






## The Impact of Terrorist Attack News on Moral Intuitions

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### ABSTRACT

Previous research demonstrated that exposure to news of the 2015 terrorist attacks in Paris, France increased the salience of moral intuitions associated with respect for authority and purity in a sample of U.S. participants. The present study attempted to replicate this finding with news of domestic terrorism by examining the effect of exposure to news of the 2017 Las Vegas, Nevada music festival shooting. Approximately three weeks before the Las Vegas shooting occurred, participants ( $N = 195$ ) drawn from a population similar to the original study completed a survey measuring their moral intuition salience. Four days after the event, participants ( $N = 162$ ) read either news coverage of the shooting or a control story and once again completed a survey measuring their moral intuition salience. Our results replicated previous findings from research on the Paris terrorist attacks. Exposure to news of the Las Vegas terrorist attack increased the salience of respect for authority and purity. We discuss how our findings are in line with logic suggesting that news of a terrorist attacks can threaten audiences' perceptions of societal safety, strengthen the need for societal cohesion, and increase the salience of binding moral intuitions.

### KEYWORDS

Terrorism; terrorist attack; morality; moral judgment; news media; model of intuitive morality and exemplars

Terrorist attacks have a powerful effect on how people perceive the world. Recent years have provided numerous tragic examples. A particularly grievous instance occurred at a country music festival in Las Vegas, Nevada on the evening of October 1, 2017. At 10:05 p.m. Stephen Paddock, a Nevada resident, fired more than 1100 rounds of ammunition from his hotel room overlooking the festival. Within 10 minutes, 59 concert attendees were dead and 546 were injured in what is currently the deadliest mass shooting in modern United States history. Stephen Paddock was a United States citizen with no known ties to international terrorism. The motive for his attack was unclear.

In the wake of terrorist attacks, news consumers are continually exposed to gruesome media images, with graphic details often sparking widespread fear (Finseraas & Listhaug, 2013) and perceptions that the world is dangerous and unjust (Iyer, 2014). In the aftermath of these events, people often try to deal with feelings of uncertainty, contemplate their fundamental beliefs, and reaffirm moral convictions (Tamborini et al., 2017). Recent research showed that exposure to news of an international terrorist attack can increase

a person's reliance on intuitive authority structures. Tamborini et al. (2017) explained these outcomes as resulting from the activation of mechanisms outlined in the model of intuitive morality and exemplars (MIME; Tamborini, 2013).

The MIME offers a theoretical framework that describes media's influence on an audience's moral instincts. Guided by this logic, the present study examines how exposure to news of a domestic terrorist attack, specifically the 2017 Las Vegas country music festival shooting, can increase the salience of moral instincts (called *moral intuitions*). Unlike previous research that centered around news of attacks committed on international soil or by foreign perpetrators (e.g., Tamborini et al., 2017), the present study explores how exposure to news of an attack committed on U.S. ground by a U.S. perpetrator can influence these moral intuitions in audiences. In the next sections, we elaborate on the MIME and its tenets, detailing the nature of moral intuitions and how media exposure can impact them. We then discuss extant research on terrorist attacks and how news coverage of these attacks can affect public opinions and perceptions. Finally, we describe a previous study (Tamborini et al., 2017) that examined news coverage of a similar event, the 2015 Paris terrorist attacks, and discuss our attempt to replicate findings from that study in a different context.

### **The MIME**

The MIME (Tamborini, 2011, 2013) describes media's influence on evolutionarily developed preconscious instincts (i.e., *moral intuitions*). Moral foundations theory (MFT; Haidt & Joseph, 2007) describes these intuitions as "bits of mental structure" that have developed in humans over the course of millions of years through evolution (p. 381). According to MFT, moral intuitions are innate and operate preconsciously to govern moral judgments and behaviors. The strength of each intuition is thought to be shaped continually by experience, such as one's cultural or political upbringing (Graham, Haidt, & Nosek, 2009; Iyer et al., 2014). Through continuous shaping, some intuitions can be made more or less salient in one's mind (e.g., Haidt & Joseph, 2007; Tamborini, 2013).

Compared to other theories of moral judgment that specify rational cognitive processes (e.g., Kohlberg, Levine, & Hower, 1983), MFT construes moral intuitions as cognitive structures that allow for automatic evaluations of right and wrong without the need for conscious thought. Five intuitions were originally proposed in MFT, each related to a particular aspect of social behavior: *care* is an empathic sensitivity to others' suffering; *fairness* is concern for reciprocity and justice in the distribution of resources. *Ingroup loyalty* pertains to bias in favor of ingroup members versus outgroup members. *Respect for authority* (often just *authority*) refers to respect for established traditions, benevolent leaders, and social hierarchies; and (5) *purity* is associated with a sacred devotion to doctrines conceived to protect the community from social contamination and ruin.

