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Group-based meta-emotion and emotion responses to intergroup threat

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Abstract

In a secularizing world, religious groups are increasingly threatened by anti-religious groups. We present two studies investigating religious peoples' responses to anti-religious threats. We expected intergroup threats to shape group-based emotions and behavioural intentions through a novel pathway whereby threat affects group-based meta-emotions: the ingroup's perception of the outgroup's emotions towards the ingroup. In Study 1, we experimentally manipulated threat and group salience with participants from two different cultures (British, Latinx/Hispanic). Study 1 demonstrated non-interactive effects of threat increasing negative emotional responses and of group salience strengthening emotional responses. The results illustrated the role of group-based meta-emotions in predicting outgroup-directed emotions and behavioural response intentions. Study 2 used a different manipulation of threat in an American sample and an identity-based manipulation of salience to assess the impact of real-world anti-religious campaigns involving symbolic and realistic threats. Both threat types increased negative group-based meta-emotions, negative outgroup-directed emotions, desire to respond, and opposition to the anti-religious campaign compared to no threat. Overall, religious identity salience had little impact on outcomes. The indirect pathway through meta-emotion replicated, suggesting the importance of considering this novel meta-emotion pathway in intergroup relations.

Envision a religious person reading a blog that condemns religious beliefs as outdated and denounces people in religious groups as moral fanatics. The religious reader recognizes that the author feels contempt, amongst other emotions, towards religious groups. This perception, that the anti-religious outgroup feels contempt for the ingroup, leads the religious reader to feel angry at the outgroup in return and to reply with an incendiary comment. Our research concerns this process of ingroup members perceiving the emotions of an outgroup and the impact that such *meta-emotion* (i.e., the perceived emotion of the outgroup felt towards the ingroup) has on emotional reactions and behavioural response intentions in intergroup situations, specifically situations of intergroup threat.

Meta-Level Processes and Meta-Emotion

Meta processes have been defined as thinking about both *internal objects* such as one's own thoughts, feelings, and behaviours and *external objects* such as others' thoughts, feelings, and behaviours (e.g., Frey & Tropp, 2006; Nelson & Narens, 1990). Research on meta-level processes spans disciplines, including work on metaperception (Frey & Tropp, 2006; Albright & Malloy, 1999; Kenny & DePaulo, 1993), metamemory and metacognition (Petty & Briñol, 2014; Nelson & Narens, 1990; Flavell, 1979), meta-stereotypes (Klein & Azzi, 2001; Vorauer, Main, & O'Connell, 1998), and metadehumanization (Kteily, Hodson, & Bruneau, 2016). This research suggests that meta-level processes shape outcomes at the object-level. For instance, metacognition, or thinking about thinking, has been implicated in learning and the success of some educational strategies (see Hacker, Dunlosky, & Graesser, 1998), in persuasion (Petty & Briñol, 2014), and in treatments of schizophrenia and other psychological disorders (see Moritz & Lysaker, 2018). Meta-stereotypes, or thinking about an outgroup's negative stereotypes of the ingroup, have led to lower self-esteem for ingroup members and triggered negative emotions about intergroup

interactions (Vorauer et al., 1998). Likewise, metadehumanization (thinking an outgroup dehumanizes the ingroup) led ingroup members to subsequently dehumanize that outgroup (Kteily et al., 2016).

In the emotion realm, research has explored people's thoughts and feelings about their mood (meta-mood; Mayer & Gaschke, 1988) and the thoughts and feelings that parents have about their own and their children's emotions (parental meta-emotion; Gottman, Katz, & Hooven, 1996). Meta-mood, or the product of cognitively monitoring one's experienced mood, influences mood (Mayer & Gaschke, 1998). For example, someone in a negative mood may have a meta-mood such as, "It's okay to feel bad right now" which helps maintain the negative mood. Meta-mood is thus a *meta* process about one's own mood, an *internal object*. Parental meta-emotion has been defined as parents' emotions about their own and their child's emotions (Gottman et al., 1996). Parental meta-emotion involves *meta* processes about one's own emotion, an *internal object*, and another person's emotions, an *external object*. For example, a parent might report that they are aware of the sadness that they feel (meta-emotion) because of their child's sadness (external object). Theorizing on meta-emotion in media psychology further suggests a model of meta-emotion as an affective process that serves to appraise and shape emotions (Bartsch, Vorderer, Mangold, & Viehoff, 2008). Finally, research on interpersonal emotions has demonstrated that perceiving others' emotions alters emotions through mimicry, social referencing, and social appraisal processes (for reviews see Hess, Houde, & Fischer, 2014; Bruder, Fischer, & Manstead, 2014). For instance, people who received contemptuous interpersonal feedback returned those contemptuous feelings and displayed increased interpersonal aggression (Melwani & Barsade, 2011).

These approaches converge on the idea that appraisals of and feelings about one's own and others' emotions shape the experience of emotion. Emotions are context specific, short-term responses (Keltner & Lerner, 2010) that presuppose action (Kashima, Coman, Pauketat, & Yzerbyt, 2019; Smith & Mackie, 2015), and thus are suited to influence behavioural intentions. We argue that group-based meta-emotions (the ingroup's perception of the outgroup's emotions towards the ingroup) have the same advantage. That is, group-based meta-emotions provide clear, specific guidance as to how ingroup members should respond to an outgroup due to emotions' strong and specific behavioural implications. This reasoning is consistent with research on emotional intelligence, empathic accuracy, and emotion recognition that has suggested that the perception of others' emotions aids in understanding social situations, decoding others' internal states, and in directing behaviour (e.g., Salovey & Mayer, 1990; Mayer, 2004; Stinson & Ickes, 1992; Sanchez-Burks & Huy, 2009, Barsade & Gibson, 2007).

We extend research on meta-emotion to examine the effect of group-based meta-emotion in shaping outgroup-directed emotions and behavioural response intentions in intergroup threat contexts, focusing on meta-emotions about the outgroup's emotions, an *external object*. Research has previously established that intergroup threats provoke appraisals about and emotions towards the offending group (see Mackie & Smith, 2018). In addition to this well-established effect, we suggest that meta-emotions occur between groups such that ingroup members perceive and appraise the emotions of outgroup members, which then affect their own emotions towards the outgroup. Ingroup members have been shown to perceive or imagine the outgroup's emotions (Seger, Smith, Kinias, & Mackie, 2009) and the perception of outgroups' emotions can change group-based emotions (Weisbuch & Ambady, 2008). For example, White participants felt more fear when shown a Black person expressing happiness.

Consider the religious person encountering the anti-religious blog who feels angry towards the anti-religious outgroup. We suggest that the religious person engages in a meta-emotion process, perceiving that the anti-religious outgroup feels contempt towards the religious ingroup, which in turn impacts the religious person's anger towards the outgroup. Furthermore, we suggest that meta-emotions influence outgroup-directed behavioural intentions via their shaping of outgroup-directed emotions like anger. Thus, group-based meta-emotion will influence outgroup-directed emotions and subsequent response intentions following a threat, in addition to threat's direct effect on emotional and behavioural responses. This hypothesis has not been considered previously in investigations of emotional responses to intergroup threat.

Group-Based Emotional Responses to Intergroup Threat

How do groups react to threat? Numerous studies have demonstrated the importance of group-based emotions in explaining actions in response to a threat (e.g., Levin, Kteily, Pratto, Sidanius, & Matthews, 2016; Maitner, Mackie, & Smith, 2006; Mackie, Devos, & Smith, 2000). People identified with a group feel emotions as a group member and these emotions guide intergroup responses (Intergroup Emotions Theory; Mackie, Maitner, & Smith, 2016; Smith & Mackie, 2016; Mackie & Smith, 2015; Smith & Mackie, 2015; Smith, Seger, & Mackie, 2007).

The emotions of anger, disgust/contempt, and shame/humiliation are well documented responses to threats (e.g., Levin et al., 2016; Leidner, Sheikh, & Ginges, 2012; Rodriguez Mosquera, Fischer, Manstead, & Zaalberg, 2008; Bar-Tal, 2007; Averill, 1983). Anger, as an approach emotion, motivates confrontational action (e.g., Mackie & Smith, 2015; Leonard, Moons, Mackie, & Smith, 2011; Leonard, Mackie, & Smith, 2011). Disgust/contempt predicts both wanting to attack the outgroup and wanting to avoid them (Levin et al., 2016; Mackie, Smith, & Ray, 2008; Esses & Dovidio, 2002; Mackie et al., 2000). Following Hutcherson and Gross

(2011), we combine disgust and contempt given their conceptual and situational overlap. Shame/humiliation is related to feeling powerless and withdrawing from threats (Leidner et al., 2012; Rodriguez Mosquera et al., 2008). All three are considered moral emotions (Hutcherson & Gross, 2011) and are therefore especially relevant for threatened religious groups since religious groups are often bound together by morality (see Graham & Haidt, 2010). We expected religious groups to experience these outgroup-directed, group-based, moral emotions in direct response to threat rather than other non-moral, group-based emotions such as fear (e.g., Haidt, 2003).

