Compensatory Bolstering: Uncertainty or Threat?

THESIS

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Abstract

There are many processes by which people can become more extreme in their attitudes and judgments—some more reasonable and rational, some more unconscious and motivational in nature. Across two studies, this thesis focuses on one process that has demonstrated the potential to polarize judgments: defensive bolstering. There are many concurrent theories attempting to explain why, when we feel uncertain and/or threatened, we compensate by bolstering, or extremizing, various judgments. None of these theories, however, have manipulated threat and uncertainty in an orthogonal manner. Thus, it has been unclear whether feelings of uncertainty are driving the bolstering effects as some theories argue, whether feelings of threat are the driving force as others argue, or if there is something special about the confluence of both uncertainty and threat that is pervasive amongst manipulations in the field.

Study 1 examined the viability of a procedure which required participants to imagine hypothetical scenarios to vary threat and uncertainty. This study showed that the combination of threat and uncertainty produced more defensive bolstering than their absence. Bolstering was shown across three measures frequently used in the psychological defense literature. Study 2 then applied these vignettes to disentangle threat from uncertainty and demonstrated that imagining the scenario high in both uncertainty and threat produced greater bolstering on the same measures used in Study 1
than just uncertainty or threat, alone. Collapsing across Studies 1 and 2 in an exploratory analysis suggested that the only condition in which participants extremitized on the dependent variables was when uncertainty was combined with threat. This research suggests that defensive, compensatory bolstering effects may not be due solely to either the experience of uncertainty or threat, as many theories claim, but that it may actually rely on the experience of both.
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Chapter 1: Introduction

From extreme partisanship in Washington to terrorism abroad, it appears that radicalization in values and opinions has become more salient and brutal—if not more commonplace and consequential—than in recent memory. The divided U.S. Congress allowed the federal government to shut down for over two weeks in October of 2013, due largely to an inability to compromise and negotiate across the aisle. Countless research studies have consistently revealed increases in political partisanship over the past 30-40 years (e.g., Baldassarri & Gelman, 2008; Druckman, Peterson, & Slothuus, 2013; Layman, Carsey, & Horowitz, 2006) In addition, the recent flood of beheadings being broadcast by ISIS and the dramatic radicalization of Boko Haram over the past decade from a relatively peaceful organization to the current terrorist activities of kidnapping children and massacring whole towns (Sergie & Johnson, 2015) have provided startling examples of religious extremitization abroad. With even the mundane example of neighborly discussions turning sour when sensitive topics are broached, it is clear that extreme opinions and beliefs lead to much discomfort and hostility. A rarely discussed matter, however, is why people adopt extreme beliefs. Is it merely a process by which people engage in a dispassionate and relatively rational analysis of arguments, or can less rational and more motivational processes be involved? Although there is considerable work within the traditional persuasion domain that focuses on polarization of attitudes as
a result of processing of information, both external and self-generated, or mere exposure to it (see Petty & Wegener, 1998 for a review), a more recent body of work has begun to focus on how polarized beliefs can represent a defensive reaction to various psychological states.

In particular, this thesis represents an attempt to explore two of the psychological states that are presumed to produce belief extremity as a result of defensive reactions. Specifically, a growing literature suggests that extreme judgments can be the result of a compensation process in which people become more extreme as a defensive reaction to either feelings of threat or uncertainty. As explained in more detail shortly, there are various specific theories suggesting that people can engage in compensatory bolstering of their beliefs, rendering them more extreme, as a means of responding to feelings of threat or uncertainty. However, there is very little explicit theoretical or empirical differentiation between whether feelings of uncertainty or threat are the primary driving force, even in theories or research studies that seem to emphasize one over the other. Manipulations used across the psychological defense literature consistently fail to compare the independent effects of uncertainty and threat. This failure is somewhat understandable, as threat and uncertainty co-occur frequently and share plenty of conceptual overlap. However, they remain distinct constructs.

