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Investigating the Role of Morality in Lone-Actor Terrorist Motivations and Attack Severity

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ABSTRACT



Extending previous work suggesting that group-based extremist violence is morally-motivated, we investigated whether lone-actor terrorists are similarly morally-driven, and if so, whether their moral motivations may predict the severity of their attacks. Examining a database containing details of $n = 121$ lone-actor terrorist attacks, we applied a coding scheme derived from moral foundations theory to extract the main moral motivation driving each violent lone-actor, if any. Using the results of the content analysis, we then examined whether actors' moral motivations predicted the injuries and fatalities associated with their attacks. Findings suggested: (1) *ingroup loyalty*-motivated attacks were 2.42 times deadlier and *care*-motivated acts were 10.73 times more injurious compared to acts driven by other motivations, (2) lone-actors were most likely to be driven by binding motivations overall, and (3) lone-actors' moral motivations largely align with the moral motivation of extremist groups for which they have an affinity. We discuss the utility of moral foundations theory for describing, explaining, and predicting the moral motivations of violent actors.

KEYWORDS

Morality; lone-actor terrorism; terrorist motivations; attack severity

Since the September 11th, 2001 terrorist attacks in the United States (U.S.), there has been a preponderance of research attempting to shed light on the proximate and ultimate causes of terrorism.¹ Whereas investigations into terrorism's ultimate causes tend to focus on the macro-level factors that precede attacks, researchers investigating terrorism's proximate causes have focused on developing an understanding of the motivations underlying violent terrorist behavior.² Recent research has illustrated that terrorist groups' motivations for committing violence are fundamentally *moral* in nature, that is, violent ideological actors are driven to commit atrocities because they believe their actions are virtuous, or righting some wrong.³ Building on this existing work, which examines the collective motivations of violent groups, the present study attempts to identify the motivations driving lone-actor terrorists and classify them according to a comprehensive theoretical scheme of moral values. We then extend previous research to examine whether lone-actor terrorists' moral motivations may predict the severity of their attacks.

We begin by reviewing previous research on lone-actor terrorists, motivations for terrorism, and moral foundations theory (MFT) as a theoretical framework to organize our understanding of moral motivations.⁴ We then describe a study designed to examine (a) the moral motivations of lone-actor terrorists, and (b) the extent to which specific moral motivations may be predictive of the number of injuries and fatalities in lone-actor terrorist attacks. We focus specifically on lone-actor terrorists who have committed violence in the U.S. in the present study, as the availability of firearms in the U.S. compared to other countries potentially affords actors greater efficacy in carrying out violent attacks.⁵

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Lone-actor terrorism

The present work adopts the European Union's definition to conceptualize terrorism as:

Intentional acts that are committed with the aim of seriously intimidating a population, or unduly compelling a government or international organization to perform or abstain from performing any act, or seriously destabilizing or destroying the fundamental political, constitutional, economic or social structures of a country or an international organization.⁶

Due to their comparative attack severity⁷ and perceived prevalence,⁸ in recent years scholars have attempted to understand the proximal causes instigating terrorists who purportedly act *alone*. These actors often are referred to as “lone wolves” or “lone-actors.”⁹ In line with Spaaij, we define lone-actor terrorism as “terrorist attacks carried out by persons who (a) operate individually, (b) do not belong to an organized terrorist group or network, and (c) whose modus operandi are conceived and directed by the individual without any direct outside command or hierarchy.”¹⁰ Importantly, some scholars contend that the term *lone-actor* may be a misnomer, as lone-actors often still exhibit some degree of social ties to extremist groups or other like-minded individuals online or offline.¹¹

Yet scholars have demonstrated at least three distinguishing characteristics of lone-actor terrorists that suggest richer understandings of their motivations are of critical social exigence. First, recent work has demonstrated that lone-actor terror attacks result in almost one and a half times the number of casualties (defined as injuries plus fatalities) compared to attacks carried out by members of terrorist organizations.¹² Likewise, lone-actors tend to focus on civilian or “soft” targets, making their attacks more difficult to predict or defend against.¹³ Second, lone-actor terrorists are relatively prone to unintentional and intentional informational leakage. Whereas unintentional leakage is thought to occur because lone-actors are not typically trained in covert attack preparation or execution, intentional information leakage occurs because they want outsiders to know the reasons behind their attacks.¹⁴ More specifically, previous scholars have suggested that intentional leakage occurs because of lone-actors' desire for status, or a sense of belonging with like-minded others; and out of a concern that outsiders will erroneously conclude the violent act was committed by an irrational criminal, rather than a rational activist.¹⁵ For example, Horgan et al. found that lone-actor terrorists “were significantly more likely to verbalize intent to commit violence to friends/family/wider audiences, have others aware of their grievance, express a desire to hurt others, have others involved in procuring weaponry and have others aware of their attack planning.”¹⁶

Finally, lone actors are a socially exigent subgroup of terrorists because of their relative reliance on the Internet for both communication with like-minded others and attack-related learning and preparation. A recent systematic literature review by Kenyon et al. suggested that the Internet offers a “substitute network for lone-actors, redefining what constitutes a social community given the general absence of face-to-face contacts.”¹⁷ Indeed, several studies have found that lone actors rely on the Internet for its anonymity and to disseminate and acquire radicalized ideals.¹⁸ Hamm and Spaaij noted that, although in the past lone-actor radicalization typically occurred via the actors' contacts with extremist groups, in recent decades radicalization of lone actors typically occurred via more anonymous online social networks on the Internet.¹⁹ Beyond strengthening connection with like-minded others, Kenyon et al. also found that the Internet is an extremely effective—and highly utilized—outlet for lone-actors to prepare and learn attack strategies.²⁰ Indeed, the wealth of knowledge on the Internet is part of what enables lone actors to carry out their violent attacks independently without any former tactical training or knowledge.²¹

Taken together, these facts point to the need for researching the grievances that lone-actor terrorists report motivated their violent attacks. Whereas their comparatively greater rate of casualties and preference for soft targets suggests the social exigence of this investigation, their proneness to informational leakage and willingness to make their grievances public suggests that lone-actors' motivations may be more manifest compared to the motivations of terror organizations.²² Moreover, lone-actors' reliance on the internet suggests the potential efficacy of leveraging information about lone-actors' motivations to develop counter-terrorism strategies that could be targeted at

lone-actors online before they have a chance to act violently. We attempt to provide an initial foundation for the development of counter-messaging strategies by first identifying and classifying lone-actor terrorist motivations according to a theoretically meaningful scheme of moral values.

Research on motivations for violence

The motivations driving violent terrorist behavior are undoubtedly dynamic and complex. Given that most humans hold compassion-based psychological and sociological restraints against harming others, research investigating the motivations underlying extremists' violent behaviors often attempts to understand how terrorists can *subvert* these restraints to justify their heinous acts.²³ In particular, the cognitive mechanism underlying extremist violence often is conceptualized as a "motivational imbalance" wherein one need or goal (e.g., justice for my people) effectively suppresses other subordinate goals (e.g., living a compassionate life).²⁴

Kruglanski et al. characterized the motivational imbalance driving actors to commit violence as a *quest for personal significance*.²⁵ This specific type of motivational imbalance can be thought of as an overwhelming urge by an actor to restore their sense of worth no matter the cost. Quests for significance typically are instigated by some precipitating event that leads to an actor's loss of perceived personal worth, such as a perceived dishonor or threat from an outgroup.²⁶ That is, typically the actor feels that they or their ingroup have been wronged in some way, and, at least from the perspective of the violent actor, their response to this wrong is fundamentally *morally righteous* (e.g., to restore honor or destroy an outgroup threat).