Drawing from exemplification theory (Zillmann, 2002), the MIME maintains that exposure to moral exemplars in media content can increase the salience of associated moral intuitions in both the short-term and long-term. The MIME's short-term process suggests that recent exposure to moral exemplars can *temporarily* increase the strength of (i.e., activate) associated moral intuitions, which in turn can affect the attitudes, decisions, and behaviors of audience members. In the long-term, the model suggests that repeated

exposure to media exemplars emphasizing specific intuitions makes those intuitions *chronically* more accessible in the minds of audience members, thus having an enduring impact on their attitudes and behaviors.

### ***Individualizing Versus Binding Intuitions***

Though MFT's five moral intuitions have traditionally been examined individually, Graham et al. (2011) demonstrated that they may be subsumed within two higher order categories: *individualizing intuitions* and *binding intuitions*. The individualizing intuitions, care and fairness, are characterized by their focus on "the rights of individuals" (Graham et al., 2009, p. 1030). Ingroup loyalty, authority, and purity comprise the binding intuitions, characterized by a focus on "strengthening groups and institutions, and by binding individuals into roles and duties" (Graham et al., 2009, p. 1030).

Research has shown that the chronic salience of these intuitions can predict group differences. For example, the salience of individualizing and binding intuitions has been found to differ across liberal versus conservative ideologies. People with liberal values tend to place greater value on individualizing than binding intuitions, whereas people with conservative values tend to equally value both (Graham et al., 2009; van Leeuwen & Park, 2009). Although these differences often exist for benign reasons, such as political affiliation or cultural norms, they may change or become more pronounced under conditions of threat (see Jost, 2003; Nail, 2009).

### ***Threat and Binding Intuitions***

Haidt (2012) reasoned that binding intuitions have adaptive value when there is intergroup competition (i.e., when groups compete for a limited resources), such as during times of external threat. He argued that as intergroup competition increases, individuals act in ways to strengthen cohesive and cooperative bonds among group members. van Leeuwen and Park (2009) showed that binding intuitions mediated the relationship between the perception of social dangers and conservative attitudes. In line with Haidt's reasoning, they argued that salient binding intuitions gave individuals a sense of security against social threats.

Because moral intuitions are thought of as evolved instincts, scholars have argued that natural selection may have favored binding intuitions in order to keep social groups intact during threatening times (Haidt, 2012; Lahti & Weinstein, 2005). In response to a social threat, mechanisms related to purity (e.g., disgust in response to social defilement) that can make people wary of foreign objects have evolutionary advantages. This is because, historically, those who rejected biological and social contaminants were more likely to survive diseases and foreign threats. Consistent with this logic, van Leeuwen, Park, Koenig, and Graham (2012) found that the prevalence of a pathogen in a country strongly predicted the salience of binding intuitions in its inhabitants. They reasoned that, because pathogens can threaten survival, those with stronger binding instincts may be more likely to survive the threat and pass their genes on to future generations. Similarly, in times of threat, intuitions driving adherence to traditions and taking orders (i.e., authority) aide survival through the direction and order provided by strong leadership in times of chaos (Lahti & Weinstein, 2005). Finally, it also stands to reason that dealing with threat is often

facilitated by intuitions that drive cooperation within groups and avoidance of foreign entities (i.e., ingroup loyalty). As such, the evolutionary mechanisms associated with purity, authority, and ingroup loyalty intuitions are all likely to be activated during times of perceived threat (van Leeuwen & Park, 2009), such as when confronted with the news of a terrorist attack.

### ***Effects of Exposure to Terrorist Attack News on Binding Intuitions***

Much like responses to threats found in one's immediate environment, media coverage of social threats such as terrorist attacks can elicit an individual's primordial need to survive (Boomgaarden & De Vreese, 2007). Accordingly, we might expect news of an attack in one's own country to increase the salience of a viewer's binding intuitions. This logic is in line with related research on exposure to news of the 2015 terrorist attacks overseas in Paris, France (Tamborini et al., 2017) and also with research on exposure to news about Iranian nuclear threats to the United States (Tamborini, 2014). Therefore, we might expect exposure to news of the Las Vegas shooting (a domestic terrorist attack) to increase binding intuitions salience in a U.S. audience.

Previous research demonstrating that media coverage of terrorist attacks can impact outcomes associated with binding intuitions, such as related viewer attitudes and public opinion, explains that such attacks "manifest themselves in the minds of people as a threat to personal and national security" (Boomgaarden & De Vreese, 2007, p. 355). In line with this account, research showed that media coverage of terrorism can decrease an individual's feelings of personal safety, and increase authoritarian attitudes (Das, 2009; Echebarria-Echabe & Fernández-Guede, 2006; Traugott et al., 2002). A similar study showed that news coverage of a 2005 terrorist bombing in London increased attitudes supporting heightened security and decreased civil liberties (Bozzoli & Müller, 2011).