Religious groups experience threat. The Pew Research Center (2019) reported increases in "government restrictions on religion" (e.g., laws to restrict religious freedom) and social hostility towards religion (e.g., violence by individuals) around the world from 2007 to 2017. Sometimes government restrictions favoured one religion and suppressed the rest (e.g., Comoros tolerating only Shafi'I Sunni Islam) and sometimes governments restricted religious expression entirely (e.g., Bosnia-Herzegovina prohibiting judiciary employees from wearing religious symbols). No and anti-religious affiliation is increasing in the United States of America (USA), Europe, and Australia (World Religion Database cited in Bullard, 2016) and recent FBI (2017) data in the USA showed that religious hate crimes were reported second only to racial hate crimes (Cook & Pasek, 2019). Religious Americans' perception that religion is under threat from secularism (Pasek & Cook, 2017) may be fuelled by popular discourse such as Horowitz's (2018) accusation of a war on religion. Thus, the source and manner of threat may differ depending upon the religious group and cultural context but the evidence shows increasing anti-religious threat worldwide.

Given that groups are particularly sensitive to their relative position in society (Quillian, 1995), it is not surprising that these changes threaten religious groups. Ysseldyk, Matheson, and Anisman (2010, 2011) argued that religious group identity is at least as impactful as national and

ethnic identification and social identification (Tajfel & Turner, 1986) is a well-established, fundamental psychological process linked to intergroup conflict. We suggest that the relations between religious and anti-religious groups provide an interesting intergroup context in which to study group-based meta-emotions' influence on outgroup-directed emotions and action tendencies.

Intergroup threats increase intergroup conflict as one group opposes the goals and/or well-being of another (for a review see Riek, Mania, & Gaertner, 2006) with both symbolic and realistic threats constituting intergroup threats. Symbolic threat occurs when ingroup and outgroup values and beliefs conflict (e.g., Kinder & Sears, 1981). Research on symbolic threat has focused on value conflict between racial groups (e.g., Biernat, Vescio, & Theno, 1996), immigrant and host groups (Esses, Hodson, & Dovidio, 2003; Sears, 1988), and groups of differing sexual orientations (Wyman & Snyder, 1997). Religious groups experience symbolic threats such as attacks on core religious beliefs and the veracity of sacred works. We experimentally examine anti-religious symbolic threat's effect on religious groups. This is valuable given that beliefs between religious and anti-religious groups are diametrically opposed.

Anti-religious groups also pose a realistic threat to the existence and prosperity of religious groups. According to Realistic Group Conflict Theory, intergroup conflict arises when two groups compete over scarce resources such as government aid or money (e.g., Sherif & Sherif, 1969). Such competition occurs frequently in intergroup conflicts (e.g., Noor, Brown & Prentice, 2008; Hewstone, Rubin, & Willis, 2002; Brewer & Brown, 1998). Proposals from anti-religious groups to limit tax breaks and the rise in power of no and anti-religious groups exemplify realistic threats to religious groups. Religious groups can be considered important, understudied groups experiencing both symbolic and realistic intergroup threats that provoke group-based meta-emotions which shape outgroup-direction emotions and behavioural response intentions.

Group Salience and Responses to Threat

Group-based emotional responses depend upon group membership (Mackie & Smith, 2018; Tajfel & Turner, 1986). Thus, manipulations to reduce group salience may mitigate the impact of group-based threat. The effects of group salience, or how prominent group membership is in a specific context (Kelley, 1955), on intergroup phenomena are well documented. For example, salient group membership increased adherence to group norms (Reicher, 1984), priming shared identity increased cooperation (McLeish & Oxoby, 2011), and salient religious identity promoted Catholics' resistance to attitude change (Kelley, 1955). The present research examined how increasing or decreasing group salience affected responses to threat.

Overview of the Present Research

In two studies, we investigated religious people's responses to anti-religious threats. Because religious groups are relatively understudied, we sought to establish the viability of religious group membership as vulnerable to anti-religious intergroup threats in Study 1 by experimentally varying the presence of threat. We also manipulated group salience to examine the influence of identity on emotional reactions to threat, expecting increased group salience to exacerbate and increased individual salience to attenuate responses to intergroup threat. We tested this hypothesis with self-identified religious people from two cultures: participants in the United Kingdom (UK) and self-identified Latinx/Hispanic participants worldwide. In Study 2, we explored the impact of symbolic versus realistic threat on USA religious participants' reactions by experimentally varying the presence of threat and by manipulating religious identity salience. In both studies, we sought to replicate the well-established direct effect of threat on group-based emotions and response intentions. Importantly, both studies examined the novel pathway from

threat to response intentions via meta-emotion's impact on outgroup-directed emotions (see Figure 1).

Study 1

The primary purpose of Study 1 was to test for the presence of a pathway between threat and behavioural response intentions through meta-emotions shaping outgroup-directed emotions. Specifically, we examined the direct and indirect impacts of threat on group-based meta-emotion, outgroup-directed emotions, and general intentions to respond to the outgroup. We used a priming manipulation to increase or undermine group identity salience to influence religious people's responses to an anti-religious intergroup threat. We did so with two different cultural groups, British and Latinx/Hispanic, by experimentally priming group salience, individual salience, or a control prime (Briley & Wyer, 2001). We expected group salience to increase the extremity of negative responses to the anti-religious threat relative to control. We expected individual salience to reduce the extremity of negative responses to threat compared to control.

We collected data in two different cultures because within a progressively globalizing world, we must increasingly consider that intergroup threats will occur across cultural boundaries and that people from different cultures may respond differently to threats (e.g., Rodriguez Mosquera et al., 2008; IJzerman, Van Dijk, & Gallucci, 2007; Ayers, 1984). Specifically, previous research has shown that Northern and Western European cultures are more likely to diverge in their responses to insult (a form of threat) from Latin American and Mediterranean cultures (Leung & Cohen, 2011; Rodriguez Mosquera et al., 2008; IJzerman et al., 2007). Thus, we recruited participants from these two cultures.

Method

Participants and Design

Sample size was determined using Van Voorhis and Morgan's (2007) 30 participants per cell guideline. We sampled above this minimum criterion guideline because larger samples typically produce more accurate estimates of true effects (Abraham & Russell, 2008). However, using guidelines, rather than calculating power based on study design, contributes to the problem of underpowered studies that decrease replicability and increase Type I and II errors (Cumming, 2014; Vazire, 2016; Funder et al., 2014; Maxwell, 2004).

British and Latinx/Hispanic participants (*total*: $N = 341$, $M_{age} = 36.28$, $SD = 14.22$, 44.5% female, 64% Christian; *British*: n = 176, $M_{age} = 46.31$, $SD = 11.49$, 50.3% female, 82% Christian; *Latinx/Hispanic*: n = 165, $M_{age} = 25.68$, $SD = 7.58$; 38.2% female; 45% Christian) were recruited online. We recruited British participants using Pureprofile, an online survey recruiting company in the UK. Participants received a small monetary compensation. Self-identified Latinx/Hispanic participants were recruited from Prolific, an online crowdsourcing company (n = 144) and introductory psychology courses (n = 21). Latinx/Hispanic participants were located around the world (65.6% North American [including Mexico], 19.7% Central and South American, 14.6% European) and received a small monetary compensation or course credit.

We recruited all participants based on their self-categorization into any religious group as part of the recruitment advertisement on Pureprofile and Prolific or as part of demographic pre-screening questions in the introductory courses. Most participants affiliated as Christian (64%) with 15.1% reporting no religion, 10.2% reporting other (mostly agnostic, Catholic, and spiritual), and the remaining 11% scattered across other affiliations including Atheism, Buddhism, and Islam. Participants were randomly assigned to the conditions formed by crossing two independent variables in a 3 (salience: group n = 112, individual n = 112, control n = 117) x 2 (threat: threat n = 167, no threat n = 171[1]) between-subjects design.

Procedure

Informed consent was obtained from all participants. Full materials, supplemental results, and archived data may be accessed through the Open Science Framework (OSF; https://osf.io/mcduv).

Manipulation of group salience. Participants first completed a sentence unscrambling task to manipulate group, individual, or control salience. Participants unscrambled 14 sets of four words to form meaningful phrases (Briley & Wyer, 2001). Participants in the group condition unscrambled words such as "we, cohesive, are, attached". Participants in the individual condition received words such as "solitude, I, autonomy, like". Participants unscrambling control words received words such as "it, black, shirt, is".

Manipulation of threat. Participants read one of two statements about religion and were told that we were interested in how religious group members respond to the statement. One statement threatened religious groups and one statement served as a no threat, control condition. In the threatening statement, we informed participants that a (fictional) anti-religious group published a statement in an online blog in response to the negative influence from all religions worldwide on recent domestic and international events. The threat statement called religion a baseless belief system that provides an outdated way to understand the world and allows religious people to force their morally fanatic values on others. The no threat, control statement allegedly came from a (fictional) group of philosophers who published an online blog as part of a series to educate people on basic aspects of human life. This descriptive statement offered a definition of religion as a set of organized beliefs about the relationship between natural and supernatural aspects of reality and about the role of humans in this relationship. Full statements are located in supplemental materials.