Indeed, a growing body of research suggests that the superordinate motivation driving violent extremist behavior is often moral, at least from the perspective of the actor.²⁷ For example, some research suggests that humans can perpetrate violent acts as a result of selective moral disengagement, or justification of moral violations through the upholding of superordinate *moral* values.²⁸ Other work has demonstrated that perceived threat from an outgroup is a central mechanism capable of (a) cultivating attitudes and instigating behaviors that are prejudicial and hateful, and (b) inciting hate group activity.²⁹ In line with these explanatory mechanisms, and relevant to the present study, scholars have attempted to identify the superordinate moral motivations that drive violent actors' atrocities.³⁰ These explanations are rooted in moral foundations theory (MFT), which attempts to offer a comprehensive scheme of moral motivations that drive human social behavior.³¹ Before describing this work, we elaborate on MFT.

MFT as a taxonomy of moral motivations for terrorism

MFT contends that humans have adapted over time to evaluate "right" and "wrong" in at least five social domains.³² Thought to have evolved as a result of the adaptive social challenges humans faced throughout their evolution, MFT suggests that each domain is the result of a social motivation that benefitted humans in their evolutionary past.³³ For instance, the theory discusses how people who cared for others (non-kin and kin), valued equity, showed ingroup solidarity, respected benevolent authorities, and avoided social/biological contaminants were generally rewarded with healthier, thriving, longer-lasting communities than people who did not engage with these principles. As a result, considerations in at least these five domains have evolved into fully-functioning motivational systems over time, such that humans are thought to be driven toward and positively evaluate behaviors they view as upholding these five principles, and be driven away from and negatively evaluate behaviors that violate these principles.³⁴ Known as *intuitive motivations*, evaluative judgments in these five domains are thought to be innate, universal, and considered to underlie all human decisions of right and wrong.

The five intuitive motivations described by MFT include *care*, relating to concern and compassion for others; *fairness*, describing a drive for justice and reciprocity; *ingroup loyalty*, pertaining to solidarity with one's ingroup and against outgroups; *authority*, relating to respect for traditions and benevolent leaders; and *purity*, associated with a desire for nobility and an avoidance of social contamination. Through facilitating cooperation, intuitive motivations are thought to allow humans

to live socially with one another.³⁵ For instance, the fairness motivation is thought to underlie drives for equity and equality, ensuring that even humans who are less fortunate have access to deserved resources.

Due to similarities in *who* each of the intuitive motivations is thought to benefit (i.e., individuals or groups), two higher-order categories that subsume each individual motivation are often referred to as individualizing and binding motivations. The *individualizing motivations* of care and fairness are characterized by the benefit they provide to individuals.³⁶ *Binding motivations*, or loyalty, authority, and purity, are characterized by the benefit they provide to groups and institutions, as they are thought to “bind” individuals into roles and duties.³⁷

Although each intuitive motivation is thought to be innate and universal, certain environmental factors can lead individuals to place greater importance on some intuitive motivations more than others. The relatively greater weight some motivations might be given over others in human judgments is referred to as *salience*, which echoes Kruglanski et al.’s notion of a motivational imbalance.³⁸ Although environmental factors, such as exposure to media content, can instigate intuitive motivations’ temporary salience, other factors, such as political culture, can make intuitive motivations enduringly more salient.³⁹ For instance, previous work found that individualizing motivations are enduringly more salient in political liberals, whereas binding motivations are comparatively more salient in political conservatives.⁴⁰

Differences in motivation salience have been investigated as a major reason that political liberals and conservatives often “talk past each other” on important issues.⁴¹ For example, *care*-motivated liberals may advocate for a policy that would spend domestic funds to help people in an underserved country, whereas *loyalty*-motivated conservatives may rail against the policy because they desire to spend the money domestically (for the benefit of their ingroup) instead. Moral conviction to either side of the policy may leave people unwilling or unable to acknowledge the harm that is caused to the country that does not receive the funds.⁴² Building on knowledge that moral motivation salience can lead people to pursue perceived morally righteous ends regardless of the moral costs involved,⁴³ recent work extended MFT’s logic to consider the salient moral motivations driving terrorist groups’ violent behaviors.⁴⁴

Hahn et al.⁴⁵ extracted terrorist groups’ motivations identified by the Profiles of Perpetrators of Terrorism database⁴⁶ and content analyzed the extent to which these motivations could be classified into one of the moral domains identified by MFT. With the expectation that the motivational imbalance underlying terrorist behavior may place *care* concerns as subordinate to other extremely salient superordinate motivations, they attempted to identify the superordinate moral concern driving terrorist attacks.⁴⁷ Using a coding scheme capable of extracting moral motivations from text, Hahn et al. identified a moral motivation for 134 out of 143 terrorist organizations in the database, and found predictable patterns in groups’ moral motivations based on their prevailing political ideology.⁴⁸

In line with the motivations most salient among politically left- and right-wing non-extremists, Hahn et al. found that violent attacks of politically left-wing terrorist groups were most likely to be motivated by individualizing motivations (specifically *fairness*), whereas violent attacks of politically right-wing terrorists were most likely to be motivated by binding motivations (specifically *purity*).⁴⁹ For instance, the Ku Klux Klan (KKK), a group identified as right-wing by Miller and Smarick, advocates for the superiority of Whites (the KKK’s *ingroup*) over people of color (their *outgroup*) in pursuit of a racially “pure” society.⁵⁰ As bigotry is a fundamental outcome of in-group favoritism,⁵¹ and purity/cleanliness are fundamental characteristics of the purity motivation, Hahn et al.⁵² categorized the KKK as motivated by the intuitive motivations of both ingroup loyalty and purity. Importantly, this MFT-based scheme is not limited to identifying the motivation of terrorists who primarily identify according to their political ideology, as Hahn and colleagues also identified the main moral motivations underlying terrorist groups characterized with religious (*purity*; e.g., Al Qaeda), ethno-nationalist/separatist (*ingroup loyalty*; e.g., American Indian Movement), and single-issue ideologies (*care*; e.g., Animal Liberation Front).⁵³

This MFT-approach is useful for (a) understanding commonalities between terrorists who may seem distinct at first but who have similar motivations (e.g., American Indian Movement, a loyalty-motivated *anti*-racist group, and the KKK, a loyalty-motivated racist group), and (b) identifying the motivations of violent actors who are less easily categorized according to their prevailing political ideology. We adopt Hahn et al.'s approach to investigate the moral motivations driving lone-actor terrorists' violent acts.⁵⁴ Going beyond categorizations rooted solely in political or religious ideology, we examine the extent to which lone-actor terrorists are motivated by moral intuitive motivations. Hence, we ask:

RQ1: Are lone-actor terrorists more likely to be driven by specific motivations?

This MFT-based scheme should have utility for classifying motivations of lone-actor terrorists whose violent acts have clear political-leanings (e.g., the Charleston, SC, U.S. terrorist who killed nine Black church-goers in 2015 during a racially- and extremist right-wing-driven mass shooting spree) as well as those whose political leanings are less clear (e.g., the Los Angeles, CA, U.S. terrorist who killed four people in 2013 during an anti-police shooting spree). Based on the results of studies investigating the moral intuitive motivations most salient to non-extremists⁵⁵ and extremists,⁵⁶ we might also expect predictable patterns of moral motivations for lone-actor terrorists who have an affinity for extremist groups, even if they are not considered members themselves. Guided by Hahn et al.'s⁵⁷ findings, we expect:

H1: Lone-actors who have an affinity for extremist groups that are (a) right-wing, (b) religious, or (c) ethno-nationalist/separatist are more likely to be motivated by binding moral motivations.

H2: Lone-actors who have an affinity for extremist groups that are (a) left-wing or (b) single-issue are more likely to be motivated by individualizing moral motivations.

