care about you."
Fairness	Shooter expressed a desire to correct or respond to an injustice or fix a broken system	"The fact that I can do this shows that the system needs to be fixed, that it needs to do more for the people."
Ingroup loyalty	Shooter expressed a desire to strengthen a perceived ingroup or weaken a perceived outgroup.	"I can't sit by and watch my people get slaughtered. Screw your optics, I'm going in."
Authority	Shooter expressed a desire to stop what they perceived to be an unfit or malevolent leader or hierarchy.	"The mayor shouldn't be so liberal and shouldn't be a woman, that's why I had to attack the rally."
Purity	Shooter expressed a desire to cleanse society of contaminants or make the world cleaner, e.g., from a religious or social perspective.	"God told me that I was his sword and shield."
Competence	Shooter expressed a desire to prove their ability or worth.	"My boss ... shouldn't call me stupid."
Autonomy	Shooter expressed a desire to be independent.	"Everyone is telling me to love this place, but I want to think for myself, and I hate it"
Relatedness	Shooter expressed a desire for social connections or in response to lacking them.	"I deserved friends, girlfriends and I had none."
Hedonism	Shooter expressed a desire for pleasure or novelty.	"I just saw everyone sitting there, and I felt like I wanted to kill all of them. So I did."
Power	Shooter expressed a desire for social status or to attain fame.	"No one will ever forget my name now."
Security	Shooter expressed a desire for self-protection from a perceived threat.	"I saw that car following me for days. I had to get rid of the person in that car, it was for my own good."

stage of the training process, coding disagreements were discussed as a team and the codebook was revised accordingly.

Last, 43 statements (24.16% of the 178 statements in the dataset) were randomly selected and coded by all coders to assess intercoder agreement. We adopted Brennan and Prediger's Kappa as a measure of intercoder agreement and set the threshold for acceptable agreement at .70. Intercoder reliability reached the .70 threshold for all 11 motivations: $\kappa_{\text{care}} = .94$, $\kappa_{\text{fairness}} = .94$, $\kappa_{\text{loyalty}} = .97$, $\kappa_{\text{authority}} = .93$, $\kappa_{\text{purity}} = .81$, $\kappa_{\text{competence}} = .88$, $\kappa_{\text{autonomy}} = .84$, $\kappa_{\text{relatedness}} = .75$, $\kappa_{\text{hedonism}} = .78$, $\kappa_{\text{power}} = .75$, and $\kappa_{\text{security}} = .91$. After intercoder reliability was established, remaining statements in the dataset were divided equally among the three coders and coded independently.

Data preprocessing

We began with the coded datafile, which contained 11 dummy-coded motivations for each shooter (coded as "1" if present or "0" if absent). To answer RQ1, which asked about shooters' motivations, we restructured our data so that motivations could act as the units of analysis. Because each shooter could be driven by multiple motivations, we restructured our coded data into repeated-measures, long-format. The variable we restructured the data by contained 12 levels indicating whether each shooter's motivation was one of the MIME's 11 individual motivations (care, fairness, loyalty, authority, purity, competence, autonomy, relatedness, hedonism, power, security, coded as 1–11 if present, respectively) or no motivation was identified (coded as "12"). This datafile was used to answer RQ1.

To answer RQ2, and RQ3, we used the original coded datafile with each shooter as the unit of analysis, and which contained 11 dummy-coded motivations for each shooter. For RQ3, we also created a variable indicating whether any statement could be found for the shooter (coded as "1" if yes, or "0" if not).

Results

To answer RQ1, we examined which motivations, if any, mass shooters most often claimed drove their attacks. Because multiple motivations could have been coded for any one grievance, we inspected the descriptive frequencies of motivations using a variable with 12 levels specifying whether shooters indicated any of the 11 motivations or no motive in any of their statements. Descriptive results suggested mass shooters stated they were driven by certain individual motivations substantially more than others, particularly the egoistic motivations of power ($n = 57$) and relatedness ($n = 30$). Frequencies of mass shooters who claimed to be driven by each motivation (or no motivation) can be viewed in Table 2.

To address RQ2 and examine whether U.S. mass shooters' stated motivations might predict the injuries or fatalities they caused with their attacks, we conducted two negative binomial regressions using the shooters' dummy-coded motivations as separate independent variables. We entered injuries as the dependent variable in the first model, and fatalities as the dependent variable in the second model. The first model revealed that mass shooters' stated motivations differentially predicted the number of injuries they caused by their attacks, likelihood ratio $\chi^2(11) = 33.24$, $p < .001$. Specifically, the altruistic

Table 2. Frequency of mass shooters expressing different attack motivations.