Although valuable, most prior research has focused solely on *attitudes* and has overlooked the influence of terrorist news on *intuitions*. As such, they offer little insight on how mechanisms tied to these intuitive forces might regulate attitudinal outcomes or ensuing behaviors. The present study's MIME-based approach attempts to provide more insight by applying a comprehensive scheme designed to explicate mechanisms that shape outcomes from exposure to terrorist attack news. To date, two studies have applied the MIME to examine the influence of terrorist attack news on intuition salience.

### ***A MIME-based Approach***

The first attempt to assess the effect of terrorist attack news on the salience of moral intuitions used a MIME-based approach to examine outcomes from exposure to news of the 2015 terrorist attack in Paris, France (Tamborini et al., 2017). This experimental study was conducted two weeks following the attack, providing a rare opportunity to test the MIME's real-world implications. Based on previous research examining reactions to terrorist attack news (Bozzoli & Müller, 2011; Boomgaarden & De Vreese, 2007; Echebarria-Echabe & Fernández-Guede, 2006), Tamborini et al. (2017) predicted that exposure to news of the Paris attacks would increase the relevance of intuitions favoring group welfare over individual welfare, expressed in MFT and the MIME as binding and individualizing intuitions. Their findings showed that exposure to news of the Paris

attacks heightened the salience of viewers' authority and purity intuitions. No effect was observed for ingroup loyalty or either individualizing intuition. The second MIME-based study examined outcomes from exposure to a news clip of a mass execution by ISIS terrorists (Grizzard et al., 2017). In this experiment, Grizzard and colleagues showed that more graphic news depictions of the terrorists' acts increased the salience of both binding and individualizing intuitions.

Notably, the finding of increased salience for the authority intuition by Tamborini et al. (2017) and Grizzard et al. (2017) is consistent with prior research showing an increase in authoritarian attitudes after exposure to media coverage of terrorist attacks (Bozzoli & Müller, 2011; Hetherington & Suhay, 2011). However, the approach taken by these scholars differs from research focusing on *attitudes* related to authority by examining the influence of terrorist media coverage on the *moral intuitions*, which are considered more primitive forces upon which moral attitudes are based (e.g., Haidt & Joseph, 2007; Tamborini, 2013).

### **The Present Study**

To build on research by Tamborini et al. (2017), we first attempt to reproduce the finding that exposure to terrorist attack news can increase the salience of binding intuitions using stimuli that are novel in both content and format. Second, we extend that research to examine the effect of terrorist attack news on the salience of individualizing intuitions. With specific regard to differences in the content and format of our stimuli, we (a) use exposure to news of a domestic terrorist attack (instead of an attack on foreign soil), and (b) present news in a textual format (instead of an audio-visual format).

The use of domestic terrorist attack news is advantageous for two reasons. First, it provides a new stimulus sample from the population of terrorist attack news stories and, accordingly, helps determine whether previous research findings generalize across terrorist attack stimuli. Second, using a story that is psychologically proximal to participants may provide a better test of whether exposure to terrorist attack news can impact individualizing intuitions. The use of a textual format tests the generalizability of previous research by providing a new stimulus sample from the population of terrorist attack news story formats. Because previous research (e.g., Tamborini et al., 2017) used audio-visual stimuli, our text-based news story can help determine whether this effect can generalize across media.

Based on previous theory and research, a case can be made for the expectation that psychological proximity could strengthen message influence (e.g., Hofer, Tamborini, & Ryffel, 2018; Trope & Liberman, 2010), whereas the abstract nature of print (versus film) might weaken it (e.g., Zillmann, 2002). Construal level theory defines psychological proximity as the "subjective experience that something is close [to] the self, here, and now" (Trope & Liberman, 2010, p. 440), and can be applied in this case to reason that proximity would strengthen message influence. We expect news of a domestic terrorist attack by a domestic shooter would create closer social distance than the news story used by Tamborini et al. (2017), which reported an attack in a foreign country carried out by international terrorists. Additionally, exemplification theory deems textual stimuli more

abstract than audio-visual exemplars by nature (e.g., Zillmann, 2002), and reasons that concrete exemplars have a stronger influence on perception.

Given such divergent forces, it might be difficult to predict whether the effect of our novel stimuli should be stronger or weaker than previous studies. Nevertheless, the potential to test replicability with novel stimuli is valuable. In the end, given the consistent previous findings showing the effect of terrorist attack news exposure on binding intuitions (Grizzard et al., 2017; Tamborini et al., 2017), we expect that:

**H1:** Exposure to news of the Las Vegas shooting will increase the salience of the binding intuitions (ingroup loyalty, authority, and purity) in audiences.