Beyond extending Hahn et al.'s work identifying the moral motivations of violent terrorists to a new population—lone-actor terrorists—we also attempt to examine whether differential patterns in terrorists' moral motivations may predict the severity of their attacks.⁵⁸ Recent work has demonstrated that the moralization of a cause is predictive of violent protest behavior in the real-world and endorsement of violent protest behavior in the lab.⁵⁹ These results are consistent with other scholars' contentions that *moral conviction*, or individuals' belief that a particular attitude is grounded in core beliefs about fundamental right and wrong, can lead to greater acceptance of and advocacy for violent solutions to conflict.⁶⁰

The greater moral conviction an actor has toward a cause might be expected to contribute to the effectiveness of their attacks, as conviction to a cause is known to elicit greater anger at situations that conflict with their moral point of view and may also prompt actors to engage in greater attack-related preparation.⁶¹ Although there may be a host of other factors that contribute to the severity of terrorists' attacks, such as an actor's choice of weapon or location, we might expect these factors to be influenced by an actor's moral motivation as well, leading moral motivations to directly or indirectly influence the severity of attacks. For instance, care-motivated actors may be more interested in making a political statement than actually harming victims, and thus may choose less-lethal weapons, which might ultimately reduce the severity of their attacks. On the other hand, loyalty-motivated actors may be more interested in harming as many members of the outgroup as possible, thus leading them to choose weapons and soft-target locations that could afford greater mass casualties. Thus, to the extent that moral motivations are associated with attack severity, the present work may offer a foundation for future research investigating how actors who are driven by specific moral mandates may be more likely to make certain attack-related decisions contributing to their severity. This line of reasoning builds on recent work that has started to examine how specific moral

motivations may be uniquely associated with extremely prejudicial attitudes and violent behavioral intentions.⁶²

Hoover et al. found that *binding motivation* salience plays a key role in predicting extreme prejudice and advocacy for violent prejudicial acts and advocacy for violent prejudicial acts.⁶³ In one study, they showed that binding moral salience at the county-level was predictive of local hate-group activity. In four lab studies, they also demonstrated that binding-moral motivations explained unique variance in the justification of extremely prejudicial acts such as shouting slurs and physical harm toward outgroups. To the extent that Hoover et al.'s findings are generalizable to violent actors, we might expect that lone-actors who are driven by binding motivations would commit more severe attacks compared to those who are driven by individualizing motivations. With this in mind, we aim to examine whether lone-actors' moral motivations might predict the severity of their terrorist attacks. Specifically, we ask:

RQ2: Do specific moral motivations predict more (a) injurious or (b) fatal lone-actor attacks?

Method

Sample

The present study investigated the motivations underlying acts of lone-actor terrorism recorded in the Lone-Actor Terrorism in America (LATA) database compiled by Hamm and Spaaij.⁶⁴ Beyond identifying known acts of lone-actor terrorism, this database offers details about each perpetrator and their attack(s) (e.g., weaponry, modus operandi, radicalization pathways, etc.). To our knowledge, LATA is the most comprehensive database available on lone-actor terrorism.⁶⁵ To be included in the database, events were required to be acts of “political violence perpetrated by individuals who act[ed] alone; who [did] not belong to an organized terrorist group or network; who act[ed] without the direct influence of a leader or hierarchy; and whose tactics and methods [were] conceived and directed by the individual without any direct outside command or direction” (3). The LATA provides details associated the acts of $n = 121$ separate lone-actor terrorists in the U.S. from 1940 through 2015. We adopted this dataset for inspection, specifically focusing on three of the LATA database's variables: (1) the number of injuries and fatalities associated with each act, (2) the name of extremist groups for which the lone-actor was known to have an affinity (if any), and (3) the primary grievance motivating each attack.

Variables of interest from LATA database

Fatalities & injuries

First, we were interested in examining the *number of injuries* ($M = 4.02$; $SD = 12.07$, $range = 0-117$) and *fatalities* ($M = 1.66$, $SD = 2.83$, $range = 0-18$) for each attack.

Affinity for extremist groups

Next, we examined the extremist groups for which the lone-actors had an affinity. “Affinity” was broadly defined as general support, such that an actor may have posted support for the group on social media or previously been a member. Of the 121 lone-actors in the database, $n = 66$ were listed as having an affinity for at least one extremist group (fifty-four had an affinity for one group, seven had an affinity for two groups, four had an affinity for three groups, and one had an affinity for four groups).

In order to answer **H1** and **H2**, which predicted an association between lone-actors' moral motivations and the ideology of extremist groups with which they were known to have an affinity, we attempted to categorize each associated extremist group listed in LATA according to its dominant

ideology. To do so, we first consulted the Profiles of Perpetrators of Terrorism in the US (PPT-US) database.⁶⁶ This database reports information on all terrorist groups who committed a violent attack in the U.S. between 1970–2016, including text descriptions of their founding philosophies and over one hundred variables describing the organizations. Also relevant to the present study, it categorizes each terrorist group (and known affiliates/splinters) according to its dominant ideology. Five ideologies were identified and defined in the database by Miller and Smarick, including groups that were: (1) *extremist right-wing*, a label characterizing groups that believe their “way of life” is either directly under attack or an attack is imminent (e.g., the KKK and the Aryan Nation); (2) *extremist left-wing*, characterizing groups aiming to bring major societal changes (e.g., The Black Panthers and Weather Underground); (3) *religious*, including organizations seeking to smite the enemies of their god (e.g., Al Qaeda and the Arm of the Lord), (4) *ethno-nationalist/separatist*, including groups seeking political autonomy based on their traditions (e.g., American Indian Movement and the Jewish Committee of Concern), and (5) *single-issue*, focused on groups committing violence in pursuit of singular goals and which cannot be categorized by other ideologies (e.g., Animal Liberation Front and Veterans United for Non-Religious Memorials).⁶⁷

Using the PPT-US ideology categorizations, we identified the ideology of $n = 70$ (of eighty-four) affiliated extremist groups in the LATA database. Because the PPT-US only includes extremist groups who have committed terrorist acts in the U.S., the ideologies of $n = 8$ groups in the LATA database were unable to be identified using the PPT-US. For these cases, we were able to identify an ideology for each group by searching the internet for the groups’ prevailing beliefs. Groups classified in this manner were: Citizens Council and Tea Party Patriots as *extremist right-wing*; United Prisoners Union as *extremist left-wing*; World Church of the Creator, Hezbollah, ISIS, al-Shabaab, and Hamas as *extremist religious* groups.

Notably, twelve lone-actors in the LATA database were listed as having an affinity with more than one extremist group. When an actor had an affinity for multiple groups, each individual group’s ideology was recorded. In most of these cases, the extremist groups for which one lone-actor had an affinity exhibited the same ideology. However, in three cases an actor (e.g., Lynnette Fromme) was associated with multiple groups of different ideologies (Symbionese Liberation Army and Weather Underground are both *extremist left-wing*, but the Aryan Brotherhood is *extremist right-wing*).

This process of identifying the ideologies of extremist groups for which lone-actors had an affinity revealed that, in the LATA database, $n = 30$ lone-actors had an affinity for *religious* extremist groups, $n = 22$ had an affinity for *extremist right-wing* groups, $n = 12$ had an affinity for *single-issue* ideology groups, $n = 4$ had an affinity for *extremist left-wing* groups, and $n = 3$ had an affinity for *ethno-nationalist/separatist* extremist groups.

Personal/political grievance

Finally, we were interested in the LATA variable describing the personal or political grievance that motivated each lone-actor’s attack. Although the grievances contributing to terrorists’ violent behaviors are undoubtedly complex and challenging to identify, LATA researchers attempted to broadly label the primary grievance motivating each attack. As lone-actor terrorists are known to often conflate personal vendettas they hold with religious and/or political grievances, this variable was developed to describe the primary grievance driving each attack, regardless of whether it was personal or political.⁶⁸ We applied the MFT-based coding scheme used by Hahn and colleagues to this variable to extract the main moral motivation characterizing each lone-actors’ primary grievance.⁶⁹

Coding protocol

We instructed coders to read the primary grievance for each lone-actor terrorist and identify whether their grievance indicated a motivation to uphold principles associated with one or more of the moral motivations. For example, care was coded if the primary grievance expressed by a lone-actor concerned saving an entity from harm (e.g., an anti-abortion terrorist attempted to save the lives of the

unborn by killing a doctor who provided abortions). Fairness was coded if the primary grievance related to equity or justice (e.g., a gay-rights activist attacked and wounded a security guard at the Family Research Council to protest their anti-gay lobbying efforts).