Threat has been defined as the potential for harm or loss against which one expects to be unable to defend (Tomaka, Blascovich, Kelsey, & Leitten, 1993). Although this definition clearly involves a lack of certainty (using tentative words like “potential” and “expects”), the uncertainty surrounding a threat exists on a continuum: A threat (i.e.,
a harm or loss against which one can’t defend) can be nearly guaranteed to occur, and one can be quite sure about the outcome of that threatening event, or it can be very abstract and uncertain, with the ultimate consequences being completely unknown.

Uncertainty has many nuanced definitions throughout psychology and beyond, but for the current research, we conceptualized it as a state in which one feels a lack of predictability about her/his situation, including the violation of prior expectations or uncertainty about what comes next (consistent with Smith & Ellsworth, 1985). In a similar sense to threat’s varying levels of uncertainty, uncertainty can exist on a continuum of threat: It has long been established that feelings of uncertainty are, in general, highly uncomfortable and potentially threatening (e.g., Gao & Gudykunst, 1990; Kagan, 1972). However, more recent research has revealed that uncertainty about pleasant things can actually enhance felt positivity in the experience (Wilson, Centbar, Kermer, & Gilbert, 2005). Given this conceptual overlap, perhaps it shouldn’t be too surprising that researchers consistently fail to test the two orthogonally. Were a good orthogonal design to come along, however, what would the various psychological defense theories predict? Although there are some nuances, the theories essentially fall into two categories: those which appear to favor threat as the ultimate determinant of compensatory processes and those which favor uncertainty. Each type of theory is next reviewed in turn.

**Threat as a Determinant of Extremity**

Some theories emphasize feelings of threat as the primary mechanism leading to compensatory bolstering. In a truly orthogonal experimental design, then, such theorists
would likely predict that conditions of certain threat would result in at least as much extremitization as an uncertain threat, possibly even more. Perhaps the most prominent of the theories emphasizing threat, terror management theory (TMT), predicts that, when faced with reminders of one’s own mortality (“mortality salience;” MS), people attempt to achieve symbolic immortality by becoming better members of their culture, so that they may be venerated after they die, perhaps even (in religious cultural contexts) literally surviving one’s bodily death by earning entry to a positive afterlife (Rosenblatt et al., 1989). Terror management theory has been extremely prolific, with the two formative empirical publications (Greenberg et al., 1990; Rosenblatt et al., 1989) respectively receiving about a thousand citations each, per Google Scholar. The two primary findings from those papers are that participants who were asked to think about their own death later punished a prostitute more harshly and rewarded a “hero” more generously (“upholding cultural values;” Rosenblatt et al., 1989) and increased liking for those who wrote positively of the participant’s culture and increased disliking for those who wrote negatively about it (“cultural worldview defense;” Greenberg et al., 1990). The research has been replicated and extended time and again over the years, demonstrating in many ways that people more strongly value and endorse identification with their own culture or salient group memberships when faced with thoughts of their own death.