Dependent Measures

Participants then answered questions about the nature of the statement, their emotional reactions to the statement, and their willingness to respond to the authors[2].

Perceived threat manipulation check. Participants indicated their threat perceptions by responding to three questions on a 1 (not at all) to 7 (very) Likert-type scale: "How threatening is the statement you just read?", "How insulting is the statement?", "How offensive is the statement?". Responses were averaged to create a composite measure of perceived threat (overall Cronbach's $\alpha = .93$; British Cronbach's $\alpha = .95$; Latinx Cronbach's $\alpha = .91$).

Meta-emotion. Participants also indicated the extent to which they, as religious group members, thought the authors of the statement felt disgust and contempt towards religious groups on a 1 (not at all) to 7 (extremely) Likert-type scale. Perceived disgust and contempt towards religious groups were averaged (overall $r = .73$; British $r = .88$; Latinx $r = .61$). We measured these group-based meta-emotions as religious group members' perception of the outgroup's feelings towards their ingroup.

Outgroup-directed emotions. Participants rated the extent to which they, as religious group members, felt anger, outrage, offence, disgust, contempt, shame, and humiliation, on a Likert-type scale of 1 (not at all) to 7 (extremely). Angry, outraged, and offended feelings were averaged to create an anger composite (overall Cronbach's $\alpha = .92$; British Cronbach's $\alpha = .92$; Latinx Cronbach's $\alpha = .90$). Disgust and contempt were averaged to create a disgust/contempt composite (overall $r = .64$; British $r = .80$; Latinx $r = .48$). Shame and humiliation were averaged to create a shame composite (overall $r = .73$; British $r = .84$; Latinx $r = .61$).

Behavioural response intentions. Participants' general, confrontational response intentions were measured with a composite of three items on a Likert-type scale (1 = not at all

willing, 7 = very willing) such as, "How willing would you be to write a complaint to send to the authors?" (overall Cronbach's α = .93; British Cronbach's α = .93; Latinx Cronbach's α = .92).

Finally, participants filled out demographic information and were thanked.

Results and Discussion

Differentiating Meta-Emotions from Perceived Threat

Meta-emotions positively correlated with perceived threat, $r(323) = .49$, $p < .001$. A principal component analysis (PCA) indicated that meta-emotions and threat were two distinct, albeit related, components. See supplemental materials for the PCA and for correlations between all measured variables.

Direct Effects of Salience and Threat on Emotional Reactions and Response Intentions

We analysed the threat manipulation check, meta-emotions, outgroup-directed emotions, and response intentions using a 3 (salience: group, individual, control) x 2 (threat: threat, no threat control) ANOVA. We collapsed across cultural group (British, Latinx/Hispanic) because the results including culture as a factor were consistent with the results that collapsed across culture. The only difference was a main effect of culture such that Latinx/Hispanic participants reported lower levels of experiencing all dependent variables than did British participants. The cultural background of participants did not otherwise interact with either threat or salience except in one case. British participants wanted to respond to the threat to a significantly greater extent than did Latinx/Hispanic participants in the control salience condition, $F(1, 314) = 8.91$, $p = .003$, $\eta_p^2 = .03$ (British $M = 2.89$, $SE = 0.22$; Latinx $M = 1.96$, $SE = 0.23$). We report Bonferroni corrected post hoc pairwise comparisons for significant omnibus effects[3].

Perceived threat manipulation check. Salience affected perceived threat, $F(2, 319) = 4.17$, $p = .016$, $\eta_p^2 = .03$. Group salience increased perceptions of threat ($M = 3.12$, $SE = 0.16$)

compared to individual salience (M = 2.48, SE = 0.16), p = .014. However, neither group nor individual salience differed from control (M = 2.74, SE = 0.15), unexpectedly. Manipulated threat affected perceived threat, $F(1, 319) = 54.07$, $p < .001$, $\eta_p^2 = .15$. Participants reading the threatening statement perceived more threat (M = 3.45, SE = 0.13) than did participants reading the non-threatening statement (M = 2.12, SE = 0.13), as expected. Salience and threat did not interact, $F(2, 319) = 0.69$, p = .502, $\eta_p^2 < .01$.

Meta-emotion. Meta-emotions were not affected by salience, $F(2, 321) = 1.40$, p = .249, $\eta_p^2 = .01$, unexpectedly. As expected, threat elicited more perceived disgust/contempt (M = 4.29, SE = 0.13) than control (M = 2.19, SE = 0.13), $F(1, 321) = 126.50$, $p < .001$, $\eta_p^2 = .28$. There was no interaction between salience and threat, $F(2, 321) = 0.44$, p = .643, $\eta_p^2 < .01$.

Outgroup-directed emotions. Salience affected anger, $F(2, 321) = 4.32$, p = .014, η_p^2 = .03. Group salience increased anger (M = 2.51, SE = 0.13) compared to individual salience (M = 1.96, SE = 0.14), p = .012. Neither group nor individual salience differed from control (M = 2.17, SE = 0.13). As expected, threat elicited more anger (M = 2.66, SE = 0.11) than control (M = 1.77, SE = 0.11), $F(1, 321) = 33.01$, $p < .001$, $\eta_p^2 = .09$. Salience did not interact with threat, $F(2, 321) = 0.20$, p = .818, $\eta_p^2 < .01$.

Salience affected disgust/contempt, $F(2, 321) = 3.41$, p = .034, $\eta_p^2 = .02$. Group salience increased disgust/contempt (M = 2.66, SE = 0.14) compared to individual salience (M = 2.15, SE = 0.14), p = .029. Neither group nor individual salience differed from control (M = 2.38, SE = 0.13). Threat also affected disgust/contempt, $F(1, 321) = 28.40$, $p < .001$, $\eta_p^2 = .08$, eliciting more disgust/contempt (M = 2.82, SE = 0.11) than control (M = 1.97, SE = 0.11), as expected. Salience and threat did not interact, $F(2, 321) = 0.70$, p = .496, $\eta_p^2 < .01$.

Salience did not impact shame, $F(2, 321) = 1.46$, $p = .234$, $\eta_p^2 = .01$. As expected, threat elicited more shame ($M = 2.40$, $SE = 0.11$) than control ($M = 1.68$, $SE = 0.11$), $F(1, 321) = 22.21$, $p < .001$, $\eta_p^2 = .07$, but salience and threat did not interact, $F(2, 321) = 0.32$, $p = .730$, $\eta_p^2 < .01$.

Behavioural response intentions. There was no main effect of salience on response intentions, $F(2, 320) = 0.94$, $p = .391$, $\eta_p^2 = .01$. As expected, threatened participants ($M = 2.91$, $SE = 0.13$) wanted to respond more than non-threatened participants ($M = 2.18$, $SE = 0.13$), $F(1, 320) = 15.02$, $p < .001$, $\eta_p^2 = .05$. There was no interaction between salience and threat, $F(2, 320) = 0.15$, $p = .860$, $\eta_p^2 < .01$.

Indirect Effects of Threat on Response Intentions

We used PROCESS model 6 (Hayes, 2018) to test the indirect effect of threat on response intentions through the predicted pathway of threat increasing negative meta-emotions that in turn predict increased negative outgroup-directed emotions that in turn predict response intentions. This model entails sequential mediation. One mediator was specified to sequentially predict a second mediator in order to explain the effect of threat on response intentions. Specifically, meta-emotion was the first mediator in the group-based emotion pathway and the outgroup-directed emotion (anger, disgust/contempt, or shame) was the second mediator. We did not expect salience to alter the indirect effects of threat on response intentions given the lack of interactive effects on all dependent variables and its lack of main effect on response intentions. Thus, the indirect effects analyses collapsed across salience conditions.

We present the primary indirect effect of interest here for three models of sequential mediation. In the first model, threat (threat = 0, no threat = 1) predicted meta-emotions, meta-emotions predicted anger, and anger predicted response intentions. In the second model, threat predicted meta-emotions, meta-emotions predicted disgust/contempt, and disgust/contempt

predicted response intentions. In the third model, threat predicted meta-emotions, meta-emotions predicted shame, and shame predicted response intentions. All other direct (e.g., threat predicting response intentions) and indirect effects (i.e., the meta-emotion pathway of threat predicting response intentions through just meta-emotions and the outgroup-directed emotion pathway of threat predicting response intentions through anger, disgust/contempt, or shame) from these three models are reported in Tables 1 and 2.

As expected, threat predicted increased response intentions through meta-emotions influencing anger, effect = -0.35, 95% CI [-0.53, -0.20] (see Figure 2 for illustration of sequential mediation), through meta-emotions influencing disgust/contempt, effect = -0.37, 95% CI [-0.56, -0.21], and through meta-emotions influencing shame, effect = -0.24, 95% CI [-0.39, -0.11]. These results held when controlling for culture. An alternative model, with outgroup-directed emotions predicting meta-emotions, failed to explain threat's indirect effect on response intentions through anger and disgust/contempt, but did function through shame. Notably, the indirect effect through shame influencing meta-emotions was very weak (effect = -0.03, 95% CI [-0.06, -0.00]; see supplemental materials for full alternative model details for all models).