Ingroup loyalty was coded if the grievance expressed ingroup favoritism (e.g., white supremacy was the grievance underlying a 2015 mass shooting spree where a terrorist killed nine Black church-goers). Authority was coded if the grievance was directed at a perceived malevolent leader or government system, especially if they intended to use their attack to restore a leader that they believe to be benevolent (e.g., a terrorist who attacked Transportation Security officials in Los Angeles International Airport due to his belief in a conspiracy theory that claims global elites are plotting to form a socialist “one-world government”). Finally, purity was coded if the grievance concerned the upholding of religious doctrine or the need for cleanliness in a cultural, racial, or biological sense (e.g., a terrorist attempted to set off an explosive in a crowd of thousands of people to promote jihad). Coders were instructed to code as many moral motivations as were present for each actor.

Coding procedure

Coder training proceeded in three phases. During the first phase, three independent coders were trained over five weeks to recognize moral motivations across a variety of message content unrelated to the LATA database. Coders were part of a larger team that was trained on the MFT coding scheme. Each week, coders met to discuss moral motivations from the coding protocol, coded examples, discussed disagreements, and were instructed to code practice items unrelated to this dataset. At the end of the broader coder training phase, we proceeded to the second training phase where coders met three times to be trained on the LATA dataset. Here, coders were trained on motivation extraction from $n = 15$ practice grievance items from the LATA dataset.

Finally, when coders agreed on coding scheme as applied to the LATA database, we proceeded to the final training phase: the intercoder agreement check. Specifically, $n = 31$ (25.62 percent of the dataset) randomly selected grievances were coded by all three coders to assess intercoder agreement. We adopted Brennan and Prediger’s Kappa as our measure of intercoder agreement, and set the threshold for acceptable agreement at .70.⁷⁰ Intercoder reliability for all five moral motivations reached the .70 threshold: $K_{\text{care}} = 1.00$, $K_{\text{fairness}} = 0.74$, $K_{\text{loyalty}} = 0.96$, $K_{\text{authority}} = 0.79$, and $K_{\text{purity}} = 0.91$. The three coders then divided the remaining $n = 75$ items and each independently coded $n = 25$ to complete the coding procedure.

Results

Of the 121 lone-actor terrorist attacks in the LATA database, 102 (84.30 percent) actors were motivated by at least one moral motivation. Of these, eighty-two were driven by one moral motivation and twenty were motivated by two.

To answer RQ1, we conducted a one-way chi-square test to determine whether lone-actors were more likely to be motivated by individualizing or binding motivations. Of the 102 actors driven by a moral motivation, more lone-actor terrorists were driven by a binding motivation ($n = 78$, standardized residual = 2.17) than an individualizing motivation ($n = 44$), $\chi^2(1, N = 122) = 9.48$, $p = .002$. Next, we conducted a one-way chi-square test to determine whether lone-actors were more likely to be motivated by any specific motivations. Examining the standardized residuals illustrated that lone-actor terrorists were no more likely to be driven by any one moral motivation. However, our findings echoed those of Hahn et al. in finding that fairness ($n = 33$) and loyalty ($n = 32$) were the most frequently-appearing motivations.⁷¹ The care motivation was proportionally underrepresented in our data (standardized residual = -2.51), $\chi^2(1, N = 122) = 11.03$, $p = .03$.

H1 and **H2** predicted that lone-actors with a right-wing, religious, or separatist extremist group affinity would be motivated more often by binding motivations (**H1**), and lone-actors who have an

affinity with left-wing or single-issue extremist groups would be motivated more often by individualizing motivations (**H2**). To examine these predictions, we first conducted a 2 (lone-actor motivation: individualizing, binding) x 5 (affiliated group ideology: right-wing, left-wing, religious, separatist, single-issue) chi-square test on the $n = 66$ actors who were known to be motivated by at least one moral foundation and who had an affinity for at least one extremist group. Overall, results were statistically significant, $\chi^2(4, N = 78) = 19.51, p < .001, Cramer's V = .50$. In particular, lone-actors who had an affinity for right wing (adjusted standardized residual = 1.9), and religious (adj. std. res. = 2.1) groups were most likely to be motivated by binding motivations. However, lone-actors with an affinity for ethno-nationalist/separatist groups were no more likely to be motivated by individualizing or binding motivations (adj. std. res. = .6). Thus, **H1** is partially supported. Lone-actors affiliated with left-wing (adj. std. res. = 2.0) and single-issue (adj. std. res. = 3.5) extremist groups were most likely to be motivated by individualizing motivations, offering support for **H2**.

Next, to examine whether lone-actors who had an affinity for extremist groups were driven by specific moral motivations, we conducted a 5 (lone-actor motivation: care, fairness, loyalty, authority, purity) x 5 (affiliated group ideology: right-wing, left-wing, religious, separatist, single-issue) chi-square test, $\chi^2(16, N = 78) = 83.69, p < .001, Cramer's V = .52$. Echoing results of Hahn et al., this test revealed lone-actors who had an affinity for religious groups were most likely to be motivated by purity (adj. std. res. = 4.3), lone-actors with an affinity for left-wing groups were proportionally most likely to be motivated by fairness (adj. std. res. = 3.6), and those with an affinity for single-issue groups were most likely to be motivated by care (adj. std. res. = 6.1).⁷² Diverging from Hahn et al., lone-actors who had an affinity for right-wing groups were most likely to be motivated by loyalty (adj. std. res. = 5.2).⁷³

To answer RQ2, concerned with predicting injuries and fatalities, we conducted two negative binomial regressions with individual moral motivations dummy-coded and entered as independent variables. Injuries were entered as the dependent variable in the first model, and fatalities were entered as the dependent variable in the second model. Results of the first model revealed that, taken together, lone-actors' moral motivations predicted the number of injuries, likelihood ratio $\chi^2(5) = 62.64, p < .001$. In particular, motivations of care ($B = 2.37, SE = .40, p < .001, 95$ percent CI [1.59, 3.15]), fairness ($B = 1.61, SE = .30, p < .001, 95$ percent CI [1.02, 2.19]), loyalty ($B = .93, SE = .30, p = .002, 95$ percent CI [.35, 1.51]), and authority ($B = 1.57, SE = .32, p < .001, 95$ percent CI [.94, 2.20]) were all significant predictors of the number of injuries. Purity did not emerge as a significant predictor ($B = -.57, p = .095$). Specifically, the rate of injuries was 10.73 times greater for acts motivated by care, exp(B) 95 percent CI (4.92, 23.41); 4.99 times greater for acts motivated by fairness, exp(B) 95 percent CI (2.78, 8.93); 4.81 times greater for acts motivated by authority, exp(B) 95 percent CI (2.56, 9.06); and 2.53 times greater for acts motivated by ingroup loyalty, exp(B) 95 percent CI (1.42, 4.53), compared to acts that were not motivated by those moral values.

Results of the second model revealed that, overall, lone-actors' moral motivations also predicted the number of fatalities, likelihood ratio $\chi^2(5) = 14.00, p = .02$. Based on inspection of the regression coefficients, this effect appeared to be driven entirely by the ingroup loyalty motivation, which was the sole significant predictor of fatalities, ($B = .88, SE = .30, p = .003$,

Table 1. Number of attacks and average injuries and fatalities by moral motivation

Moral motivation	Number of attacks	Mean number of injuries	Mean number of fatalities
Care	14	9.14 (31.14)	.79 (1.12)
Fairness	33	5.58 (9.63)	1.42 (2.08)
Loyalty	32	4.25 (7.26)	2.88 (3.73)
Authority	26	4.77 (7.39)	1.77 (2.70)
Purity	21	1.67 (6.51)	1.29 (2.97)

Standard deviations appear in parentheses.