Terror management theory explicitly emphasizes that the observed cultural extremity effects are responses to feelings of paralyzing terror due to thoughts of one’s demise. However, it is important to note that although the prospect of one’s death is clearly threatening, it also contains elements of uncertainty, confounding the two. That
is, although people know that they will die for certain at some point, they do not know precisely when or how they will die, and they cannot know what it is like to experience death, or what (if anything) occurs thereafter. In fact, experiments have repeatedly suggested that reducing either the threat or the uncertainty of one’s mortality can wipe out the compensatory bolstering effects usually observed. For example, adding a sense of certainty by asking participants to imagine death at their own hands eliminated the effect (Fritsche, Jonas, & Fankhänel, 2008), though this may have also reduced the threat. Similarly, providing an alternative means of addressing the threat can eliminate the effect as well: TMT itself establishes that high self-esteem can moderate the effects of mortality salience because they argue, similar to sociometer theory (Leary, 1999), it indicates strong acceptance and positive evaluation by one’s culture, therefore providing a high perceived likelihood of symbolic immortality through remembrance in one’s culture. However, although feeling high in self-esteem may reduce feelings of threat, it may also enhance feelings of confidence or certainty. Although speculation abounds, research on terror management does not clearly establish whether threat or uncertainty (or the combination) are the critical factors. Because terror management was among the first theories in the psychological defense literature, and because mortality salience has been established as a uniquely strong induction in the psychological defense literature (see Martens, Burke, Schimel, & Faucher, 2011), it has become a de facto standard of comparison, entrenching this confounding of uncertainty and threat in other inductions across the literature.
In an alternative framework on compensatory bolstering, Joshua Hart and colleagues (e.g., Hart, 2014; Hart, Shaver, & Goldenberg, 2005) have put forth a perspective incorporating attachment theories and insecurity reduction theories to explain compensatory bolstering effects. This framework is broader than TMT in that it argues that people will shore up psychological defenses against any perceived threat, as all threats lead to feelings of insecurity, the key driver in the model. This more general insecurity, rather than the existential dread induced by thoughts specifically of one’s own death, is the determinant of extreme views in this security system model. Put simply, compensatory responses are not limited just to the threat of one’s own mortality, but anything that reduces “confidence that everything will be okay” (Hart, 2014, p. 28). For example, Hart et al. (2005) found that, compared to thinking about watching TV, both mortality salience and thinking about separation from a romantic partner showed greater worldview defense (Greenberg et al., 1990). This effect, however, only occurred for those high in attachment anxiety (e.g., those who tend to worry about being abandoned, about partners not reciprocating care to the same degree; Brennan, Clark, & Shaver, 1998), whereas those low in attachment anxiety showed no effect of condition. This moderation presumably occurred because those low in attachment anxiety had confidence in their social relationships, reducing feelings of threat triggered by imagining a romantic separation, as well as increased confidence that they will be well-remembered after their death. Although more accommodating to uncertainty as a threat in itself, as with TMT, Hart’s security-system model would likely predict a greater threat effect than uncertainty effect, were the two manipulated orthogonally. For example, being certain that your
A romantic partner is leaving you (or that you are in physical danger, etc.) would likely disrupt your confidence that everything will be okay more than thinking it but being uncertain about it. Additionally, it explicitly states that we should not assume an equivalence of potential insecurity either within or across domains of threat, with threat of death likely being the greatest source of insecurity (Hart, 2014), and a certain threat should lead to lower expectations that “everything will be okay” than an uncertain threat.

A very similar theory has also been put forth which emphasizes the evolutionary importance of an “alarm system” that can be activated when our unconscious vigilance processes detect alarming cues (Holbrook, Sousa, & Hahn-Holbrook, 2011). The researchers predict that, when the alarm system is tripped, we become more acutely aware of affectively relevant stimuli as potential hazards or resources, thus explaining the compensatory effects seen across the psychological defense literature. Like Hart’s security system model, the unconscious vigilance system is accommodating to uncertainty as a threat, but it is the threat induced by the uncertainty on which it focuses, not uncertainty in itself.