Discussion

Study 1 provided causal evidence for two direct, non-interactive effects: an effect of intergroup threat and an effect of group salience on religious group members' emotional reactions. As expected, threat increased negative meta-emotions (the perception that the outgroup felt disgust and contempt towards the religious ingroup), increased negative outgroup-directed emotions, and increased intentions to take action against the outgroup. Group salience differed from individual salience in the expected direction (increasing negative meta-emotions and outgroup-directed emotions) but neither group nor individual salience differed from control, unexpectedly. These

results suggest that the salience manipulation may be sensitive only to clear indicators of group or individual goals as compared to each other and not when compared to an unspecified context like in the control condition. The results also suggest that this sentence unscrambling task may be a relatively weak manipulation of group salience as evidenced by its lack of main effect on meta-emotions, shame, and behavioural response intentions.

Importantly, the results of the sequential mediation analyses provided evidence of the novel pathway from experimentally manipulated threat to response intentions through meta-emotions influencing outgroup-directed emotions. These findings were consistent with the hypothesized model that group-based meta-emotions about an outgroup's emotions predict feelings towards that outgroup which subsequently translate into action tendencies. The alternative model of threat indirectly affecting response intentions through outgroup-directed emotions predicting meta-emotions was unsupported, suggesting that group-based meta-emotion shapes outgroup-directed emotion. Finally, the results showed that meta-emotion differed from perceived threat because meta-emotion assessed what the outgroup felt, rather than how threatened the participant felt.

Study 2

Study 2 extended from Study 1 in multiple ways. First, we examined the effect of different types of intergroup threats on group-based meta-emotion, emotion, and behavioural response intentions. To do this, we investigated whether threats to symbolic, belief-related concerns (as in Study 1) or to realistic, economic resources and religious expression ability would produce stronger negative meta-emotions, stronger negative outgroup-directed emotions, and stronger response intentions compared to a control condition. We made no specific predictions about the relative impact of symbolic versus realistic threat, although given the nature of belief as a defining feature of religious affiliation, it may be that religious people react more strongly to symbolic

attacks on core beliefs. Furthermore, these symbolic and realistic threats were modelled after real-world events to increase the ecological validity of the threats to religious groups.

Second, Study 1 showed a definitive impact of intergroup threat but not of group salience on emotional and behavioural responses. We designed Study 2 to further probe the effect of group salience on responses to intergroup threat using a different manipulation, specifically activating religious identity (e.g., Laurin, Shariff, Henrich, & Kay, 2012). Half of the participants in Study 2 had their religious group identity made salient prior to responding to the dependent measures and the other half of participants had their religious group identity made salient after responding to the dependent measures. This manipulation addressed the possibility that the salience manipulation was confounded with the group threat manipulation in Study 1.

Additionally, we conducted an a priori power analysis for Study 2 (details in Methods) and we altered the demographic, manipulation check, and behavioural response intentions to address some shortcomings from Study 1. Christian religious affiliation was separated into Catholic and Protestant Christianity groups. The threat manipulation check items were altered to reduce the potential demand to report threat. We expanded the behavioural response intentions to include willingness to support opposition to anti-religious campaigns as well as general response intentions. Finally, we tested the pathway established in Study 1 from threat to response intentions through meta-emotions shaping outgroup-directed emotions, expecting to replicate the model from Study 1.

Method

Participants and Design

Sample size ($N = 432$) was derived from an a priori power analysis conducted in G*Power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009). We specified the analysis for ANOVA with

interactions based on small effect sizes (.15) found in Study 1 and an 80% likelihood of detecting the true effect. People located in the USA (N = 431; M_{age} = 39.84, SD = 13.77; 57.8% female; 97.4% American nationality) gave their opinions on some current events in exchange for a small monetary compensation on Amazon's MTurk. Participants were recruited from MTurk using TurkPrime's panel pre-screening based on their self-identification as "religious" in TurkPrime's separate demographic pre-screening questions. Pre-screening was conducted independently and at a separate time by TurkPrime. The religious pre-screening was not connected to the study. Thus, participants were unaware that they were being recruited because of their religious identification. No consent materials mentioned religion. Most participants identified as Christian 85.4% (Protestant: 54.8%, Catholic: 30.6%) and 8.4% identified as other (listing other Christian sects including Baptist, Evangelical, Methodist, Mormon). The remaining 6.2% identified with religions like Islam, Judaism, and Hinduism. Participants were primarily White/Caucasian American (71.6%). Participants were randomly assigned to a symbolic (n = 148), realistic (n = 141), or no threat control (n = 142) condition and a religious identity salient (n = 208) or not salient (n = 223) condition in this fully-crossed, between-subjects experimental design.

Procedure

Informed consent was obtained from all participants. One participant withdrew their data after the full debriefing leaving a total of 431 participants. Full materials, supplemental results, and archived data may be accessed online in supplemental materials (https://osf.io/mcduv).

Manipulation of religious identity salience. Participants in the identity salient condition were told that they would fill out some questions and then read about a current event and provide their assessment of it. Salient identity participants first completed a demographics form including gender, age, nationality, region, ethnicity, and a religious identity salience questionnaire.

Participants selected their religious affiliation from a list, answered a question about identifying with their religious group (Postmes, Haslam, & Jans, 2013), and reflected on their religious group identity by writing down three things in response to a prompt about what makes their religion important to themselves, "My religion is important to me because…". Participants were thanked for responding to the demographic questions to create a separation between the salience manipulation and the threat manipulation.

Participants in the identity not salient condition completed the demographic form and religious identity salience questionnaire at the end of the study, following the dependent variables. At the start of the study, these participants were informed that they would first read about a current event and then answer some questions and provide their assessment of the event. Participants then proceeded directly to the threat manipulation.

Manipulation of threat. All participants were asked to read and evaluate one of three statements (inducing symbolic, realistic, or no threat) modelled after recent real-world events. Participants in the symbolic threat condition read a description of an advertising campaign in which a group of campaigners conducted a public campaign to promote the idea that God does not exist by posting a message that "There's Probably No God. Now Stop Worrying and Enjoy Your Life" on 800 buses in one country (from a real campaign in London; "Atheist Bus Campaign", n.d.). They further read that this campaign was similar to campaigns around the world that attracted a lot of media attention including in *this country* (to imply the USA) where the slogans included such as "Why Believe in God? Just Be Good for Goodness' Sake".

Participants in the realistic threat condition read a description of a political campaign in which a group of campaigners proposed a bill to restrict the expression of religion. This entailed banning the wearing of religious symbols like crosses, headscarves, and skullcaps for public

employees such as police officers and teachers (from a real campaign in Québec; Gordon, 2019). They further read that this political campaign in one country was similar to other recent campaigns around the world that attracted a lot of media attention including in *this country* to cut public funding for religious schools and to limit the special status of religious organizations.

Participants in the no threat control condition read a description of a marketing campaign in which a group of campaigners proposed bringing back a long-lost tradition of fire-keeping in forests (from a real campaign in Canada; Brend, 2017). These campaigners wanted to restore a tradition of using fire to create controlled burns to prevent mega-forest fires. Participants also read that this campaign was similar to proposals around the world that attracted a lot of media attention including in *this country* to restore traditions that indigenous people used effectively for centuries to control the impact of forest fires.

Dependent Measures

Participants then answered questions about their emotional reactions, willingness to respond to the campaigners, and willingness to oppose similar campaigns[4].

Perceived threat manipulation check. Participants indicated their perceived threat by responding to three questions on a 1 (not at all) to 7 (extremely) sliding scale. Responses to the questions, "Are the campaigns you read about threatening?", "Are the campaigns you read about insulting?", and "Are the campaigns you read about offensive?" were averaged (Cronbach's α = .91).

Meta-emotion. The same meta-emotions were assessed as in Study 1. Participants indicated to what extent they, as a member of a religious group, think that the campaigners feel each emotion for or about religious groups on a 1 (not at all) to 7 (extremely) sliding scale. Perceived disgust and contempt towards religious groups were averaged (r = .62).

Outgroup-directed emotions. Negative emotional reactions were measured using the same emotions as in Study 1 by asking participants to indicate the extent to which they, as a member of a religious group, feel each emotion in response to or about the campaigners on a 1 (not at all) to 7 (extremely) sliding scale. Angry, outraged, and offended feelings were averaged (Cronbach's $\alpha = .94$). Disgust and contempt were averaged ($r = .63$). Shame and humiliation were averaged ($r = .58$).

Behavioural response intentions. We assessed two types of responses. General desire to respond was measured with three averaged items measured on a sliding scale (1 = not at all willing, 7 = very willing) such as, "How willing would you be to write a complaint to send to the campaigners?" (Cronbach's $\alpha = .91$).

Willingness to support opposition to the campaigns was measured with two items on a 1 (not at all willing) to 7 (very willing) sliding scale. Participants were told that an online petition is being organized to complain to groups responsible for campaigns like the one they read about. Answers to the two items, "How willing would you be to sign it?" and "How willing would you be to donate to causes that organize opposition to campaigns like this?" were averaged ($r = .65$).