Stated Motivation	N	Proportion*
Egoistic		
Power (wanted greater status or influence)	57	47.9%
Relatedness (wanted social connections)	30	25.2%
Hedonism (wanted pleasure)	22	18.5%
Autonomy (wanted independence)	18	15.1%
Competence (wanted to prove their ability)	13	10.9%
Security (wanted to protect themselves)	12	10.1%
Altruistic		
Purity (wanted to cleanse society of contaminants)	27	22.7%
Ingroup loyalty (wanted to protect their group)	21	17.6%
Fairness (wanted to correct injustice)	10	8.4%
Care (wanted to help others)	6	5.0%
Authority (wanted to confront unfit authority)	3	2.5%
No motive stated	6	5.0%

Note: *Proportion of $N = 119$ perpetrators with a documented statement about their attack motivation. Motivations are ordered by frequency.

motivation of ingroup loyalty ($B = 0.66$, $SE = .30$, $p = .03$, 95% CI [0.08, 1.24]) predicted a rate of injury 1.93 times greater than non-loyalty motivated attacks, $\exp(B)$ 95% CI (1.08, 3.45). Additionally, the egoistic motivations of relatedness ($B = 0.72$, $SE = .25$, $p = .004$, 95% CI [0.23, 1.22]), and power ($B = -0.64$, $SE = .22$, $p = .004$, 95% CI [-1.08, -0.21]) were significant predictors of injuries. Specifically, attacks motivated by relatedness have a rate of injury 2.06 times greater than non-relatedness motivated attacks, $\exp(B)$ 95% CI (1.25, 3.38). Attacks motivated by power had a rate of injury 0.53 times that of non-power motivated attacks, $\exp(B)$ 95% CI (0.34, 0.82), suggesting that power-motivated mass shooters cause fewer injuries compared to non-power motivated mass shooters. Results of the second negative binomial regression model, this time predicting fatalities, failed to reach the threshold for statistical significance, likelihood ratio $\chi^2(11) = 12.25$, $p = .34$. Results of full model predicting injuries for RQ2 is displayed in Table 3.

To address RQ3 and examine differences in injuries and fatalities committed by perpetrators who communicated a statement about their attack motives ($n = 119$) versus those who did not ($n = 59$), we conducted two Mann-Whitney U tests. We coded perpetrators according to whether we found any relevant statement from them or not, and

Table 3. Results of negative binomial regression investigating stated motivations as predictors of attack injuries.

Predictor: Stated Motivation	B (SE)	B 95% Wald CI	Exp (B)	Exp (B) 95% CI
Care	-0.17 (0.52)	-1.19, 0.86	0.85	0.30, 2.36
Fairness	0.53 (0.43)	-0.31, 1.36	1.70	0.74, 3.91
Ingroup loyalty	0.66 (0.30)*	0.08, 1.24	1.93*	1.08, 3.45
Authority	-0.88 (0.69)	-2.24, 0.48	0.41	0.11, 1.61
Purity	0.22 (0.28)	-0.32, 0.74	1.24	0.72, 2.13
Competence	-0.39 (0.35)	-1.07, 0.30	0.68	0.34, 1.35
Autonomy	0.08 (0.31)	-0.52, 0.68	1.08	0.59, 1.98
Relatedness	0.72 (0.25)**	0.23, 1.22	2.06**	1.25, 3.38
Hedonism	-0.06 (0.27)	-0.53, 0.52	0.99	0.59, 1.68
Power	-0.64 (0.22)**	-1.08, -0.21	0.53**	0.34, 0.82
Security	0.12 (0.36)	-0.59, 0.84	1.13	0.55, 2.31

Note: Likelihood ratio $\chi^2(11) = 33.24$, $p < .001$. * indicates $p < .05$; ** indicates $p < .01$.

entered this binary variable as the independent variable in both models. Results of the first model, which examined injuries as the dependent variable, revealed that perpetrators who made at least one statement injured more people ($Mdn = 3.00$) than those who did not make a statement ($Mdn = 1.00$), $U = 2205.00$, $z = -4.07$, $p < .001$, $r = -.31$. Results of the second model, which examined fatalities as the dependent variable, revealed that perpetrators who made at least one statement killed more people ($Mdn = 6.00$) than those who did not make a statement ($Mdn = 5.00$), $U = 2393.50$, $z = -3.54$, $p < .001$, $r = -.27$.