Uncertainty as a Determinant of Extremity

Alongside theories favoring the impact of threat on compensatory processes, other theories have emerged that emphasize uncertainty reduction as the driving force behind compensatory bolstering. Michael Hogg’s uncertainty-identity theory, for example, explicitly emphasizes uncertainty over threat. He argues that people need to feel certain about self-relevant things so that they know how they should behave. When that certainty is challenged, people can seek to reestablish certainty through enhanced identification.
with groups (thus increased expression of that group’s norms, beliefs, and expectations), as these groups provide external sources of certainty through their perceived or explicitly prescribed views, beliefs and norms. As a demonstration of the importance of uncertainty in compensatory bolstering effects, Hogg and his colleagues demonstrated that mortality salience inductions only create more extreme identification with one’s nationality for those who are uncertain about their belief (or disbelief) in an afterlife. Certainty in either direction about what comes next—be it belief or disbelief in an afterlife—eliminated the effect (Hohman & Hogg, 2011). Hogg and colleagues have also shown that, after thinking about aspects of one’s life that produce a feeling of uncertainty, people identify more strongly not only with their pre-existing groups such as their political group or nationality, but also arbitrary, ad hoc groups (via a minimal group paradigm; Hogg, Sherman, Dierselhuis, Maitner, & Moffitt, 2007). Although the effect does occur even in minimal group contexts, Hogg argues that groups that are more entitative and which demonstrate unequivocal positions on issues of importance to the individual are especially attractive for reducing uncertainty. This is because such groups paint issues in black-and-white terms, leaving no room for uncertainty or middle ground. Thus, extreme groups are especially attractive in states of high uncertainty (Hogg, 2014). Hogg’s theory revolves around feelings of uncertainty, thus would surely favor uncertainty over threat if orthogonalizing the two. Kruglanski (2014) has recently expressed very similar sentiments, arguing that the Middle-East is rife with uncertainty in many respects, making the extremity conveyed by fundamentalist groups highly attractive.
In a somewhat similar approach, Ian McGregor and colleagues have done a lot of work investigating the idea that people bolster their conviction on pre-existing values, attitudes, goals, and group-identifications when they feel “personal uncertainty” which refers to holding uncertain or inconsistent cognitions about things relevant to one’s own life (McGregor & Marigold, 2003). In this framework, compensatory bolstering helps to restore a sense of self-certainty and self-integrity. McGregor and colleagues have demonstrated intergroup bias on par with that resulting from MS inductions in a temporal discontinuity manipulation, in which participants wrote about how they imagined a real event from their childhood would change if it were revisited in the year 2035. This process of imagining a situation from one’s past happening to one’s future self was expected to induce feelings of uncertainty because it violates Steele’s (1988) “unitary self,” or an expectation of an integrated past, present, and future self. From this study and others like it in which they find felt uncertainty driving polarization effects, McGregor and colleagues go as far as to claim that personal uncertainty is likely the “most potent active ingredient” to MS inductions (McGregor, Zanna, Holmes, & Spencer, 2001). However, the inductions used by McGregor and colleagues do not actually orthogonalize threat and uncertainty, and they don’t even perfectly eliminate threat while retaining uncertainty. For example, the temporal discontinuity induction is meant to induce uncertainty without inducing feelings of threat, but the undergraduates in their experiment would be roughly 50 years old in 2035, and asking a teenager to imagine being 50 years old may induce end-of-life fears, especially considering that one would have to contemplate whether their parents, who were likely an integral part of the recalled
childhood memories, would still be alive in the reimagined scenario. Regardless, it seems very safe to conclude that McGregor and colleagues would predict that uncertainty would be a more important factor in producing polarization than threat when examining each independently. Indeed, as with Hogg’s uncertainty-identity theory, this approach holds that inducing threat is not at all necessary.

Perhaps the most general of the uncertainty theories, the meaning maintenance model (MMM), attempts to expand the reach of TMT by explaining the primary motivation behind the observed effects as not being in response to terror at the thought of one’s death, but because people are motivated to see “meaning” in the world, “that is, a need to perceive events through a prism of mental representations of expected relations that organizes their perceptions of the world” (Heine, Proulx, & Vohs, 2006, p. 88). Under this model, death is only one challenge to people’s expected relations (the expectation of one’s own continued existence), and the researchers allow for fluid compensation of meaning across (at least) four domains: certainty, self-esteem, belonging, and symbolic immortality. Thus, when people think of their own death, they can compensate for the disruption of meaning by more strictly upholding cultural values or defending worldviews, as was observed in TMT research. According to this framework, however, the same effects (and more), can also be triggered by manipulations that clearly have no link to one’s own mortality, such as greater punishment of a prostitute after experiencing change blindness (Proulx & Heine, 2008) or greater identification with one’s culture in response to a paradoxical parable by Franz Kafka than after reading Aesop’s classic (and straightforward) *The Tortoise and the Hare* (Proulx,
Heine, & Vohs, 2010). Because the MMM is so accommodating (as they would consider even a 100% certain threat an interruption of one’s expectation of safety, and therefore an instance of uncertainty), it is exceptionally difficult to operationalize a truly orthogonal design under this framework. If possible, though, the theory conceptually favors uncertainty over threat, as any threat is really having its effect through its violation of the expectation of safety.