In contrast to expectations regarding the salience of binding intuitions, expectations regarding the effect of terrorist attack news on the salience of individualizing intuitions are less clear. Whereas Grizzard et al. (2017) found effects here, Tamborini et al. (2017) not only found no effects but reasoned a priori that exposure to news of terrorist attacks might either intensify or attenuate individualizing intuition salience. Notably, the studies by Grizzard et al. and Tamborini et al. were testing different mechanisms, which might account for the mixed findings. Grizzard examined the role of emotion in mediating the effect of terrorist attack news on intuition salience whereas Tamborini examined the direct effect of news exposure on salience. Nevertheless, the mixed results leave us with no strong foundation for predictions in this regard. Therefore, we undertake our examination of this relationship simply by asking:

**RQ1:** Will exposure to news of the Las Vegas shooting impact the salience of the individualizing intuitions (care and fairness) in audiences?

## Method

### Sample

Participants recruited from a large Midwestern university in the United States received credit in a communication course. At time one, 195 participants completed a questionnaire ( $n_{female} = 120$ ,  $M_{age} = 19.78$ ,  $SD_{age} = 2.21$ ,  $n_{Caucasian} = 142$ ,  $n_{African\ American} = 19$ ,  $n_{Asian} = 21$ ,  $n_{other} = 13$ ). At time two, 162 participants returned to take part in an experiment ( $n_{female} = 104$ ,  $M_{age} = 19.86$ ,  $SD_{age} = 2.28$ ,  $n_{Caucasian} = 118$ ,  $n_{African\ American} = 18$ ,  $n_{Asian} = 16$ ,  $n_{other} = 10$ ).

### Procedure

The study was conducted in two waves. During the first wave, completed in September 2017, participants entered a research laboratory and completed an online survey that included the Moral Foundations Questionnaire (MFQ-30; Graham et al., 2011) and demographic measures, along with additional items for the unrelated study. The MFQ-30 data from this first wave were used as an indicator of trait (or enduring) intuition salience.

The second wave was completed on October 5, 2017, four days after the Las Vegas shooting. Participants from wave one were re-contacted to act as subjects in an experiment, which was conducted during class. Subjects in the experiment were randomly assigned to read a news story about either the Las Vegas terrorist attack ( $n = 81$ ) or Nobel Prize winners ( $n = 81$ ). The induction was performed by distributing different



versions of a printed package that contained one of the two news stories along with demographic questions and the MFQ-30. All procedures were approved by the university's institutional review board.

### **Stimuli**

The stimuli included textual news stories with images drawn from MSNBC's website. The terrorist attack story featured graphic descriptions from eyewitness accounts of the Las Vegas shooting. For example, an excerpt from this article read: "We heard what sounded like firecrackers going off. Then all of a sudden, we heard what sounded like a machine gun. People started screaming that they were hit. When we started running out, there were probably a couple hundred [people] on the ground." Due to the event's recency and horrific nature, this story was expected to have a strong impact on the salience of participants' binding moral intuitions and therefore serve well as a stimulus. The comparison condition was a news story about three physicists winning the 2017 Nobel Prize for their discovery of gravitational waves. The story was chosen due to its lack of morally valenced content. As such, it was not expected to have an impact on the salience of any intuitions.

### **Measures**

The MFQ-30 (Graham et al., 2011) was implemented to measure the salience of both the individualizing and binding intuitions. In the MFQ-30, six items (three relevance items and three judgment items) are presented for each intuition, for a total of 30 items. Relevance items were preceded by the statement "When you decide whether something is right or wrong, to what extent are the following considerations relevant to your thinking?" Judgment items were preceded by the statement "Please read the following sentences and indicate your agreement or disagreement." For relevance items, participants responded on Likert-type scales ranging from 1 (*Not at all relevant*) to 6 (*Extremely relevant*). For judgment items, the scale ranged from 1 (*Strongly disagree*) to 6 (*Strongly agree*).

Reliabilities for the MFQ-30 were computed separately for responses collected during the two waves of the study. Examination of initial reliabilities suggested the removal of two items for the care intuition ("One of the worst things a person can do is to hurt a defenseless animal" and "It can never be right to kill a human being"). One item for authority ("Whether or not someone showed a lack of respect for authority") was also omitted from the study during the first wave due to a procedural error.

With these items removed from both waves, we computed reliabilities separately by wave for the individualizing intuitions of care ( $\alpha_{T1} = .54$ ,  $\alpha_{T2} = .63$ ) and fairness ( $\alpha_{T1} = .67$ ,  $\alpha_{T2} = .62$ ), as well as the binding intuitions of ingroup loyalty ( $\alpha_{T1} = .69$ ,  $\alpha_{T2} = .73$ ), authority ( $\alpha_{T1} = .55$ ,  $\alpha_{T2} = .57$ ), and purity ( $\alpha_{T1} = .71$ ,  $\alpha_{T2} = .69$ ). Notably, strong reliabilities are rarely found for MFQ items. The reliabilities observed here are in line with recent studies using this scale (e.g., Eden, 2015; Tamborini, 2012; for a detailed discussion of this issue, see Zhang, Hook, & Johnson, 2016).<sup>1</sup>

**Table 1.** Means and standard errors for the MFQ scores following induction (second wave) when controlling for trait MFQ scores (first wave).