95 percent CI [.30, 1.47]). In particular, the rate of fatalities was 2.42 times greater for acts motivated by loyalty, $\exp(B)$ 95 percent CI (1.34, 4.36) compared to acts that were not motivated by loyalty. Table 1 reports the average number of injuries and fatalities for acts motivated by each moral motivation.⁷⁴

Discussion

We attempted to classify lone-actor terrorists' motivations according to MFT and examine the extent to which their moral motivations predicted the severity of their attacks. Overall, our analyses revealed three main findings: (1) lone-actor terrorists who were motivated by *ingroup loyalty* committed the deadliest attacks whereas *care*-motivated attackers were the most injurious, (2) lone-actors were most likely to be driven by binding motivations, and (3) lone-actors' moral motivations largely align with the moral motivation of extremist groups for which they have an affinity. We consider our findings in light of our theoretical logic, and discuss the practical implications and limitations of this study.

Moral motivations as a predictor of terrorist attack injuries & fatalities

Our results revealed distinct patterns in the extent to which attacks motivated by different moral values can predict attack severity. In particular, the finding suggesting that attacks motivated by ingroup loyalty are more than twice as deadly as non-loyalty motivated attacks may be the most striking. In line with extant work on moralization as a mechanism of violent behavior, this finding may suggest terrorists motivated by ingroup loyalty exhibit more moral conviction, leading them to kill more people as a way of sending a louder message to receivers.⁷⁵ This explanation is suggested by others who have demonstrated that adherence to binding motivations is a central mechanism underlying prejudice and hate group-activity.⁷⁶ Yet the fact that we found no evidence suggesting that fatalities were predicted by other binding motivations (authority and purity) may suggest that parsing out the roles of ingroup loyalty, authority, and purity separately is warranted for a more nuanced understanding of prejudicial, hateful, or violent behavior.⁷⁷

At the same time, we might also expect that motivations rooted in ingroup loyalty could be indicative that these attackers may have had stronger pre-existing ties with a network of like-minded individuals. To the extent this might be true, a strong network of like-minded individuals could potentially afford the violent actor a greater capacity for planning and carrying out very lethal attacks. However, even if these individuals had no *actual* pre-existing ties to like-minded networks, the fact that they were motivated by loyalty to their ingroup (e.g., racial, gender, etc.) indicates that they at least *perceive* themselves to be acting on behalf of a larger connected group.⁷⁸ In this case, the actual ties themselves may be less important compared to the actors' perceived duty to the ingroup with which they identify. The potential for either explanation to be true points to a fruitful area for future research in this area, as actors' ingroup loyalty ties, regardless of whether they are real or simply perceived, appear to be an important antecedent to the deadliest lone-actor terrorist attacks.

Additionally, our analyses revealed that attacks motivated by care, fairness, ingroup-loyalty, and authority were predictive of attacks' injuriousness. Perhaps the most surprising finding here is that care-motivated attacks had an injury rate more than ten times that of attacks driven by other moral motivations. In these cases, it appears terrorists may subvert their compassion-based restraints toward victims/targets (e.g., abortion doctors) in pursuit of compassion for something/someone superordinate (e.g., unborn fetuses).⁷⁹ Although the present study offers no indication why care-motivated attacks may be more injurious, the fact that most care-motivated terrorists in our data were anti-abortionists suggests a few possible explanations. First, it is possible that care-motivated perpetrators may be more likely to use IEDs, which are often more impersonal (i.e., less physically close, and hence "easier" to perform emotionally) and less precise than firearms, and accordingly may cause a higher proportion of injuries compared to fatalities.⁸⁰ Alternatively, we might speculate that care-motivated terrorists may deliberately seek to minimize the number of fatalities relative to injuries as a way to

scare, rather than necessarily kill, targets. Future work in this area should attempt to investigate the plausibility of these explanations.

Classifying terrorist motivations according to MFT

Our findings suggest that using MFT to understand terrorist motivations may have great theoretical utility. Importantly, our findings indicate that (1) lone-actor terrorists were most often driven by binding motivations and (2) that their motivations largely align with the moral motivation of extremist groups for which they have an affinity largely replicated findings by Hahn et al.⁸¹ This replication suggests that, at least on a motivation level, lone-actors may not be so distinct from group-based terrorists.⁸² Importantly, the fact that these findings have replicated across two different populations of terrorist motivations in two different databases (that were compiled by separate teams of researchers) offers critical nuance to extant understandings of terrorist motivations.

Beyond offering additional support for the idea that extremist violence is morally motivated, the current approach details particular moral values as key to understanding the appeal of violence.⁸³ Taken together, the stability of aggregate patterns in moral motivations of terrorists across separate studies, and the fact that groups identified as having specific moral motivations in Hahn et al.'s⁸⁴ work can predict the moral motivations of lone-actors who have an affinity for those groups in the present study, offers evidence of the MFT-coding instrument's predictive and concurrent validity for measuring extremists' motivations across different contexts (e.g., group-based versus lone-actor terrorism).⁸⁵

Considering other theories of morality for classifying terrorist motivations

Although the present study provides initial evidence in support of MFT's utility for describing, explaining, and predicting the moral motivations of violent actors, the theory is not without criticism. Some researchers have attempted to address critiques that MFT's domains are not comprehensive through theoretical and measurement updates (e.g., via the inclusion of a possible sixth foundation, liberty, Graham et al.; and acknowledging multiple dimensions of the fairness domain; Atari et al.).⁸⁶ Despite these updates, some scholars argue that MFT's scheme is far from complete, and other frameworks of morality may be superior.⁸⁷ As a result, future researchers may wish to adopt alternative frameworks of morality to provide further understandings of lone-actor terrorists' motivations, as well as the extent to which these motivations may be associated with greater violent outcomes.

For example, the morality as cooperation (MAC) framework suggests a set of moral domains beyond what MFT offers (e.g., including heroism, property protection), but it lacks a domain dedicated to non-kin altruism, which, notably, was prevalent in the present study for anti-abortion terrorists who harmed abortion doctors because they wished to "save unborn babies."⁸⁸ Still, future scholars may wish to extend the current work by categorizing lone-actor motivations according to MAC's domains and compare their findings to the explanation offered here via MFT. Demonstrating support for the moral motivational imbalance processes we describe and test here with a different scheme of moral values would further strengthen confidence in the key role that actors' moral perceptions may play in prompting violent action.⁸⁹ Ultimately, any work that can specify a useful classification scheme for terrorist motivations should have great utility for scholars and practitioners alike. This type of work comparing and contrasting the utility of different moral theories in a context as socially exigent as terrorism would also serve to address growing debates in moral psychology regarding which framework does a better job of describing, predicting, explaining, and controlling humans' moral judgments and behaviors.⁹⁰

Practical implications

Although the proximate and ultimate causes of any terrorist act are dynamic and complex, the first step to successfully intervening in a process is being able to accurately describe that process and distinguish it from other, similar processes. Our approach attempts to help in these description and distinction endeavors. First, importantly, not all terrorists have clear political or religious leanings, making political ideology or religiosity less than ideal descriptors of terrorists' motivations. Indeed, lone-actors are characterized by their conflation of personal and political grievances.⁹¹ In the present data, we could estimate actors' political ideology only when actors were known to have an affinity for a political group ($n = 66$ out of 121 lone-actors). Second, focusing on moral motivations can illuminate commonalities between terrorists that may initially appear dissimilar. Defining terrorists at the motivation level should help stakeholders focus on the *reasons* terrorists are resorting to violence in the first place. This information could potentially aid in stakeholders' ability to address the needs of violent actors before they resort to violence. Ultimately, identifying motivational similarities is critical for those working in counter-terrorism (e.g., developing counter-narratives), as a strategy that successfully curbs violence for one loyalty-motivated terrorist (e.g., the American Indian Movement) may help to curb another (e.g., the 2015 Charleston, SC, U.S. mass shooter).

To the extent that this scheme is useful for describing and distinguishing violent actors, we might look to research investigating moralization and moral conviction for counter-message strategies. For instance, decreasing actors' moral conviction broadly, or binding motivation salience specifically, may serve as an indirect pathway to weakening radical beliefs or deterring violent actions. If true, counter-terrorism approaches might seek to de-moralize issues associated with extremists' grievances, perhaps through introducing intervening messages in extremists' online environments.⁹² Although this approach has the potential to be efficacious given lone-actors' known reliance on the internet, future research is warranted to examine the utility of de-moralizing messages in applications that are so high-stakes.