Results and Discussion

See supplemental materials for correlations. We analysed the threat manipulation check, meta-emotions, outgroup-directed emotions, and response intentions using a 2 (salience: identity salient, identity not salient) x 3 (threat: symbolic, realistic, no threat control) ANOVA. We report Bonferroni corrected post hoc pairwise comparisons for significant omnibus effects[5].

Direct Effects on Emotional Reactions and Response Intentions

Perceived threat manipulation check. Religious identity salience did not affect perceived threat, $F(1, 425) = 0.96$, $p = .327$, $\eta_p^2 < .01$. There was a main effect of threat, $F(2, 425) = 76.82$,

$p < .001$, $\eta_p^2 = .27$. Participants rated the symbolic threat ($M = 4.12$, $SE = 0.15$) and the realistic threat ($M = 4.43$, $SE = 0.15$) as significantly more threatening than control ($M = 2.04$, $SE = 0.15$), both $p < .001$. The threat conditions did not differ from each other ($p = .412$). There was no interaction between salience and threat, $F(2, 425) = 1.65$, $p = .194$, $\eta_p^2 = .01$.

Meta-emotion. There was no main effect of salience on meta-emotions, $F(1, 425) = 1.08$, $p = .300$, $\eta_p^2 < .01$. Symbolic ($M = 4.44$, $SE = 0.14$) and realistic ($M = 4.22$, $SE = 0.14$) threats significantly increased negative meta-emotions compared to control ($M = 2.49$, $SE = 0.14$), both $p < .001$, $F(2, 425) = 58.54$, $p < .001$, $\eta_p^2 = .22$, and were not different from each other ($p = .804$). There was no significant interaction between salience and threat, $F(2, 425) = 2.92$, $p = .055$, $\eta_p^2 = .01$.

Outgroup-directed emotions. Religious identity salience significantly impacted anger, $F(1, 425) = 9.44$, $p = .002$, $\eta_p^2 = .02$. Participants were angrier when their religious identity was not salient ($M = 3.53$, $SE = 0.12$) than when it was salient ($M = 3.01$, $SE = 0.12$). Symbolic ($M = 3.93$, $SE = 0.15$) and realistic ($M = 3.99$, $SE = 0.15$) threats produced more anger than control ($M = 1.88$, $SE = 0.15$), both $p < .001$, $F(2, 425) = 66.13$, $p < .001$, and were not different from each other ($p > .999$). Identity salience and threat significantly interacted to shape anger, $F(2, 425) = 5.54$, $p = .004$, $\eta_p^2 = .03$. In the symbolic threat condition only, religious identity salience reduced anger ($M = 3.30$, $SE = 0.21$) compared to no salience ($M = 4.57$, $SE = 0.20$), $F(1, 425) = 19.08$, $p < .001$, $\eta_p^2 = .04$.

Salience did not significantly affect disgust/contempt, $F(1, 425) = 3.61$, $p = .058$, $\eta_p^2 = .01$. Threat significantly increased disgust/contempt, $F(2, 425) = 48.73$, $p < .001$, $\eta_p^2 = .19$ with symbolic ($M = 3.83$, $SE = 0.14$) and realistic ($M = 3.57$, $SE = 0.15$) threats differing from control

(M = 1.95, SE = 0.15), both $p < .001$, but not from each other ($p = .613$). There was no significant interaction between salience and threat, $F(2, 425) = 2.43$, $p = .089$, $\eta_p^2 = .01$.

There was no significant effect of salience on shame, $F(1, 425) = 3.58$, $p = .059$, $\eta_p^2 = .01$. Symbolic (M = 2.43, SE = 0.13) and realistic (M = 2.44, SE = 0.13) threats resulted in significantly more shame than control (M = 1.81, SE = 0.13), both $p = .002$, $F(2, 425) = 7.89$, $p < .001$, $\eta_p^2 = .04$, and were not different from each other ($p > .999$). There was no interaction between salience and threat, $F(2, 425) = 1.14$, $p = .322$, $\eta_p^2 = .01$.

Behavioural response intentions. General response intentions were not affected by religious identity salience, $F(1, 425) = 1.48$, $p = .225$, $\eta_p^2 < .01$. They were affected by threat, $F(2, 425) = 21.51$, $p < .001$, $\eta_p^2 = .09$. Realistic threat (M = 3.85, SE = 0.16) increased desire to respond compared to both the symbolic threat (M = 2.93, SE = 0.15) and to control (M = 2.42, SE = 0.16), both $p < .001$, which did not differ from each other ($p = .062$). Salience and threat did not interact, $F(2, 425) = 1.25$, $p = .288$, $\eta_p^2 = .01$.

Willingness to support campaign opposition was not affected by salience, $F(1, 425) = 2.51$, $p = .114$, $\eta_p^2 = .01$, but was affected by threat, $F(2, 425) = 16.90$, $p < .001$, $\eta_p^2 = .07$. Realistic threat (M = 3.79, SE = 0.16) increased willingness to support opposition compared to symbolic threat (M = 3.19, SE = 0.15), $p = .018$, and to control (M = 2.50, SE = 0.16), $p < .001$. Symbolic threat also increased opposition support compared to control, $p = .006$. Salience and threat did not interact, $F(2, 425) = 1.77$, $p = .172$, $\eta_p^2 = .01$.

Indirect Effects of Threat on Response Intentions

We tested the indirect effect of threat on response intentions through meta-emotions and outgroup-directed emotions using PROCESS model 6, as in Study 1. Threat, with three levels, was coded for analysis as ST (0 = control and realistic threat, 1 = symbolic threat) to examine the

influence of symbolic threat and as RT (0 = control and symbolic threat, 1 = realistic threat) to examine the impact of realistic threat in comparison to the no threat control as reference group. See Tables 3 and 4 for all indirect effect analyses and coefficients.

Symbolic threat (ST) predicted increased general response intentions through meta-emotion influencing anger, effect = .54, 95% CI [0.35, 0.77], through meta-emotion influencing disgust/contempt, effect = .51, 95% CI [0.34, 0.72], and through meta-emotion influencing shame, effect = .22, 95% CI [0.12, 0.35]. Similarly, realistic threat (RT) predicted increased general response intentions through meta-emotion influencing anger, effect = .48, 95% CI [0.32, 0.67], disgust/contempt, effect = .46, 95% CI [0.31, 0.64], and shame, effect = .20, 95% CI [0.11, 0.31] (see Figure 3 for example of threat predicting general response through meta-emotion and anger).

These indirect effects from symbolic and realistic threats through meta-emotion and outgroup-directed emotions were replicated for models predicting support for campaign opposition (see Tables 3 and 4). Overall, the indirect effects from threat to general desire to respond and campaign opposition functioned through the predicted sequential mediation model of meta-emotions influencing outgroup-directed anger, disgust/contempt, and shame. Threat predicted group-based meta-emotions that in turn predicted outgroup-directed emotions that in turn predicted behavioural response intentions.

Tests of an alternative model of outgroup-directed emotions influencing meta-emotions showed that threat did not influence response intentions through this pathway, except very weakly for shame (see supplemental materials for all alternative model effects). Outgroup-directed shame predicted meta-emotions when explaining symbolic threat's indirect effect on general desire to respond, effect = 0.04, 95% CI [0.01, 0.09]) and realistic threat's indirect effect on general response intentions, effect = .04, 95% CI [0.02, 0.08]. This pattern was the same for predicting

support for campaign opposition. These indirect effects were insubstantial when compared in size to the predicted pathway effects.

Discussion

Results from Study 2 demonstrated that symbolic and realistic threats did not differ in threat potency from each other. Both threats increased negative meta-emotions and negative outgroup-directed emotions compared with control, as in Study 1. This result replicates an additional study we conducted with different anti-religious symbolic and realistic threats (reported in supplemental materials: *Supplemental Study* at https://osf.io/mcduv). Future work is needed to better understand when anti-religious symbolic and realistic threats may provoke different emotional responses.

Realistic threat directly increased both measures of willingness to respond to a significantly greater extent than did symbolic threats suggesting that realistic threat may have a greater impact on behaviour. Additionally, the indirect pathways from threat to response intentions through group-based meta-emotion and outgroup-direct emotions showed a full mediation of the effect of realistic threat on response intentions but only a partial mediation of the effect of symbolic threat. This difference suggests potentially different effects of realistic and symbolic threats on behaviour.

Religious identity salience did not have a significant direct effect on emotional or behavioural responses to threat and it did not interact with threat, suggesting that anti-religious threats might activate religious group members' identities regardless of whether membership is already salient or not. There was one exception to this lack of effect. Religious identity salience reduced outgroup-directed anger in response to symbolic threat. This effect of religious identity salience on anger may be a product of Christian religious beliefs in the USA (reflecting the

majority of the sample) or it may be a general effect for religion reducing anger in the face of attacks to core beliefs. Future research could examine this further.

In summary, symbolic and realistic threats have strong direct effects on negative meta-emotions and outgroup-directed emotions with realistic threat more strongly causing desire to respond and campaign opposition. Both types of response intentions were indirectly influenced by both types of threat through meta-emotion's effect on outgroup-directed emotions. Religious identity salience was largely irrelevant to responses to anti-religious threats. Conceptually replicating Study 1 with real-world threats and religious identity salience, intergroup threat increased negative meta-emotions, which predicted negative outgroup-directed emotions and consequently, response intentions.