	Control Condition		Treatment Condition	
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>
Care	4.62	0.08	4.67	0.08
Fairness	4.37	0.06	4.40	0.06
Ingroup loyalty	3.64	0.07	3.52	0.07
Authority	3.84	0.07	4.03	0.07
Purity	3.51	0.07	3.81	0.07

## Results

Research question 1 asked whether exposure to news coverage of the Las Vegas shooting would increase the salience of the individualizing intuitions. We conducted a multivariate ANCOVA examining the effect of condition (Las Vegas terrorist attack/control) on participants' care and fairness MFQ scores following induction (i.e., second wave measures), using their trait care and fairness scores (i.e., first wave measures) as covariates. Wilks' lambda revealed no significant effect of condition on care and fairness scores collectively,  $\Lambda = .99$ ,  $F < 1$ . Thus, as with previous studies (Tamborini et al., 2017), our findings show no evidence that news of a terrorist event increases the salience of individualizing intuitions (see Table 1 for estimated marginal means and standard errors associated with all intuitions following induction).

Hypothesis 1 predicted that exposure to news of the Las Vegas shooting would increase the salience of binding intuitions. To test this hypothesis, we conducted a multivariate ANCOVA to examine the effect of condition on participants' loyalty, authority, and purity MFQ scores following induction (second wave measures), again using trait loyalty, authority, and purity scores (first wave measures) as covariates. The multivariate ANCOVA produced a statistically significant result for the effect of condition on loyalty, authority, and purity collectively, Wilks'  $\Lambda = .87$ ,  $F(3, 155) = 7.56$ ,  $p < .001$ ,  $\eta_p^2 = .13$ . We then examined the individual effect of condition on loyalty, authority, and purity in the MANCOVA. Condition did not affect measures of ingroup loyalty,  $F(3, 157) = 1.54$ ,  $p = .22$ ,  $\eta_p^2 = .01$ , but it did have a significant effect on both authority,  $F(3, 157) = 4.23$ ,  $p = .04$ ,  $\eta_p^2 = .03$ , and purity,  $F(3, 157) = 9.59$ ,  $p < .01$ ,  $\eta_p^2 = .06$ . Following induction, scores for both authority and purity were higher in participants who read the Las Vegas attack news story than those who read the control news story.<sup>2</sup> The estimated marginal means and standard errors associated with all analyses are displayed in Table 1.

## Discussion

The aim of the present study was twofold. First, using a novel stimulus, we sought to replicate research by Tamborini et al. (2017) by investigating the effects of exposure to the Las Vegas country music festival terrorist attack on moral intuition salience. Second, we sought to extend that work by using a textual (as opposed to video) stimulus about a domestic (not foreign) incident. More precisely, we examined the impact of printed news coverage about the Las Vegas shooting on readers' moral intuition salience.

Our findings show that exposure to news of the Las Vegas attacks heightened binding moral intuitions (ingroup loyalty, authority, purity) as a whole. This result is consistent



with our expectation that media representing threat (such as terrorist attack news) would activate binding intuitions in audiences. More specifically, it supports arguments that exposure to news about terrorist attacks threatens one's perception of societal safety, and thus increases the need for societal cohesion and the salience of binding intuitions (Haidt, 2012; Lahti & Weinstein, 2005). A closer inspection revealed that exposure to news of the Las Vegas attack, compared to the control condition, increased the salience of both the authority and the purity intuitions. No similar effect was found for the salience of the ingroup loyalty intuition. Notably, this pattern matched the findings of Tamborini et al. (2017), which found that exposure to news of the Paris terrorist attacks heightened the salience of the authority and purity intuitions but not the salience of ingroup loyalty.

The finding related to the authority intuition supports arguments suggesting that authority figures bind groups and society members together during threatening times. This logic reasons that people may turn to authoritative figures to keep a group united, as these figures can protect the group from discordance and maintain order. The replication of the effect on the authority intuition observed in the present study occurred despite the fact that our stimuli describing a domestic terrorist differed considerably from previous research which utilized news of attacks by international terrorists (see Grizzard et al., 2017; Tamborini et al., 2017).

An attack by an international terrorist group could feasibly be attributed to the failure of national leadership and authorities. Thus, reflection after such an attack may focus particularly on authority and related concepts. This aligns with recent research demonstrating that audiences show greater support for authoritarian laws (at the expense of civil liberties) when exposed to news of an attack by foreign versus domestic terrorist groups (Garcia & Geva, 2016). Correspondingly, the video stimuli of the Paris attacks used by Tamborini et al. (2017) would be expected to have a strong influence on the authority intuition. In contrast, the gunman in the Las Vegas attack was not affiliated with any organization and was a U.S. citizen. Nevertheless, the effect of exposure to news of an attack by this one person on the authority intuition was similar to the effect of exposure to news of an attack by an international terrorist group. Specifically, the domestic terrorist attack in the present study activated respect for authority as much as the international terrorist attack video used by Tamborini et al. (2017).