Other Theories

Several other theories relate to the issue of whether threat, uncertainty, or their combination lead to compensatory bolstering. These theories vary in how clearly they favor threat, uncertainty, or their combination, but their connection to the question at hand is clear. For example, Kay and colleagues have an extensive body of work demonstrating that people need to experience control in the world, and when control is lost, a number of effects are observed. Kay and colleagues find, in general, that when people feel a loss of personal control, they more strongly endorse external sources of control, such as greater belief in a controlling god than a more passive god (Kay, Gaucher, Napier, Callan, & Laurin, 2008) as well as showing increased endorsement of religious and secular institutions of control (Kay, Gaucher, McGregor, & Nash, 2010). This motivated perception of control over the world is directly in line with the ideas of the meaning maintenance model. The presumption is that people want to know that the world will work in predictable ways. Thus, it is possible to reinterpret the theory to be about responding to uncertainty, rather than control.
Cognitive dissonance (Festinger, 1957) has also been interpreted as a theory about responding to uncertainty (Martin & van den Bos, 2014), as well as a theory requiring uncertainty about potential negative consequences (clearly a state related to the feeling threatened; van Harreveld, van der Pligt, & de Liver, 2009). Thus, it is unclear whether dissonance theory would favor threat, uncertainty, or their combination (or if different dissonance theorists would make different predictions). In dissonance theory, people unconsciously either add cognitions, or decrease or increase the importance of one of the conflicting cognitions, in order to resolve the discomfort created by holding conflicting thoughts. Indeed, cognitive dissonance has recently been directly demonstrated to result in compensatory bolstering (Randles, Inzlicht, Proulx, Tullett, & Heine, 2015). As mentioned, however, it is unclear whether the discomfort driving dissonance effects is due most to uncertainty, threat, or if there is something special about their combination.

As a final example, van den Bos and colleagues also have an uncertainty management theory stating that, under conditions of uncertainty, people enhance the importance of fairness as an alternative means of informing their behavior. In fact, they argue that uncertainty is likely a huge contributor to mortality salience effects (e.g., van den Bos & Lind, 2002). These theories, much like the ones reviewed more in depth above, also speak to the compensatory effects of uncertainty or threat, but still fail to differentiate clearly the effects of each.

One theory that does explicitly treat uncertainty and threat as unique is Jost and colleagues’ “uncertainty-threat model of political conservatism” (Jost & Napier, 2011). This theory states that conservative ideology is more associated with being sensitive or
averse to feelings of both threat and uncertainty. However, it is a theory of associations. Jost and colleagues have yet to publish any experimental tests of this theory, and, as the name implies, they restrict the theory to political conservatives. Thus, there is yet to be research guided by a theory of compensatory bolstering that makes clear, experimental attempts to differentiate the effects of threat and uncertainty. As a result, there is no prior empirical attempt to examine the impact of threat and uncertainty independently on belief extremitization.

**Summary of Compensatory Bolstering Theories**

As should be apparent from the theories and research just reviewed, there are myriad demonstrations of compensatory bolstering, with many theories attempting to explain why, and in response to what, people experience these defensive responses. Although largely reducible to feelings of threat or uncertainty, across theories, there is much imprecision of language, with very little explicit differentiation between whether feeling uncertain, feeling threatened, or both, drive these compensatory bolstering effects. The researchers who do emphasize one over the other (e.g., Hart emphasizing threat, Hogg emphasizing uncertainty) do not experimentally demonstrate the predominance of their mechanism of choice. Most relevant to the current work is that no prior research has attempted to orthogonalize the two variables of threat and uncertainty and investigate resulting extremitization. At best, the manipulations in the literature are designed to induce *either* uncertainty *or* threat while controlling for the other, though the success of this strategy is debatable since manipulations of one could plausibly affect the other.
Importantly, it has not been the norm to attempt to manipulate both, testing the two orthogonally.