Limitations

The present study has three main limitations. First, the dataset we adopted for inspection in the present study used a narrow definition of lone-actor terrorism, such that actors had to have performed the act without anyone's (direct) collaboration on the attack or its preparation, which ultimately meant that some terrorists, who others may consider lone-actors, were excluded from the present inspection. Although this fact alone may suggest that the generalizability of the present findings is limited to narrowly-defined lone-actor terrorists, we would note that the findings here largely replicated those of Hahn et al., who applied the same coding scheme to terrorist *groups*.⁹³

Second, the root causes of terrorism are undoubtedly complex. Although we attempt to offer an accessible method for categorizing one proximate cause of terrorism, the difficulty of fully identifying the complex driving factors leading to terrorist behavior should not be understated.⁹⁴ In particular, classifying the moral motivation of each actor in our dataset based on their primary grievance outlined in observational data may mean that we missed important nuance associated with the underlying drivers for their violent behavior.

The third limitation concerns that the present study did not take into account the incidental factors that could have contributed to whether a victim was injured versus killed (e.g., weapon choice, victims' health or age, etc.). That said, we might expect that these incidental factors would appear in the injury and fatality data as random error associated with each attack, and thus would be expected to attenuate the relationship we observed in response to RQ2. That we found a relationship between moral motivations and injuries and fatalities despite this random error speaks to the strength of the underlying relationship. Nevertheless, future work should attempt to account for these factors as much as possible when investigating the role of individuals' moral convictions in predicting attack severity.

Conclusion

Investigating a database of lone-actor terrorist motivations, we attempted to examine whether lone-actors' core grievances motivating their attacks were moral in nature, and if so, whether their moral motivations could predict the severity of their attacks. Our results suggested that (1) lone-actor terrorists who are motivated by *ingroup loyalty* committed the deadliest attacks whereas *care*-motivated attackers were the most injurious, (2) lone-actors were most likely to be driven by binding motivations, and (3) lone-actors' moral motivations largely aligned with the moral motivation of the extremist groups for which they had an affinity. Altogether, our findings suggest the superordinate moral motivations most capable of weakening humans' internal restraints against harm may be ingroup loyalty and care, although future research is warranted.⁹⁵ With this in mind, we hope our findings are useful for those wishing to further describe and distinguish the proximate causes of terrorism, as well as for those vested in developing interventions centered on curbing terrorists' violent attacks.

Disclosure statement

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

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Notes

1. A. W. Kruglanski, J. R. Fernandez, A. R. Factor, and E. Szumowska, "Cognitive Mechanisms in Violent Extremism," *Cognition* 188 (2019): 116–23, <https://doi.org/10.1016/j.cognition.2018.11.008>; A. W. Kruglanski, C. Kopetz, and E. Szumowska, eds., *The Psychology of Extremism: A Motivational Perspective*, 1st ed. (New York, NY: Routledge, 2021).
2. A. P. Fiske and T. S. Rai, *Virtuous Violence: Hurting and Killing to Create, Sustain, End, and Honor Social Relationships*, (New York, NY: Cambridge University Press, 2015); L. Hahn et al., "Applying Moral Foundations Theory to Identify Terrorist Group Motivations," *Political Psychology* 40, no. 3 (2019): 507–22, <https://doi.org/10.1111/pops.12525>; L. Hahn et al., "Why We Fight: Investigating the Moral Appeals in Terrorist Propaganda, Their

- Predictors, and Their Association with Attack Severity,” *Journal of Communication*, advance online publication, <https://doi.org/10.1093/joc/jqad029>.
3. A. P. Fiske and T. S. Rai, *Virtuous Violence: Hurting and Killing to Create, Sustain, End, and Honor Social Relationships* (Cambridge University Press, 2015), xxvi, 357; Hahn et al., “Applying Moral Foundations Theory”
 4. J. Haidt and C. Joseph, “The Moral Mind: How Five Sets of Innate Intuitions Guide the Development of Many Culture-Specific Virtues, and Perhaps Even Modules,” *The Innate Mind* 3 (2007): 367–91.
 5. J. V. Carson, R. Dierenfeldt, and D. Fisher, “Country-Level Firearm Availability and Terrorism: A New Approach to Examining the Gun-Crime Relationship,” *Journal of Research in Crime and Delinquency* (2021): 002242782110462, <https://doi.org/10.1177/00224278211046255>.
 6. *Council Framework Decision of 13 June 2002 on Combating Terrorism*, 3 (Testimony of Council of the European Union, 2002), <https://eur-lex.europa.eu/legal-content/en/ALL/?uri=celex%3A32002F0475>; R. Spaaij, “The Enigma of Lone Wolf Terrorism: An Assessment,” *Studies in Conflict & Terrorism* 33, no. 9 (2010): 854–70, <https://doi.org/10.1080/1057610X.2010.501426>.
 7. N. D. Turner, S. M. Chermak, and J. D. Freilich, “An Empirical Examination on the Severity of Lone-Actor Terrorist Attacks,” *Crime & Delinquency* 69, no. 5 (2023): 915–942 00111287211022609, <https://doi.org/10.1177/00111287211022609>.
 8. A. Altay, M. Baykal-Gürsoy, and P. Hemmer, “Behavior Associations in Lone-Actor Terrorists,” *Terrorism and Political Violence* 34, no. 7 (2022): 1386–1414, <https://doi.org/10.1080/09546553.2020.1787384>; M. S. Hamm and R. Spaaij, *The Age of Lone Wolf Terrorism* (New York, NY: Columbia University Press, 2017).
 9. P. Gill, J. Horgan, and P. Deckert, “Bombing Alone: Tracing the Motivations and Antecedent Behaviors of Lone-Actor Terrorists,” *Journal of Forensic Sciences* 59, no. 2 (2014): 425–35, <https://doi.org/10.1111/1556-4029.12312>; J. Kenyon, C. Baker-Beall, and J. Binder, “Lone-Actor Terrorism—A Systematic Literature Review,” *Studies in Conflict & Terrorism* 46, no. 10 (2023): 2038–2065, <https://doi.org/10.1080/1057610X.2021.1892635>; C. McCauley and S. Moskalenko, “Toward a Profile of Lone Wolf Terrorists: What Moves an Individual From Radical Opinion to Radical Action,” *Terrorism and Political Violence* 26, no. 1 (2014): 69–85, <https://doi.org/10.1080/09546553.2014.849916>; Spaaij, “The Enigma of Lone Wolf Terrorism.”
 10. Spaaij, “The Enigma of Lone Wolf Terrorism.”
 11. D. C. Hofmann, “How ‘Alone’ are Lone-Actors? Exploring the Ideological, Signaling, and Support Networks of Lone-Actor Terrorists,” *Studies in Conflict & Terrorism* 43, no. 7 (2020): 657–78, <https://doi.org/10.1080/1057610X.2018.1493833>; B. Schuurman, L. Lindeskilde, S. Malthaner, F. O’Connor, P. Gill, and N. Bouhana, “End of the Lone Wolf: The Typology that Should Not Have Been,” *Studies in Conflict & Terrorism* 42, no. 8 (2019): 771–78, <https://doi.org/10.1080/1057610X.2017.1419554>; J.-L. Striegheer, “Early Detection of the Lone Wolf: Advancement of Counter-Terrorism Investigations with an Absence or Abundance of Information and Intelligence,” *Journal of Policing, Intelligence and Counter Terrorism* 8, no. 1 (2013): 35–53, <https://doi.org/10.1080/18335330.2013.789596>; Turner et al., “An Empirical Examination on the Severity”; G. Weimann, “Lone Wolves in Cyberspace,” *Contemporary Voices: St Andrews Journal of International Relations* 3, no. 2 (2012): Article 2, <https://doi.org/10.15664/jtr.405>.
 12. Turner et al., “An Empirical Examination on the Severity”; Notably, this finding is contradicted by R. Spaaij, *Understanding Lone Wolf Terrorism* (New York, NY: Springer, 2012), who found that lone-actor terror attacks result in comparatively fewer casualties compared to attacks committed by terrorist organizations.
 13. E. Bakker and B. de Graaf, “Preventing Lone Wolf Terrorism: Some CT Approaches Addressed,” *Perspectives on Terrorism* 5, no. 5/6 (2011): 43–50; Kenyon et al., “Lone-Actor Terrorism—A Systematic Literature Review.”
 14. N. Bouhana, E. Corner, P. Gill, and B. Schuurman, “Background and Preparatory Behaviours of Right-Wing Extremist Lone Actors: A Comparative Study,” *Perspectives on Terrorism* 12, no. 6 (2018): 150–63; Gill et al., “Bombing Alone”; P. Gill, E. Corner, A. McKee, P. Hitchen, and P. Betley, “What Do Closed Source Data Tell Us About Lone Actor Terrorist Behavior? A Research Note,” *Terrorism and Political Violence* 34, no. 1 (2022): 113–30, <https://doi.org/10.1080/09546553.2019.1668781>; P. Gill and E. Corner, “Lone-Actor Terrorist Target Choice,” *Behavioral Sciences & The Law* 34, no. 5 (2016): 693–705, <https://doi.org/10.1002/bsl.2268>; Hamm and Spaaij, *The Age of Lone Wolf Terrorism*; Kenyon et al., “Lone-Actor Terrorism—A Systematic Literature Review.”
 15. Gill and Corner, “Lone-Actor Terrorist Target Choice”; Kenyon et al., “Lone-Actor Terrorism—A Systematic Literature Review.”
 16. J. Horgan, P. Gill, N. Bouhana, J. Silver, and E. Corner, “Across the Universe? A Comparative Analysis of Violent Radicalization Across Three Offender Types with Implications for Criminal Justice Training and Education,” *The Office of Justice Programs: NCJRS* (2016): 1–121.
 17. Kenyon et al., “Lone-Actor Terrorism—A Systematic Literature Review.”
 18. Gill et al., “Bombing Alone”; Hamm and Spaaij, *The Age of Lone Wolf Terrorism*; Kenyon et al., “Lone-Actor Terrorism—A Systematic Literature Review”; Weimann, “Lone Wolves in Cyberspace.”
 19. Hamm and Spaaij, *The Age of Lone Wolf Terrorism*.
 20. See note 16 above