General Discussion

We offer experimental evidence from two studies that religious people (primarily Christian in these studies) respond emotionally to anti-religious threats. We found no differences in response to symbolic and realistic threats in Study 2. Integrated Threat Theory (ITT) considers threat as a combination of four major types, including symbolic and realistic threats, rather than a separate threat for every situation (Stephan & Stephan, 2000). ITT suggests that both competition over resources (realistic threat) and belief conflicts (symbolic threat) can simultaneously affect outgroup attitudes (Stephan & Stephan, 2000), which may explain why we found no difference between the two threat types in emotional responses. Given that many real-world threats to religion involve both symbolic belief and realistic resource and/or safety concerns, the distinction between symbolic and realistic threats may be blurred in this domain, a speculation that requires future examination.

We also investigated the impact of group salience on responses to threat. Study 1 showed that group salience strengthened emotional reactions to the outgroup compared to individual salience. However, salience did not interact with threat. Perhaps the salience manipulation was too weak to either undermine or enhance group identity or perhaps salience was confounded with threat. However, the manipulation of religious identity salience in Study 2 was likewise ineffective in shaping responses to threat. These null effects may suggest that group or identity salience is not a consequential factor in behavioural responses to anti-religious intergroup threats, perhaps due to the uniquely *eternal* nature of religious social identification that differentiates it from other social groups (Ysseldyk et al., 2010). That is, identity salience may function differently because religious identification is all-encompassing and persists forever. Alternatively, the anti-religious threat might have activated religious identity for all participants regardless of prior salience.

The key contribution of the present work is the establishment of a novel pathway through which threat impacted peoples' intention to act against those threatening them: group-based meta-emotions which first influenced outgroup-directed emotions and then response intentions. Both studies provided evidence for this pathway. Support for an alternative pathway in which outgroup-directed emotions shaped meta-emotions was limited and weak. We thus provide empirical evidence for the idea that group-based meta-emotion can play an important role in intergroup situations (Smith & Mackie, 2015). Although we examined meta-emotions in the context of responding to threats, we believe that these group-based meta-emotions, or ingroup members' perceptions of outgroup members' feelings, could occur in any intergroup situation (negative, positive, or neutral).

Could meta-emotion reflect what the ingroup perceives as the outgroup's attitude towards the ingroup (i.e., meta-attitudes)? We cannot definitively exclude the possibility that meta-

emotions and meta-attitudes might be related given that emotions can contribute to attitudes. However, emotions are time-dependent responses to environmental cues (Smith & Mackie, 2006) that predict intergroup outcomes whereas attitudes are typically stable over time and do not predict similar time-dependent responses to stimuli (Maitner, Mackie, & Smith, 2016; Smith & Mackie, 2015; Prislin, 1996). Previous research has demonstrated the distinct predictive advantage that specific group-level emotion-based measures have over group-level attitude-based measures for explaining intergroup phenomena (Ray, Mackie, Smith & Terman, 2012; Seger, Banerji, Park, Smith, & Mackie; 2017; Mackie & Smith, 2017), suggesting that meta-emotions and meta-attitudes are not interchangeable. Furthermore, we intentionally measured meta-emotions by assessing perceptions of the outgroup's specific emotions rather than the general evaluations that meta-attitudinal measurement would entail (e.g., "the outgroup thinks religion is outdated"; Schwarz, 2008). Thus, it is unlikely that specific meta-emotions are equivalent to meta-attitudes.

Our results showing the effect of meta-emotions on emotion and behavioural intentions at the intergroup-level are consistent with interpersonal-level research on the importance of emotion perception and recognition for guiding social interactions. For instance, Thornton and Tamir (2017) demonstrated that people accurately used mental models of others' emotion transitions as a predictive tool to decipher others' feelings and actions (Tamir & Thornton, 2018). People can and do perceive others' emotions in order to behave appropriately in social contexts. We showed that people exhibited group-based meta-emotions in intergroup contexts that shaped outgroup-directed emotions to determine appropriate responses.

What ingroup members perceived outgroup members to be feeling about them affected their outgroup-directed emotions, and consequently their intergroup action tendencies. We suggest that meta-emotions, particularly group-based meta-emotions, warrant further consideration in

future work because they shape behavioural intentions. However, meta-emotions may have other implications in intergroup relations such as contributing to ideological polarization due to negative meta-emotions reinforcing negative group-based emotions that widens the distance between groups. Also, the demonstrated meta-emotion pathway requires replication to examine how it functions across contexts involving minority or low status groups, situations that do not involve threat, and groups that have long histories of intergroup conflict.

Limitations

This research has limitations. We tested the impact of meta-emotions on outgroup-directed emotions in a correlational model and we cannot make causal claims about the effect of meta-emotions on outgroup-directed emotions and behavioural responses. Further, meta-emotion measurement preceded outgroup-directed emotion in Study 2 but not in Study 1. Correlational strength varied between pairs of measured items. Importantly, only one correlation fell below Cohen's (1988) guideline for strong relationships. All correlations exceeded typically observed strong relationships in social psychology (Schäfer & Schwarz, 2019; Gignac & Szodorai, 2016).

The alternative, sequential mediation models in both studies suggested that shame may predict meta-emotions, albeit weakly, whereas anger and disgust/contempt did not predict meta-emotions. This difference may suggest that the nature of shame is different from and produces different outcomes than anger and disgust/contempt. This speculation requires future research.

Additionally, both studies included primarily Christian samples. Comparison between religious groups was not possible due to the small sample sizes of other religious groups. Responses to some anti-religious intergroup threats may depend upon cultural and religious contexts shaping the experience of threat, however (e.g., Sheikh, Ginges, Coman, & Atran, 2012; Sasaki & Kim, 2011). Our data cannot speak to such differences except to note that outgroup-

directed disgust and contempt correlated less strongly in the Latinx/Hispanic sample than in the British sample and that anti-religious threat was perceived to be stronger by the British than Latinx/Hispanic sample. Interpretation of such effects will be aided by greater inclusion of religious groups from different cultures in experimental studies on responses to intergroup threat.

Some previous research focuses on broad differences between religious groups (e.g., Cohen & Hill, 2007) or on different responses to identity (i.e., symbolic) threat (Pasek & Cook, 2019; Ysseldyk et al., 2011). To our knowledge, this research is correlational in nature, focused on symbolic-type threats, and does not consider meta-emotion or group-based emotions. Given that anti-religious threat is growing (Pew Research Center, 2019), we need additional research within and across religious groups on responses to threats targeted at religion from various sources.

Finally, religiosity and strength of religious group identification are likely candidates for moderating the effects of anti-religious intergroup threats (e.g., Tausch, Hewstone, Kenworthy, Cairns, & Christ, 2007; Cohen, Hall, Koenig, & Meador, 2005; Kirkpatrick & Hood, 1990; Donahue, 1985). Future research could examine whether intrinsic or extrinsic religiosity moderates the impact of threat or whether the effect of religiosity also depends upon strength of religious group identification. Perhaps symbolic threats impact those with greater intrinsic religiosity whereas realistic threats enhance the effect of intergroup threat for people with greater extrinsic religiosity, especially if they are strongly identified with their religious group.

Conclusion

Together these studies offer a novel consideration of religious people's group-based emotional responses to anti-religious intergroup threats. The results have implications for understanding the responses of religious people under threat from growing anti-religious movements as well as advancing knowledge of group-based meta-emotions and their role in

shaping outgroup-directed emotions and intergroup action tendencies. Understanding meta-emotions matters given the current dearth of empirical work on their potential impact on emotions and behavioural outcomes, especially in intergroup relations.

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Footnotes

[1]Three participants dropped out after the manipulation of salience (2 from the individual condition, 1 from the group condition).

[2] Participants answered additional questions not included in analyses (see supplemental materials).

[3] Results from analyses excluding any non-religious participants (23% of sample) were consistent with results including the full sample (see supplemental results). There were three minor differences. The main effect of culture disappeared for all dependent variables except anger and there was no interaction between culture and salience affecting general response. There was an interaction affecting perceived threat. British participants perceived significantly more threat in the group salience than individual salience condition.

[4] Participants answered additional questions not included in analyses (see supplemental materials).

[5] Results from analyses excluding any non-religious participants (1% of sample) were consistent with results including the full sample (see supplemental results). Only two differences existed showing that salience significantly reduced disgust/contempt (religious sample p = .049; full sample p =.058), and that in the realistic threat condition only, salience increased meta-emotion compared to no salience (religious sample p = .046; full sample p = .055).