With regard to purity, our findings are consistent with primal processes discussed in our introduction suggesting that threatening stimuli can activate disgust mechanisms. The logic associated with these primal processes is consistent with research showing that people from regions with histories of pathogen prevalence exhibit higher levels of binding intuition salience (van Leeuwen et al., 2012). This finding demonstrates a tendency to be wary of social contamination during times of danger. In the present study, attack news may have produced strong responses in participants disgusted by the graphic details and threatened by the threat of social decay. The attack may have been seen as a sign of social degeneration: A violation of sacred beliefs in the sanctity of human life and a threat to social stability and welfare. This may have stimulated similar forms of purity-related disgust.

When comparing the current study to the 2015 Paris terrorist attack study (Tamborini et al., 2017), one might expect audiences to respond differently to news of domestic versus international terrorism. An attack by outgroup members should be seen as a greater threat to social cohesion, thus activating the binding intuitions. This response might cut across

all three binding intuitions. In this case, international terrorist news should have a stronger impact on binding intuitions than domestic terrorist news (Garcia & Geva, 2016). However, the effect sizes observed for authority and purity in the current study were similar to the Paris study. Thus, we question whether news of an attack by outgroup versus ingroup members would affect binding intuitions differently. Grizzard et al. (2017) suggested that ingroup biases will increase when outgroup members are seen perpetrating violence against ingroup victims. In contrast, ingroup bias should decrease when ingroup members perpetrate violence against the outgroup. However, evidence here is inconclusive. Future research should investigate this by comparing the effect of exposure to domestic and international terrorist attack news on the salience of binding moral intuitions.

### ***Implications of Findings***

Media exposure's ability to influence binding intuitions, particularly respect for authority and purity, may have far-reaching implications. In line with MIME logic, we might expect the influence on intuition salience to shape moral judgments across different contexts, evaluations of other people and their behaviors, and attitudes toward public policy and institutions. Broadly speaking, the activation of the binding intuitions is likely to make individuals more community-centric and prioritize institutional structures and social wellbeing. This might be represented in increased adherence to social codes and greater importance being placed on concepts such as communal unity, safety, and pride. More specifically, the heightened salience of respect for authority might increase a person's likelihood of choosing, accepting, and following authoritarian-type leaders and social hierarchies. These attitudinal and behavioral outcomes may seem distant from the issue of mass shootings; however, the MIME predicts not only that media content can increase the salience of the specific issues covered, but also the salience of associated moral intuitions. This can affect a wide range of attitudes and behaviors separate from the topic at hand. These expectations are consistent with previous research examining the relationship between authoritarian attitudes and exposure to tragedies such as a terrorist attacks (Bozzoli & Müller, 2011; Hetherington & Suhay, 2011).

The present study builds on the argument that media covering tragedies such as terrorist attacks can influence the salience of the intuitive foundations upon which moral attitudes are based. Although beyond our study's scope, it is hard to ignore the potential detrimental implications of this influence. For example, reports point to the wide-reaching spread of authoritarian regimes (Diamond, 2015). This research shows a global recession in electoral and liberal democracies since 2006, which is accompanied by a corresponding rise in authoritarian systems. Similarly, findings from the annual Democracy Index report (Economist The Data Team, 2018) show that nearly a third of the world's population lives under authoritarian rule. Some have expressed concern that people worldwide are showing more favorable attitudes toward authoritarian leaders, even in democracies (Sheehy, 2017). In the United States, recent evidence suggests that support for authoritarian leadership has increased among some political factions, with almost 30 percent of Americans indicating they would prefer authoritarian rule to democracy (Drutman, Diamond, & Goldman, 2018). While acknowledging that the establishment of authoritarian leadership and the public's opinion of authoritarian regimes are the result of

complex, dynamic international cultural systems, we might speculate that the increase in favorable attitudes toward these regimes are at least in some way a product of news media's ability to strengthen audience intuitions that favor dominance hierarchies.

Akin to conservative inclinations that are linked to the salience of respect for authority, the ability of terrorist attack news to activate the purity intuition may shape tendencies traditionally tied to binding thoughts and behaviors. Although we are unaware of research in this area, we might speculate that disgust responses to violations of sacred doctrines and social proscriptions that characterize the purity intuition may manifest as opposition to prostitution, drug use, and other behaviors deemed socially repugnant, whereas the desire to affirm the intuition could increase interest in spiritual and religious matters. We might expect to see greater religious attendance and adherence after a terrorist attack occurs, with the effect on behavior being influenced by intuition salience (see Tamborini et al., 2017). The fear of social degeneration and ruin that accompanies the purity intuition might be accompanied by a wariness of immigrants or a perception of other outgroup members as social contaminants. Moreover, such constructions might affect a variety of related attitudes, such as support for beliefs in racial purity, chastity, and abstinence.