Post hoc investigation of deadliest shooters

After our main analyses for RQ2 did not suggest motivations were predictors of U.S. mass shooting fatalities when analyzing all perpetrators together, we looked more closely at whether communicated motivations differed between the deadliest perpetrators (i.e., those who killed 10 or more victims; $n = 24$) and their less deadly counterparts (i.e., those who killed nine or fewer victims; $n = 95$). To investigate this, we conducted a series of 2 (perpetrator fatalities: more than 10, nine or fewer) \times 2 (motivation: present, absent) chi square test of independence for each motivation. Results suggested that, compared to less deadly perpetrators, the deadliest mass shooters were more likely to describe their grievances as motivated by ingroup loyalty (adjusted standardized residual = 2.3, $\chi^2 [1, N = 119] = 5.09$, $p = .02$, $\phi = .21$), purity (adj. std. res. = 2.5; $\chi^2 [1, N = 119] = 6.17$, $p = .01$, $\phi = .01$), and relatedness (adj. std. res. = 2.6; $\chi^2 [1, N = 119] = 6.78$, $p = .01$, $\phi = .01$). All other chi square tests failed to reach statistical significance ($\chi^2 < 3.84$, $p > .05$). Frequencies of each motivation by most versus least deadly mass shooters can be viewed in Table 4.

Discussion

The present study attempted to compile a database of U.S. mass shooter statements, classify perpetrators' stated motivations according to a theoretically meaningful framework, and assess the extent to which a shooter's communication of the motivation(s) for their attack was associated with their attack severity. Findings revealed: (1) shooters most often described their motivations as driven by power and relatedness concerns; (2) shooters

Table 4. Frequency of stated motivations by deadliest mass shooters compared to less deadly mass shooters.

Stated motivation	Deadliest mass shooters (≥ 10 fatalities) $n = 24$	Less deadly mass shooters (≤ 9 fatalities) $n = 95$
Care	3	3
Fairness	2	8
Ingroup loyalty	8	13*
Authority	1	2
Purity	10	17*
Competence	2	11
Autonomy	4	14
Relatedness	11	19*
Hedonism	5	17
Power	10	47
Security	3	9

Note: Asterisks indicate statistically significant differences row-wise, with full results for each statistically significant row reported in text.

who expressed ingroup loyalty and relatedness motivations injured the most people, whereas shooters who communicated power motivations injured the fewest; (3) mass shooters who communicated any motivation for their attack killed and injured more people than mass shooters who did not state their motivation(s); and (4) the deadliest perpetrators (i.e., those who killed more than 10 victims) were more likely to describe their motivations as involving ingroup loyalty, purity, and relatedness than less-deadly perpetrators. In the next section, we consider the theoretical and practical implications of the present study's findings.

A MIME approach to examining U.S. mass shooters' stated motivations

The present study's ability to demonstrate that the majority of mass shooters' grievances can be classified according to a theoretically-relevant scheme provide initial, yet important, theoretically-based evidence that mass shooters' motivations can be scaffolded onto extant communication theory and therefore predicted, explained, and potentially controlled. Although our study represents only an initial step forward for rooting these high-stakes communications in communication scholarship, the goal of this study was to provide a foundation for future research in this area. Indeed, our results illuminate several fruitful routes for future research endeavors. First, the results showing that mass shooters most often state their motivations are driven by power and relatedness concerns add important nuance to investigations of violent motivations. Although people often attempt to justify many forms of violence – including war, terrorism, political assassinations, and government repression – by claiming that it serves the greater good or helps the broader group, mass shooters most often explained their motives as serving themselves. That their statements focused on their desires for power and social connections most often suggests that mass shooters may justify their violence as a means of restoring their personal worth.

Situating this research in communication theory also highlights our results' implications for understanding how mass shooters may be perceived by the public, given that their statements are often disseminated across news media and social media after their attacks. Notably, MIME logic suggests the importance of understanding the motivations that are emphasized in media content, as exposure to motivational exemplars in mass communication can increase the value that audiences place on those motivations in their own lives (Tamborini, 2013). To the extent that audiences may be exposed to public mass shooter statements on online forums or social media, the present study could provide an important foundation for attempts at understanding how audiences may perceive the motivations communicated in mass shooter statements. For instance, we might expect that audiences who already value a motivation emphasized by mass shooters would empathize more with their thoughts and words, creating more potential for sympathy with the perpetrator rather than the victim(s), and, in extreme cases, prompting copycat perpetrators (e.g., like the 2022 Buffalo supermarket mass shooting perpetrator). This logic is consistent with previous research showing that mass shooters who have copied previous attackers are often attracted to their personal similarities and shared goals (Murray, 2017; Sidhu, 2017). For instance, at-risk individuals who are seeking power or social connections in their own lives may be especially likely to copy mass shooters who expressed similar reasons for attacking. Future work should investigate this

possibility by examining the degree to which mass shooters may reference and/or justify their actions according to previous perpetrators' motivations in their statements.