One study by van den Bos and colleagues (2005) got close to separating uncertainty from threat with their comparison of an “uncertainty salience” induction (uncertainty) to mortality salience (threat plus uncertainty), in which they asked participants to think about either “feeling uncertain” or their own death. Van den Bos et al. found worldview defense (dislike for the author of an anti-USA essay and liking for author of a pro-USA essay) in both conditions, with an effect size three times larger in the uncertainty salience than mortality salience condition. Further, they only observed the effect for those in the mortality salience condition for participants who reported thinking about uncertainty during the manipulation. The authors argued that this demonstrated the overwhelming importance of uncertainty in mortality salience effects, but may be an inappropriately strong claim. First, the experiment did not utilize any kind of control condition, so we cannot know whether the worldview defense in the mortality salience condition was actually an increase over what is typically seen in control conditions, or if it was simply a failure to replicate the polarization of worldview defense effects typically seen in response to mortality salience. More importantly, given the open-ended nature of both conditions, it is entirely possible that the most salient example of feeling “uncertain” worth writing about for a psychology experiment was a “close call” (or actual accident) when the participant wasn’t sure what was going to happen. If this is the case, the uncertainty salience condition might have been a self-generated personal threat condition, which could plausibly be stronger than the more typical experimenter-generated mortality
salience induction. The limitations of this attempt at separating threat and uncertainty are highly representative of other attempts in the literature, as well.

Disentangling Threat from Uncertainty

As should be clear from the brief review of the compensatory bolstering literature, although theorists have discussed both threat and uncertainty, no study has clearly varied them independently. A sea change may be under way, however: In the past year, researchers have urged the field to consider the importance of uncertainty when studying threat (Martin & van den Bos, 2014) and have manipulated threat and uncertainty orthogonally in a study on political tolerance (Haas & Cunningham, 2014). In the vein of this movement, the goal of the current research is to disentangle the effects of threat and uncertainty on compensatory bolstering outcomes. To do this, the current research adapts a manipulation developed by Haas and Cunningham (2014) 25 years after the first terror management theory publication (Greenberg, Pyszczynski, & Solomon, 1986). Specifically, Haas and Cunningham manipulated threat and uncertainty orthogonally by asking participants to read short vignettes about a visitor to their home. In the threat conditions, the visitor arrived at night, and was either someone trying to break in (uncertain threat) or who had successfully broken into the participant’s home (certain threat). In the no-threat (safe) conditions, the visitor arrived in the afternoon, and was either somebody ringing the doorbell (uncertain safe) or an expected and recognized friend (certain safe). Haas and Cunningham developed these scenarios in order to study their impact on political tolerance rather than compensatory bolstering. More relevant to the current research than their specific goals or outcomes is their demonstration that
threat and uncertainty can be manipulated orthogonally. Thus, we adapted their procedure to examine compensatory bolstering.

The key goal of the current research was to address whether feelings of threat and uncertainty when combined would produce greater compensatory bolstering than either feelings of threat or uncertainty alone. Alternatively, perhaps either feelings of threat or uncertainty alone would be sufficient to produce the same bolstering effect as their combination. As discussed above, all prior theories seem to agree that the vignette high in both uncertainty and threat will lead to compensatory bolstering effects. But what about the certain-threat and uncertain-safe vignettes? It seems likely that the theories favoring threat over uncertainty (TMT, Hart et al.’s security system model, and Holbrook et al.’s unconscious vigilance model) would predict a greater effect of threat than uncertainty, perhaps even the largest effect in the certain-threat condition, as a certain threat should be objectively more threatening than a similar uncertain threat. Even if subjective feelings aren’t different, the threatened harm is less likely to occur under conditions of uncertain threat. Theories emphasizing uncertainty, on the other hand, would likely predict a greater effect of uncertainty than threat.
Chapter 2: Study 1

Because our planned inductions to differentiate uncertainty and threat have not been used with psychological defense outcome measures in any prior research, it was prudent to first demonstrate that the condition which, conceptually, most closely resembled the prototypical psychological defense induction of mortality salience (both threatening and uncertain) resulted in the expected extremization effect over a simple control condition (i.e., both safe and certain). Thus, Study 1 was a simple two condition experiment aiming to demonstrate that our combined manipulation of uncertainty and threat would induce more extremization across three commonly used measures of compensatory bolstering than that of a combined condition of certainty and safety. If these conditions did not differ in their ability to induce attitude extremity, then this procedure would not allow us to address the more fundamental question of disentangling uncertainty from threat.