Table 1

Study 1 indirect effect sizes for all paths in analyses of response intentions on outgroup-directed emotions, meta-emotions, and threat

	indirect effect (*SE*)	effect 95% CI
General Response from Threat, Meta-Emotions, Anger	-0.35 (0.08)	-0.53, -0.20
General Response from Threat, Meta-Emotions, Disgust/Contempt	-0.37 (0.09)	-0.56, -0.21
General Response from Threat, Meta-Emotions, Shame	-0.24 (0.07)	-0.39, -0.11
General Response from Threat, Meta-Emotions	-0.15 (0.12)	-0.40, 0.08
General Response from Threat, Anger	-0.21 (0.12)	-0.43, 0.02
General Response from Threat, Disgust/Contempt	-0.12 (0.10)	-0.33, 0.08
General Response from Threat, Shame	-0.16 (0.10)	-0.37, 0.05

Note. Unstandardized indirect effects are reported. The reported pathways for general response from threat via meta-emotions come from the anger model.

Table 2

Study 1 coefficients for analyses of response intentions on outgroup-direction emotions, meta-emotions, and threat

	b (*SE*)	*b* 95% CI	R^2	*F*-value
General Response on Anger	0.63 (0.06)	0.51, 0.74	.34	$F(3, 321) = 55.97$***
General Response on Disgust/Contempt	0.58 (0.06)	0.47, 0.70	.32	$F(3, 321) = 50.30$***
General Response on Shame	0.57 (0.06)	0.45, 0.69	.30	$F(3, 321) = 45.80$***
General Response on Meta-Emotions	0.07 (0.05)	-0.02, 0.17	.34	$F(3, 321) = 55.97$***
General Response on Threat (direct)	-0.05 (0.18)	-0.41, 0.31	.34	$F(3, 321) = 55.97$***
General Response on Threat (total)	-0.76 (0.18)	-1.12, -0.40	.05	$F(1, 323) = 17.12$***
Anger on Meta-Emotions	0.26 (0.04)	0.17, 0.35	.18	$F(2, 322) = 35.30$***
Anger on Threat	-0.33 (0.17)	-0.67, 0.02	.18	$F(2, 322) = 35.30$***
Disgust/Contempt on Meta-Emotions	0.30 (0.05)	0.21, 0.38	.19	$F(2, 322) = 37.11$***
Disgust/Contempt on Threat	-0.21 (0.18)	-0.56, 0.14	.19	$F(2, 322) = 37.11$***
Shame on Meta-Emotions	0.20 (0.04)	0.11, 0.29	.12	$F(2, 322) = 21.73$***
Shame on Threat	-0.28 (0.17)	-0.63, 0.06	.12	$F(2, 322) = 21.73$***
Meta-Emotions on Threat	-2.12 (0.19)	-2.48, -1.75	.29	$F(1, 323) = 130.54$***

Note. The reported pathways for general response on meta-emotions and threat, and meta-emotions on threat come from the anger model. ***$p \leq .001$

Table 3

Study 2 indirect effect sizes for all paths in analyses of response intentions on outgroup-directed emotions, meta-emotions, and threat

	indirect effect (*SE*)	effect 95% CI
Campaign Opposition from Symbolic Threat, Meta-Emotions, Anger	0.47 (0.09)	0.31, 0.68
Campaign Opposition from Symbolic Threat, Meta-Emotions, Disgust/Contempt	0.48 (0.10)	0.31, 0.69
Campaign Opposition from Symbolic Threat, Meta-Emotions, Shame	0.23 (0.06)	0.13, 0.35
Campaign Opposition from Symbolic Threat, Meta-Emotions	0.17 (0.12)	-0.06, 0.40
Campaign Opposition from Symbolic Threat, Anger	0.54 (0.12)	0.32, 0.78
Campaign Opposition from Symbolic Threat, Disgust/Contempt	0.38 (0.09)	0.20, 0.58
Campaign Opposition from Symbolic Threat, Shame	0.06 (0.09)	-0.11, 0.23
Campaign Opposition from Realistic Threat, Meta-Emotions, Anger	0.42 (0.08)	0.28, 0.59
Campaign Opposition from Realistic Threat, Meta-Emotions, Disgust/Contempt	0.43 (0.08)	0.29, 0.60
Campaign Opposition from Realistic Threat, Meta-Emotions, Shame	0.20 (0.05)	0.12, 0.31
Campaign Opposition from Realistic Threat, Meta-Emotions	0.15 (0.11)	-0.05, 0.37
Campaign Opposition from Realistic Threat, Anger	0.60 (0.11)	0.40, 0.84
Campaign Opposition from Realistic Threat, Disgust/Contempt	0.31 (0.09)	0.14, 0.49
Campaign Opposition from Realistic Threat, Shame	0.07 (0.09)	-0.10, 0.24
General Response from Symbolic Threat, Meta-Emotions, Anger	0.54 (0.10)	0.35, 0.77
General Response from Symbolic Threat, Meta-Emotions, Disgust/Contempt	0.51 (0.10)	0.34, 0.72
General Response from Symbolic Threat, Meta-Emotions, Shame	0.22 (0.06)	0.12, 0.35
General Response from Symbolic Threat, Meta-Emotions	0.12 (0.11)	-0.11, 0.34
General Response from Symbolic Threat, Anger	0.61 (0.13)	0.37, 0.89
General Response from Symbolic Threat, Disgust/Contempt	0.40 (0.10)	0.21, 0.62
General Response from Symbolic Threat, Shame	0.05 (0.08)	-0.11, 0.22
General Response from Realistic Threat, Meta-Emotions, Anger	0.48 (0.09)	0.32, 0.67
General Response from Realistic Threat, Meta-Emotions, Disgust/Contempt	0.46 (0.08)	0.31, 0.64
General Response from Realistic Threat, Meta-Emotions, Shame	0.20 (0.05)	0.11, 0.31
General Response from Realistic Threat, Meta-Emotions	0.10 (0.10)	-0.09, 0.30
General Response from Realistic Threat, Anger	0.69 (0.12)	0.46, 0.93
General Response from Realistic Threat, Disgust/Contempt	0.32 (0.09)	0.15, 0.52
General Response from Realistic Threat, Shame	0.07 (0.08)	-0.09, 0.23

Note. Unstandardized indirect effects are reported. The reported pathways from threat via meta-emotions come from the anger model.

Table 4

Study 2 coefficients for analyses of response intentions on outgroup-directed emotions, meta-emotions, and threat

	b (*SE*)	95% CI	R^2	*F*-value
Campaign Opposition on Anger	0.49 (0.05)	0.39, 0.58	.31	$F(4, 426) = 48.23$***
Campaign Opposition on Disgust/Contempt	0.45 (0.05)	0.35, 0.56	.28	$F(4, 426) = 40.54$***
Campaign Opposition on Shame	0.45 (0.06)	0.34, 0.56	.27	$F(4, 426) = 38.95$***
Campaign Opposition on Meta-Emotions	0.09 (0.05)	-0.02, 0.19	.31	$F(4, 426) = 48.23$***
Campaign Opposition on Symbolic Threat (direct)	-0.48 (0.22)	-0.91, -0.05	.31	$F(4, 426) = 48.23$***
Campaign Opposition on Realistic Threat (direct)	0.11 (0.22)	-0.31, 0.54	.31	$F(4, 426) = 48.23$***
Campaign Opposition on Symbolic Threat (total)	0.70 (0.22)	0.27, 1.13	.07	$F(2, 428) = 16.68$***
Campaign Opposition on Realistic Threat (total)	1.29 (0.22)	0.85, 1.72	.07	$F(2, 428) = 16.68$***
General Response on Anger	0.55 (0.05)	0.46, 0.65	.38	$F(4, 426) = 64.86$***
General Response on Disgust/Contempt	0.48 (0.05)	0.38, 0.58	.31	$F(4, 426) = 48.19$***
General Response on Shame	0.43 (0.05)	0.33, 0.54	.28	$F(4, 426) = 41.42$***
General Response on Meta-Emotions	0.06 (0.05)	-0.04, 0.16	.38	$F(4, 426) = 64.86$***
General Response on Symbolic Threat (direct)	-0.74 (0.21)	-1.15, -0.33	.38	$F(4, 426) = 64.86$***
General Response on Realistic Threat (direct)	0.17 (0.21)	-0.24, 0.58	.38	$F(4, 426) = 64.86$***
General Response on Symbolic Threat (total)	0.53 (0.22)	0.10, 0.96	.09	$F(2, 428) = 21.52$***
General Response on Realistic Threat (total)	1.44 (0.22)	1.00, 1.87	.09	$F(2, 428) = 21.52$***
Anger on Meta-Emotions	0.50 (0.05)	0.41, 0.59	.40	$F(3, 427) = 93.93$***
Anger on Symbolic Threat	1.11 (0.21)	0.70, 1.52	.40	$F(3, 427) = 93.93$***
Anger on Realistic Threat	1.24 (0.21)	0.84, 1.64	.40	$F(3, 427) = 93.93$***
Disgust/Contempt on Meta-Emotions	0.55 (0.04)	0.47, 0.64	.41	$F(3, 427) = 98.09$***
Disgust/Contempt on Symbolic Threat	0.84 (0.20)	0.46, 1.22	.41	$F(3, 427) = 98.09$***
Disgust/Contempt on Realistic Threat	0.67 (0.19)	0.29, 1.05	.41	$F(3, 427) = 98.09$***
Shame on Meta-Emotions	0.26 (0.04)	0.18, 0.35	.12	$F(3, 427) = 18.72$***
Shame on Symbolic Threat	0.12 (0.19)	-0.25, 0.50	.12	$F(3, 427) = 18.72$***
Shame on Realistic Threat	0.16 (0.19)	-0.21, 0.54	.12	$F(3, 427) = 18.72$***
Meta-Emotions on Symbolic Threat	1.93 (0.20)	1.54, 2.31	.21	$F(2, 428) = 57.32$***
Meta-Emotions on Realistic Threat	1.71 (0.20)	1.32, 2.10	.21	$F(2, 428) = 57.32$***