The role of motivations in predicting U.S. mass shooters' attack severity

One of the most striking findings of the present study was that mass shooters' decisions to discuss their motivations were directly related to the severity of their attacks. Our results showed that mass shooters who made statements that communicated *why* they wanted to attack were more deadly and harmful than mass shooters who did not express that information. According to TPB, behaviors are a "joint function of intentions and perceived behavioral control" (Ajzen, 1991, p. 185). Additionally, the SIM (Haidt, 2001) and CCM (Alicke, 2000) suggest that individuals will rationalize their moral or otherwise wrong behaviors after the fact, especially if they are confronted with circumstances suggesting their behaviors were wrong (e.g., if law enforcement asks why they committed such heinous acts). Taken together, it may be that mass shooters with the strongest homicidal urges and most extreme desires to kill often felt like they had to explain or rationalize their decision to attack, either to themselves or others. Additionally, they may have been so angry or upset that it almost felt like they "had to" talk or write about the violent thoughts inside their head as a way of mapping out or justifying their behaviors, which ultimately either allowed them to be more strategically harmful or provided a rationale for themselves or others as to why their actions were so harmful. The relationship between mass shooters making these statements and committing more severe attacks is also consistent with prior research which suggests the deadliest mass shooters are more likely to signal their interest in mass killing (Lankford et al., 2019).

Another major finding was that the specific type of motivation that mass shooters claim drove their attacks appears to differentially predict the severity of their violence. Specifically, findings suggest that loyalty- and relatedness-motivated mass shooters caused nearly twice the number of injuries than mass shooters not driven by those motivations. These motivations were also characteristic of the deadliest mass shooters in our sample, as our post hoc analyses showed. Whereas loyalty is characterized by selfless sacrifice for the benefit of one's group, relatedness is characterized by selfish desires to feel connected to others. Given that both motivations concern a shooter's relationships with others, it appears mass shooters are particularly driven to commit violence as a result of their social relationships or lack thereof. Drawing on the MIME, we might expect that these shooters' media diets consist of loyalty- and relatedness-focused content, and we might also expect that people who are insulated in media environments emphasizing only these motivations would be more likely to experience a motivational imbalance, ultimately being willing to justify violence in pursuit of protecting their social relationships. In the case of loyalty, mass shooters may believe that they are committing their attack to defend or strengthen the ingroup, or they may use their group membership as a method of communicating legitimacy for their actions in the name of their group's benefit. In the case of relatedness, mass shooters may be committing violence because they feel personally, singularly disconnected from a group which they would like to belong (e.g., peers, family, or intimate partners). Future research should attempt to examine these possibilities.

Perhaps unexpectedly, results showed that power-motivated mass shooters injured victims with their attacks at a rate only half that of shooters who were not driven by power. To some degree, this finding seems at odds with previous findings that mass shooters often seek to achieve fame with their violent attacks (Lankford & Madfis, 2018; Lankford & Silver, 2020). However, fame-seeking may represent one particular subdimension of the present study's power motivation. To the extent there are many types of power-seeking, it may be that the less severe mass shootings in our dataset were committed by perpetrators who sought power in other ways. For example, some workplaces shooters may have been seeking power over their bosses or coworkers, and some school shooters may have been seeking power over their teachers or fellow students. These individuals could have satisfied those urges by showing up at work or school with a gun and opening fire, even if they did not leave behind an especially large number of victims. Further research could attempt to examine the various subtypes of power-seeking, given that it was such a common motive expressed by the mass shooters in our sample.

Practical implications

Although no single study could illuminate all the antecedents leading to any mass shooting, nor could it resolve how to prevent mass shootings from occurring, the value of incremental advances to understandings in this area of research should not be understated. Indeed, the present study's ability to identify mass shooters' motivations according to a coherent theoretical framework suggests great utility for MIME-informed interventions designed to restore at-risk individuals' motivational balance.

Coupled with other early intervention strategies, identifying the motivations underlying at-risk individuals' grievances may provide a foundation for addressing those motivations before they use violence to address it themselves, for instance through targeted message campaigns. By understanding the motivations of mass shooters who have attacked in the past, the present work provides an initial step toward identifying the characteristics that may lead an individual to be particularly at-risk of committing violence themselves. Based on the results of the present study suggesting that the relationship-centered motivations of loyalty and relatedness are associated with greater attack severity, we might point to those factors as especially noteworthy when practitioners attempt to intervene in social media spaces where perpetrators communicate about their planned attacks.