Methods

Study Design. Fifty-three undergraduate students (35 women) at the Ohio State University were recruited for this two experimental condition study in exchange for credit or extra credit in their introductory psychology course. Because there were three measures, the study design was a $2 \times 3$ mixed model, with experimental manipulation
(uncertain-threat and certain-safety) varying between subjects and compensatory measure (upholding cultural values, religious certainty, and worldview defense) as a within-subjects factor.

Procedure. Participants were invited to complete a study in which they were told they would imagine one or more scenarios and then respond to measures about how they felt and their personality. Participants completed the study over the internet, using the Qualtrics website, either outside of the lab (N = 19) or in groups of 1-10 in a psychology lab (N = 34). Students participating in the lab completed the study in a room containing 11 computer workstations, each separated from the others to ensure privacy of responses. Whether participants completed the study outside of the lab or in it showed no main effect on any of the dependent variables (all ps > .43), nor did it qualify any effects of condition (all ps > .19). Thus, online and in-lab participants are analyzed together in all analyses.

In the study, participants read a scenario about a visitor to their home, with the nature and hypothetical time-of-day of this scenario varying across conditions. After reading the scenario, participants were asked to list at least three thoughts they would have in that situation. Consistent with past terror management research, participants then completed a brief distraction task, the Positive and Negative Affective Schedule (PANAS; Watson, Clark, & Tellegen, 1988), which asks participants to report to what extent they are experiencing 10 positive and 10 negative emotions. This distraction task serves two purposes. First, as has been demonstrated by prior terror management research, thoughts of one’s death must be outside of focal attention in order to observe
compensatory bolstering, and a distractor task allows for this to occur (Pyszczynski, Greenberg, & Solomon, 1999). Second, because the PANAS allows for measurement of positive and negative emotional states, it permits a test of whether any effects are driven simply by differences in emotional valence. Thus, it is among the most popular distractor tasks used in the mortality salience (MS) literature (Burke, Kosloff, & Landau, 2013). Finally, participants completed a series of three dependent measures commonly used in the MS literature, followed by individual difference measures hypothesized to be relevant, manipulation checks, and demographic measures. Participants were then debriefed and granted credit for participating.

*Independent Variable.*

Participants were randomly assigned to one of two conditions in which they imagined one of two scenarios. The manipulation was an adaptation of a procedure developed by Haas and Cunningham (2014) for a different purpose. The original scenarios involve a visitor to one’s home, with the level of threat manipulated via hypothetical time of day (afternoon vs night) and the “type” of arrival by the visitor (trying to open the front door vs. ringing the doorbell). Certainty was manipulated within the threat condition by specifying either that “this person breaks in to your house” (certain) or “you think someone is trying to break in, but you’re not sure if they will be able to get in or not” (uncertain), and within the no-threat condition by specifying either that “you’re not sure who it is” (uncertain) or “you are expecting your friend John and you can see him through the window” (certain). The scenarios were modified for the current research in an attempt to increase the amounts of threat and uncertainty. In both
scenarios, participants were asked to imagine that somebody was at the front door of their home. In the uncertain-threat condition, the visitor was described as a masked man attempting to open their front door at night. The threat in this scenario came from the implication that the masked man might pose a danger at night. As noted earlier, threat refers to the potential for harm or loss (Tomaka et al., 1993). The uncertainty stemmed from the doubt as to whether the masked man would successfully gain entry into the home and the specific consequences if he did. In the certain-safe condition, participants were told they were expecting a package, and the visitor at the door was a man in uniform holding a box in the afternoon. This scenario was more certain in that participants were expecting this visitor and knew the intent of the visitor (to deliver the package), and it was unthreatening in that the visitor was knocking on the door (rather than attempting to open it), uniformed (implying reputability), and occurring in broad daylight. In order to increase elaboration of the scenario, participants were asked to list three to five thoughts they would have in that situation (see Appendix A for exact wording of the scenarios and prompt).