21. Gill et al., “Bombing Alone”; Hofmann, “How ‘Alone’ are Lone-Actors?”; Kenyon et al., “Lone-Actor Terrorism—A Systematic Literature Review”; Schuurman et al., “End of the Lone Wolf”; Striegler, “Early Detection of the Lone Wolf”; Weimann, “Lone Wolves in Cyberspace.”
22. Gill et al., “What Do Closed Source Data Tell Us About Lone Actor Terrorist Behavior?”
23. A. Bandura, “Mechanisms of Moral Disengagement,” in *Origins of Terrorism: Psychologies, Ideologies, Theologies, States of Mind*, edited by W. Reich (Cambridge University Press, 1990), 161–91; A. Bandura, “Moral Disengagement in the Perpetration of Inhumanities,” *Personality and Social Psychology Review* 3, no. 3 (1999): 193–209, https://doi.org/10.1207/s15327957pspr0303_3; A. W. Kruglanski et al., “On the Psychology of Extremism: How Motivational Imbalance Breeds Intemperance,” *Psychological Review* 128, no. 2 (March 2021): 264–89, <https://doi.org/10.1037/rev0000260>; R. Collins, *Violence: A Micro-Sociological Theory* (Princeton, NJ: Princeton University Press, 2008), xiii, 563, <https://doi.org/10.1515/9781400831753>.
24. A. W. Kruglanski et al., “On the Psychology of Extremism: How Motivational Imbalance Breeds Intemperance,” *Psychological Review* 128, no. 2 (March 2021): 264–89, <https://doi.org/10.1037/rev0000260>.
25. A. Kruglanski, K. Jasko, D. Webber, M. Chernikova, and E. Molinario, “The Making of Violent Extremists,” *Review of General Psychology* 22, no. 1 (2018): 107–20.
26. A. W. Kruglanski, M. J. Gelfand, J. J. Bélanger, A. Sheveland, M. Hetiarachchi, and R. Gunaratna, “The Psychology of Radicalization and Deradicalization: How Significance Quest Impacts Violent Extremism: Processes of Radicalization and Deradicalization,” *Political Psychology* 35 (2014): 69–93, <https://doi.org/10.1111/pops.12163>.
27. L. E. Berntzen and S. Sandberg, “The Collective Nature of Lone Wolf Terrorism: Anders Behring Breivik and the Anti-Islamic Social Movement,” *Terrorism and Political Violence* 26, no. 5 (2014): 759–79, <https://doi.org/10.1080/09546553.2013.767245>; R. Durrant, “Evolutionary Theory and the Classification of Crime,” *Aggression and Violent Behavior* 59 (2021): 101449, <https://doi.org/10.1016/j.avb.2020.101449>; A. W. Kruglanski, X. Chen, M. Dechesne, S. Fishman, and E. Orehek, “Fully Committed: Suicide Bombers’ Motivation and the Quest for Personal Significance: Significance Quest and Suicide Terrorism,” *Political Psychology* 30, no. 3 (2009): 331–57, <https://doi.org/10.1111/j.1467-9221.2009.00698.x>; McCauley and Moskaleiko, “Toward a Profile of Lone Wolf Terrorists”; R. A. Pape, *Dying to Win: The Strategic Logic of Suicide Terrorism* (New York, NY: Crown Publishing Group/Random House, 2005), viii, 335.
28. Bandura, “Mechanisms of Moral Disengagement”; Bandura, “Moral Disengagement in the Perpetration of Inhumanities”; A. Bandura, “The Role of Selective Moral Disengagement in Terrorism and Counterterrorism,” in *Understanding Terrorism: Psychosocial Roots, Consequences, and Interventions* (Washington DC: American Psychological Association, 2004), 121–50, <https://doi.org/10.1037/10621-006>; Fiske and Rai, *Virtuous Violence*; R. Frazer, “Marketing Against Extremism: Identifying and Responding to Moral Disengagement Cues in Islamic State Terrorist Propaganda,” *Journal of Public Policy & Marketing* 42, no. 1 (2023): 36–55, <https://doi.org/10.1177/07439156221096394>.
29. J. Hoover, M. Atari, A. Mostafazadeh Davani, B. Kennedy, G. Portillo-Wightman, L. Yeh, and M. Dehghani, “Investigating the Role of Group-Based Morality in Extreme Behavioral Expressions of Prejudice,” *Nature Communications* 12, no. 1 (2021): 4585, <https://doi.org/10.1038/s41467-021-24786-2>; M. Mooijman, J. Hoover, Y. Lin, H. Ji, and M. Dehghani, “Moralization in Social Networks and the Emergence of Violence during Protests,” *Nature Human Behaviour* 2, no. 6 (2018): 389–96, <https://doi.org/10.1038/s41562-018-0353-0>.
30. Hahn et al., “Applying Moral Foundations Theory”; Hoover et al., “Investigating the Role of Group-Based Morality.”
31. See note 4 above.
32. Ibid.
33. Ibid.
34. “The New Synthesis in Moral Psychology | Science,” https://www.science.org/doi/full/10.1126/science.1137651?casa_token=cEKR9oIXEgcAAAAA:x1UD88WWU6KUUbPhaz-CHiYsqmsIHHxD6CLNl5ORfMCjBnV86Oq8IqBBgkDHohCMsSpS4MsSONohSA (accessed November 8, 2023); Jesse Graham et al., “Moral Foundations Theory: On the Advantages of Moral Pluralism over Moral Monism,” in *Atlas of Moral Psychology* (New York, NY: The Guilford Press, 2018), 211–22; Jonathan Haidt and Craig Joseph, “Intuitive Ethics: How Innately Prepared Intuitions Generate Culturally Variable Virtues,” *Daedalus* 133, no. 4 (September 2004): 55–66, <https://doi.org/10.1162/0011526042365555>.
35. Ibid.
36. J. Graham, J. Haidt, and B. A. Nosek, “Liberals and Conservatives Rely on Different Sets of Moral Foundations,” *Journal of Personality and Social Psychology* 96, no. 5 (2009): 1029–46, <https://doi.org/10.1037/a0015141>.
37. Ibid.
38. See note 23 above.
39. R. Tamborini, *Media and the Moral Mind*, 1st ed. (Routledge, 2012). <https://doi.org/10.4324/9780203127070>.
40. See note 33 above.