Finally, the data and entire database of statements compiled for the present study are available upon request from the corresponding author. We hope this will facilitate future research, particularly from communication scholars who have a lot to offer in this area of research. This database, which we refer to as Statements of Mass Shooters in the U.S. (SoMS-US), should be useful for future researchers conducting work on the antecedents to and consequences of violent events. Per the MIME, future researchers could examine the extent to which patterns in news coverage preceding the publication of mass shooters' statements may be associated with the statements' language patterns or intensity. Researchers could also assess whether content from these publicly available perpetrator statements is predictive of future news coverage associated with attacks or of public opinion about the shooting on social media (e.g., Cheng & Shen, 2022; Zhang et al., 2019, 2023). In the future, communication scientists could also measure perpetrators'

communication of subjective norms, perceived behavioral control, and attitudes toward violence in their statements to more fully test TPB in this context.

Limitations

The present study has several limitations. First, the causes of mass shootings are undoubtedly complex. The MIME's coding scheme adopted by the present study provides a useful heuristic for categorizing U.S. mass shooters' stated motivations, however we recommend that, in future work, researchers attempt to classify mass shooter motivations from the present study according to a different theoretical scheme (e.g., Schwartz, 1994). This would ultimately help to corroborate the present study's findings and shed light on the comparative explanatory value (or not) of the MIME's scheme in this high-stakes context.²

Second, like the causes of mass shootings, the relationships between mass shootings, perpetrators' motives, and the media environments they reside in are extremely complex. Although the present study aimed to provide a foundation for future theoretically-driven communication research, it is a limitation of the present work that we did not examine the media-related antecedents or consequences of mass shooters' statements. In particular, it was beyond the scope of this study to code each shooter's statements and motivations for how much media coverage they received or how they may have affected audience members, including possible imitators or copycat shooters. It is possible that some were tremendously influential while others received minimal attention, but we lacked the data to measure that as part of this project. We hope our initial study compiling, classifying, and identifying the motivations associated with the most harmful mass shootings can bolster future researchers' endeavors in this socially exigent area. Another limitation to our study is that although most of the mass shooters' statements we analyzed were made pre-attack, some were made following their attacks. We could not find any research which shows the content or themes in mass shooters' pre-attack and post-attack communications differ significantly, but this could be examined more closely in future research.

Fourth, some of the statements we collected were obtained from the crowd-sourced website Murderpedia.org. Although we made sure to check the validity of each statement before including it in our sample (by cross-referencing it with mainstream news reports that often did not post the full statement but discussed the statement's content), it is possible that some statements we collected do not reflect the shooters' complete statements. To the degree it would be possible, future research should attempt to improve the sample's validity by verifying the database compiled for the present study has complete versions of all public statements.

Finally, it is possible that the human coders' ability to extract latent information from text in the present study was influenced by their moral foundation salience (Weber et al., 2018). Future researchers should focus on replicating the present study with larger teams of more diverse human coders to try to minimize potential coder bias (Artstein & Poesio, 2005).

Conclusion

We compiled a database of statements from mass shooters acting in the U.S., classified their stated motivations according to a multidimensional, theoretically meaningful

scheme of human motivations, and examined the extent to which the expression of any motivations or specific motivations was associated with mass shootings' severity. Alongside the practical implications of providing a foundation for intervention strategies focused on addressing at-risk individuals' needs before they escalate to violence, the present study's findings highlight the theoretical importance of adopting communication theory for investigating mass shooters' communications, specifically the MIME's multi-dimensional scheme of human motivations to categorize mass shooters' reasons for their attacks. With this in mind, the present work provides a foundation for future work leveraging the MIME's framework for applied, socially important contexts – particularly in the area of assessing the media-related antecedents to and consequences of mass public violence. Taken together, we hope our findings are useful to those attempting to further investigate the root causes of mass shootings in the U.S., as well as those working towards preventing such attacks.

Notes

1. We provide more details on this definition in our method section.
2. Such advancements would also help to more clearly parse out the theoretical utility of the MIME's processes and could help address legitimate concerns that the inclusion of such a wide array of altruistic and egoistic motivations from moral foundations theory, self-determination theory, and universal human values may make it unfalsifiable.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statement

Upon request to the corresponding author, the current study's data and entire database of statements are available to researchers interested in advancing knowledge in this area. In accordance with the suggestions of the "No Notoriety" campaign and Lankford and Madfis's (2018) proposal to deny offenders the attention they often seek, we refrain from using the names of any mass shooters in this paper or posting our database in a public repository.

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