The fact that a similar effect could not be observed individually for loyalty could imply different explanations. It may imply that the impact of exposure to terrorist related news is unrelated to this intuitive domain. Because the terrorist in the present study was a United States citizen on U.S. soil, one could argue that the salience of ingroup loyalty did not increase because the terrorist attack was perpetrated by an ingroup member. We might expect that group membership is made more salient when an attacker is an outgroup member. As such, compared to research on the Paris attacks which used reports of international terrorists (Tamborini et al., 2017), the domestic terrorist in the present study should evoke a weaker connection between ingroup loyalty and exposure to terrorist attack news. However, the fact that research on the Paris attacks found no connection between exposure to attack news and ingroup loyalty suggests other explanations. Potentially the failure to find this link implies problems with measurement. For example, Tamborini et al. (2017) have questioned the comprehensiveness of the MFQ's loyalty intuition measurement (which we discuss in more detail in our limitations section).

In addition to binding intuitions, our study also examined the relationship between exposure to terrorist attack news and individualizing intuitions, and found no connection. It may be that the lack of an effect on the individualizing intuitions resulted from the fact that the terrorist attack news stories used in the present study focused on the actions of the terrorist rather than the anguish of the victims. A focus on the motives of the terrorist instead of the anguish of the victims may have directed the attention of audience members to concerns for personal or group threat instead of thoughts of compassion, which are generally felt when seeing the suffering of others.

## Limitations

One limitation of the present study is its narrow focus on intuition salience. We showed the impact of news coverage on readers' moral intuitions, but we did not document how this influence might manifest in readers' future behaviors. Future efforts along these lines could examine whether media exposure influences outcomes like attitudes toward morally charged concepts, or prosocial and antisocial behaviors such as donations, and prejudice

or discriminatory behavior. That said, the ability to replicate previous findings that show the influence of terrorist news attack stories on specific intuitions lends credence to findings from previous work in this area that were based on limited evidence. The fact that we were able to replicate these findings using a stimulus that exemplification theory (Zillmann, 2002) would deem less emotional and concrete further adds to this credence.

Another limitation of our investigation is its use of a student sample, which may not represent the broad range of audiences that consume news coverage of terrorist attacks. However, the MIME maintains that the cognitive mechanisms responsible for media's influence on moral intuitions are universal in nature and expected to operate the same way in all human beings. Thus, experimentally demonstrating support for this cognitive process in students adds supports to our beliefs in the model and its ability to explicate processes that operate in all humans.

A third limitation stems from concerns regarding the ability of the moral foundations questionnaire, which is a self-report scale, to measure the implicit salience of moral intuitions. We must be careful with the interpretation of our finding for two reasons: First, because the MFQ was designed as an explicit measure, and second because the scale reliabilities were low. Regarding the second concern, some of the scale reliabilities obtained in this study fell short of conventional thresholds. At the same time, the MFQ is the most widely used scale of its kind, and the reliabilities found here are similar to other research using the scale. Moreover, given that low reliabilities can weaken the likelihood of observing significant differences (Henson, 2001), this low reliability might simply increase the conservative nature of our analysis. The first concern, which is more of a validity issue, asks whether the self-report nature of the MFQ is appropriate for measuring implicit intuition salience. Notably, the findings in the present study are in line with recent research that used implicit measures to study the effect of news exposure on the state salience of these moral intuitions (Tamborini et al., 2019). Although the implicit measures used in these studies suffer from reliability challenges as well, replicating their findings with the MFQ increases confidence in the mechanisms and outcomes suggested here. Nevertheless, the need for improved measurement techniques is apparent. A related limitation regarding our use of the MFQ in the present study stems from the fact that a procedural error during wave 1 of data collection caused us to omit one item measuring authority ("Whether or not someone showed a lack of respect for authority").

A fourth limitation of the present study concerns whether the ingroup loyalty subscale items in the MFQ-30 measure the full construct of loyalty. Although the subscale shows face validity for "recognizing, trusting, and cooperating with [ingroup] members" (Haidt & Graham, 2007, p. 105) with items measuring one's loyalty toward "family", "teams", and "country", it lacks items measuring "being wary and distrustful of members of other groups" (p. 105). If favoritism toward ingroup and distrust toward outgroups are derived from the same underlying intuition, it might be difficult to observe changes without items measuring each adequately. In any case, the failure of the present study (as well as Tamborini et al., 2017) to show an effect on ingroup loyalty raises important questions. Previous research has shown that media content covering attacks such as terrorism affected one's distrust for an outgroup over ingroup loyalty (Echebarria-Echabe & Fernández-Guede, 2006). Because this research did not use the MFQ-30, is the current study's failure to find this effect a result of measurement error or some other cause? The answer to this question remains to be seen.