Note. Pathways via meta-emotions and the direct and total effects are reported from the anger models. Pathways between meta-emotions and emotions, emotions and threat, and meta-emotions and threat reported from models predicting general responses. ***$p \leq .001$

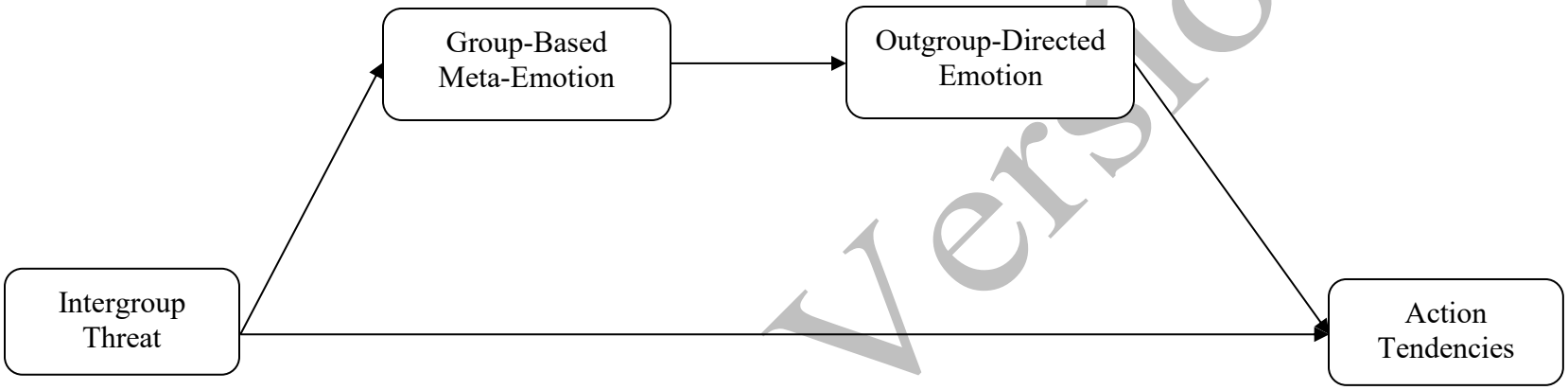

Figure 1. Hypothesized theoretical model of intergroup threat shaping action tendencies through meta-emotions influencing outgroup-directed emotions.

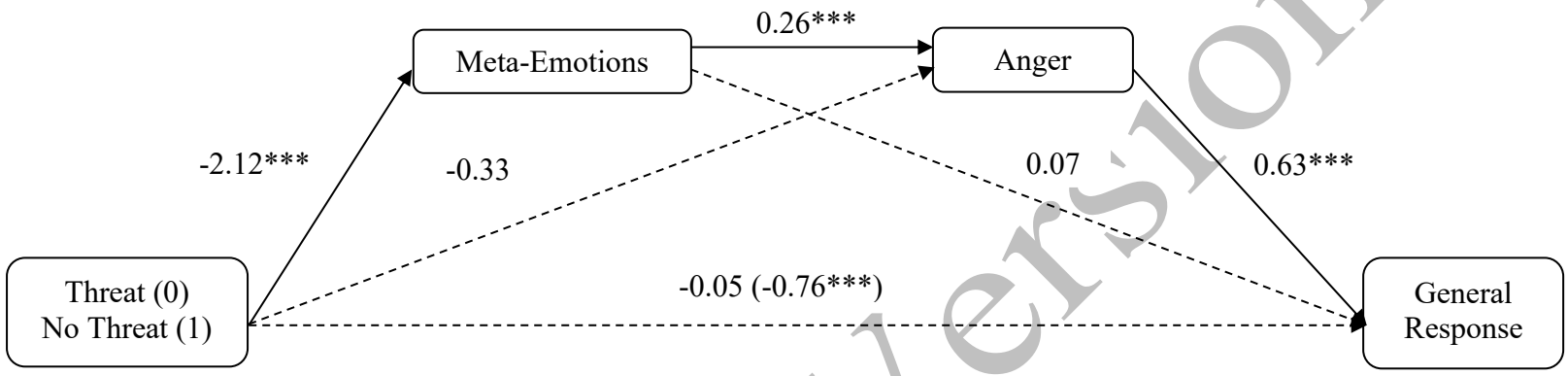

Figure 2. Study 1 model of threat to response intentions through meta-emotions and outgroup-directed anger. Unstandardized coefficients are reported. ***$p \leq .001$.

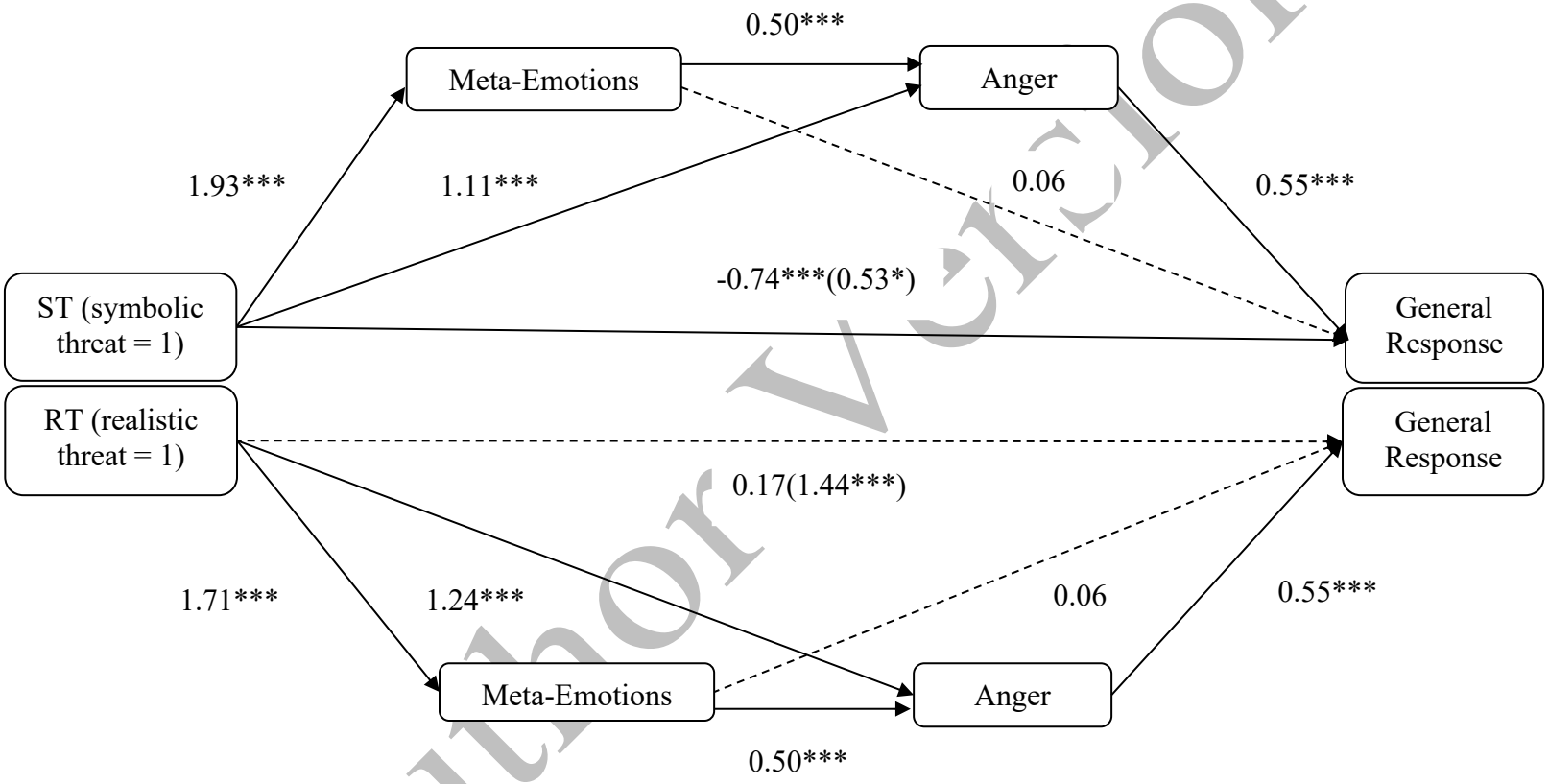

Figure 3. Study 2 model of threat to general response intentions through meta-emotions and outgroup-directed anger. Unstandardized coefficients are reported. *$p < .05$, ***$p \leq .001$