41. M. Feinberg and R. Willer, "Moral Reframing: A Technique for Effective and Persuasive Communication Across Political Divides," *Social and Personality Psychology Compass* 13, no. 12 (2019): e12501, <https://doi.org/10.1111/spc3.12501>.
42. L. J. Skitka and G. S. Morgan, "The Social and Political Implications of Moral Conviction: Moral Conviction," *Political Psychology* 35 (2014): 95–110, <https://doi.org/10.1111/pops.12166>.
43. Kruglanski et al., "Fully Committed"; Kruglanski, *The Psychology of Extremism*; L. J. Skitka, B. E. Hanson, G. S. Morgan, and D. C. Wisneski, "The Psychology of Moral Conviction," *Annual Review of Psychology* 72, no. 1 (2021): 347–66, <https://doi.org/10.1146/annurev-psych-063020-030612>; Skitka and Morgan, "The Social and Political Implications of Moral Conviction."
44. Hahn et al., "Applying Moral Foundations Theory."
45. Ibid.
46. E. Miller and K. Smarick, *Profiles of Perpetrators of Terrorism in the United States (PPT-US)*, V6 (2012), <https://www.start.umd.edu/data-tools/profiles-perpetrators-terrorism-united-states-ppt-us>.
47. See note 23 above.
48. See note 41 above.
49. Ibid.
50. See note 43 above.
51. See note 4 above.
52. See note 41 above.
53. See note 43 above.
54. See note 41 above.
55. See note 33 above.
56. See note 41 above.
57. Ibid.
58. Ibid.
59. Mooijman et al., "Moralization in Social Networks and the Emergence of Violence during Protests."
60. Skitka et al., "The Psychology of Moral Conviction"; L. J. Skitka and G. S. Morgan, "The Double-Edged Sword of a Moral State of Mind," in *Personality, Identity, and Character: Explorations in Moral Psychology* (Cambridge University Press, 2009), 355–74, <https://doi.org/10.1017/CBO9780511627125.017>; Skitka and Morgan, "The Social and Political Implications of Moral Conviction."
61. E. Mullen and L. J. Skitka, "Exploring the Psychological Underpinnings of the Moral Mandate Effect: Motivated Reasoning, Group Differentiation, or Anger?" *Journal of Personality and Social Psychology* 90, no. 4 (2006): 629–43, <https://doi.org/10.1037/0022-3514.90.4.629>.
62. Hoover et al., "Investigating the Role of Group-Based Morality."
63. Ibid.
64. See note 18 above.
65. Ibid.
66. See note 43 above.
67. Ibid.
68. Hamm and Spaaij, *The Age of Lone Wolf Terrorism*; Spaaij, *Understanding Lone Wolf Terrorism*.
69. See note 41 above.
70. R. L. Brennan and D. J. Prediger, "Coefficient Kappa: Some Uses, Misuses, and Alternatives," *Educational and Psychological Measurement* 41, no. 3 (1981): 687–99, <https://doi.org/10.1177/001316448104100307>.
71. See note 41 above.
72. Ibid.
73. Ibid.
74. At the request of an anonymous reviewer, we also conducted an exploratory chi square test to examine the proportion of attackers driven by a moral motivation (or no moral) according to the year of their last attack. This analysis failed to reach statistical significance, suggesting that the distribution of moral motivations by year is proportional (i.e., moral motivations are not becoming proportionally more or less prevalent over time), $\chi^2(175) = 177.72, p = .43$. A figure associated with this analysis that details the distribution of moral motivations by attacker over time can be viewed here: <https://doi.org/10.17605/OSF.IO/86V4D>.
75. Mooijman et al., "Moralization in Social Networks and the Emergence of Violence During Protests"; Skitka et al., "The Psychology of Moral Conviction"; Skitka and Morgan, "The Double-Edged Sword of a Moral State of Mind"; Skitka and Morgan, "The Social and Political Implications of Moral Conviction."
76. See note 59 above.
77. Z. Berry, N. A. Lewis, and W. J. Sowden, "The Double-Edged Sword of Loyalty," *Current Directions in Psychological Science* 30, no. 4 (2021): 321–26, <https://doi.org/10.1177/09637214211010759>.
78. Spaaij, *Understanding Lone Wolf Terrorism*.

79. Bandura, “Mechanisms of Moral Disengagement”; Bandura, “Moral Disengagement in the Perpetration of Inhumanities”; Collins, *Violence*.
80. Collins, *Violence*.
81. See note 41 above.
82. Hofmann, “How ‘Alone’ are Lone-Actors?”; Schuurman et al., “End of the Lone Wolf”; Striegler, “Early Detection of the Lone Wolf”; Turner et al., “An Empirical Examination on the Severity”; Weimann, “Lone Wolves in Cyberspace.”
83. Bandura, “Moral Disengagement in the Perpetration of Inhumanities”; Fiske and Rai, *Virtuous Violence*; Kruglanski et al., “Cognitive Mechanisms in Violent Extremism.”
84. See note 41 above.
85. R. Weber, J. M. Mangus, R. Huskey, F. R. Hopp, O. Amir, R. Swanson, A. Gordon, P. Khooshabeh, L. Hahn, and R. Tamborini, “Extracting Latent Moral Information from Text Narratives: Relevance, Challenges, and Solutions,” *Communication Methods and Measures* 12, no. 2–3 (2018): 119–39, <https://doi.org/10.1080/19312458.2018.1447656>.
86. Graham et al., “Liberals and Conservatives Rely on Different”; M. Atari, J. Haidt, J. Graham, S. Koleva, S. T. Stevens, and M. Dehghani, *Morality Beyond the WEIRD: How the Nomological Network of Morality Varies Across Cultures* (in press), <https://doi.org/10.31234/osf.io/q6c9r>.
87. O. S. Curry, “Morality as Cooperation: A Problem-Centred Approach,” in *The Evolution of Morality*, ed. T. K. Shackelford and R. D. Hansen (New York, NY: Springer International Publishing, 2016), 27–51, https://doi.org/10.1007/978-3-319-19671-8_2.
88. Ibid.
89. Bandura, “Moral Disengagement in the Perpetration of Inhumanities”; Hahn et al., “Why We Fight”; Kruglanski, *The Psychology of Extremism*.
90. O. S. Curry, M. Jones Chesters, and C. J. Van Lissa, “Mapping Morality with a Compass: Testing the Theory of ‘Morality-as-Cooperation’ with a New Questionnaire,” *Journal of Research in Personality* 78 (2019): 106–24, <https://doi.org/10.1016/j.jrp.2018.10.008>; C. Schein, and K. Gray, “The Theory of Dyadic Morality: Reinventing Moral Judgment by Redefining Harm,” *Personality and Social Psychology Review* 22, no. 1 (2018): 32–70, <https://doi.org/10.1177/1088868317698288>.
91. Hamm and Spaaij, *The Age of Lone Wolf Terrorism*; Spaaij, “The Enigma of Lone Wolf Terrorism”; J. Stern, *Terror in the Name of God: Why Religious Militants Kill* (Harper Collins, 2003).
92. R. I. Kodapanakkal, M. J. Brandt, C. Kogler, and I. van Beest, “Moral Frames are Persuasive and Moralize Attitudes; Nonmoral Frames are Persuasive and De-Moralize Attitudes,” *Psychological Science* 33, no. 3 (2022): 433–49, <https://doi.org/10.1177/09567976211040803>.
93. See note 41 above.
94. Stern, *Terror in the Name of God*.
95. See note 23 above.