A final limitation is related to the fact that we did not measure participants' emotions. Although this was not central to the focus of the current study, Grizzard et al. found that emotion mediated the effect of terrorist attack news on intuition salience and eudaimonic motivations. The potential for this influence to shape other outcomes makes this worthy of future consideration.

## Conclusion and Future Directions

The MIME suggests that media content's influence on foundational moral intuitions can have far-reaching implications. Intuition salience can affect a variety of judgments and behaviors. As such, if terrorist attack news can increase the salience of the authority and purity intuitions, perhaps it could also shape attitudes based on those intuitions, such as the acceptance of authoritarian leaders, the desire for laws that prevent social contamination, and a willingness to follow these leaders and obey the purity-based laws that they invoke.

Future research could examine the influence of exposure to threatening events on various behavioral outcomes such as voting preferences, advocacy for the strict enforcement of traditional laws, proximity to the squalid or poverty-stricken, and other related outcomes. This research should also examine whether other features of terrorist attack news alter its influence. This might include features such as presentational form (e.g., audio-visual vs. textual form) and source (e.g., television vs. internet). It might also include characteristics of the event itself, including the nationality of attackers (domestic/international), the number of victims, and the participants' proximity to the attacks. Will these features affect the way exposure to threatening events influences audience members, or whether the implications of such exposure will be wide-ranging?

Although an effect on the types of behavioral outcomes suggested above may seem distal from terrorist attacks, the MIME suggests that media can influence a broad range of audience outcomes driven by these intuitions, many of which seem quite disparate from the content of media that prompted them (Tamborini, 2011, 2013). As such, these influences have important implications for scholars and practitioners alike.

## Notes

1. We also asked participants to indicate how often they listened/watched/read news stories like the one they read for this study ranging from 1 (*almost never*) to 6 (*several times a day*). In order to determine whether previous exposure to news of the Vegas shooting may have affected our results, we added this news exposure variable as a covariate and re-ran all of our reported analyses. The inclusion of this variable did not affect our results to RQ1 or H1, and news exposure was not a significant predictor of wave 2 salience scores for any of the five intuitions (all  $F < 1$ ).
2. In order to replicate the analyses by Tamborini et al. (2017), we also ran a series of ANOVAs excluding first wave MFQ scores as covariates. We first conducted a MANOVA, which revealed a statistically significant multivariate effect of exposure to news about the Vegas attack on moral intuition salience, Wilks'  $\Lambda = .92$   $F(5, 202) = 3.39$ ,  $p < .01$ ,  $\eta_p^2 = .08$ . Follow up univariate ANOVAs again revealed no effect of news exposure on intuition salience of either care or fairness (the individualizing intuitions; both  $F < 1$ ). However, unlike the findings of both Tamborini et al. (2017) and the present analyses accounting for wave 1 MFQ scores, we found no statistically significant effect of exposure to news of the Vegas attack on authority or purity salience scores

(both  $F < 1$ ) without the wave 1 score covariate. The univariate analysis did reveal an effect on ingroup loyalty, as loyalty MFQ scores in the control condition were higher at wave 2 ( $M = 3.78$ ;  $SD = .88$ ) than scores in the Vegas news condition ( $M = 3.44$ ;  $SD = .87$ ),  $F(1, 206) = 7.65$ ,  $p < .01$ ,  $\eta_p^2 = .04$ .

Because the findings associated with the authority and purity motivations were counter to our main MANCOVA findings, we conducted several follow-up analyses to probe the successfulness of our random assignment to conditions. Participants' wave 1 MFQ scores did not differ between the control and Vegas news conditions for care or fairness (both  $F < 1$ ). However, those assigned to the control condition indicated greater wave 1 loyalty salience ( $M = 4.06$ ;  $SD = .83$ ) and purity salience ( $M = 3.74$ ;  $SD = .97$ ) than those assigned to the Vegas news condition (loyalty:  $M = 3.76$ ;  $SD = .84$ ,  $F[1, 160] = 5.38$ ,  $p = .02$ ,  $\eta_p^2 = .03$ ; purity:  $M = 3.36$ ;  $SD = .88$ ,  $F[1, 160] = 6.70$ ,  $p = .01$ ,  $\eta_p^2 = .04$ ). Participants in the control condition also scored higher on authority salience at wave 1 ( $M = 4.04$ ;  $SD = .80$ ) compared to those in the Vegas news condition ( $M = 3.82$ ;  $SD = .77$ ), although these findings only approached statistical significance,  $F(1, 160) = 3.07$ ,  $p = .08$ ,  $\eta_p^2 = .02$ . These results seem to indicate that our findings are not robust to the exclusion of the covariate when there is an unequal distribution of trait intuition salience across conditions and underscore the importance of controlling for participants' trait intuition salience (wave 1 scores) in order to avoid accepting a false null hypothesis (i.e., a Type 2 error).

## Disclosure Statement

No potential conflict of interest was reported by the authors.

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