**Potential Individual Difference Moderators**

After all of the key dependent measures were assessed, participants completed multiple individual difference measures that prior literature suggested could be relevant to the effects of interest. First, attitudes toward the legality of prostitution were collected,

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1 Although it is possible that some participants would interpret this situation more as a challenge than a threat (Tomaka, Blascovich, Kelsey, & Leitten, 1993), as reported in the results section, manipulation checks suggest otherwise. They demonstrate a significant difference between the two conditions on both “fear” and “threat,” suggesting that the manipulation was not seen as an accomplishable challenge with potential gains if successful, but rather as an actual threat of danger with a low likelihood of being overcome.
as this measure has been shown to be a moderator of the upholding cultural values measure (Rosenblatt et al., 1989). Second, because it has been predicted to be an individual difference moderator of radicalism under states of uncertainty and threat (see Kruglanski, 2014), need for closure (Pierro & Kruglanski, 2006) was also assessed. Third, under a similar rationale, intolerance for uncertainty (Grenier, Barrette, & Ladouceur, 2005) was collected. Additionally, because of the communal nature of the dependent variables being collected, measures of individualism and collectivism were assessed as potential moderators (Shulruf, Hattie, & Dixon, 2007). Finally, because there is some disagreement in the mortality salience literature on whether MS results in a shift toward conservatism or toward one’s own cultural worldview (see Burke, Kosloff, & Landau, 2013), we collected self-reported political identification (regarding social issues, specifically) on a 7-point scale (1=Very Liberal, 7=Very Conservative). None of these measures produced significant moderation of the compensatory bolstering effects. However, two individual differences — attitudes toward prostitution and political orientation — produced marginal interactions, and these effects are presented in Appendix C.

**Dependent Variables**

Three different assessments taken from the prior literature on mortality salience were used to examine compensatory bolstering (extremity of responses). These are described next in the order in which participants responded to them.

*Upholding Cultural Values. The extent to which participants upheld cultural values was measured using a combination of the archetypal prostitute punishment and its
less commonly used but important counterpart of rewarding a “hero.” This allowed for a test for extremitization in enforcing cultural values in both a negative (punishing) and positive (rewarding) direction (Rosenblatt et al., 1989). For the punishment item, participants were told that a woman has been arrested for the second time in 12 months for the crime of prostitution. They were told that she did not miss her last trial and that her trial for the current violation is in one month. Participants were then asked to enter the value at which they would set the woman’s bail, from $0 to $1,000. A brief explanation of how bail works was provided as well, in case participants were not aware.

For the reward item, participants were similarly asked to enter their suggested amount, from $50 to $10,000, to reward a woman who called a police tip-line on her neighbor, who was wanted by police, despite fearing his revenge were he to find out that it was she who called (see Appendix B for full wording of both). Most prior research uses only the punishment measure. In the only study to our knowledge in which both of these measures have been reported (Rosenblatt et al., 1989), they were analyzed separately, though they produced consistent results. Because people can show polarization on one measure, the other, or both, the two items were combined to produce an overall measure of extent of upholding cultural values. That is, even though the measures were uncorrelated ($r = .160, p = .081$), combining them allowed maximum extremity to occur when people provided more extreme amounts in both scenarios, least extremity when low dollar amounts were provided for both scenarios and middling amounts when people were middling on both or high on one and low on the other (see Jarvis, MacKenzie, & Podsakoff, 2003, for further justification of combining measures
when correlations are low). When entered into a $2 \times 2$ ANOVA as a repeated measures factor along with the 2 conditions, the interaction between this factor and condition was non-significant, $F(1,51) = .164, p = .687$, indicating that the measures behaved similarly across participants despite their low correlation. The two were therefore standardized and averaged to form a component of compensatory bolstering referred to as “upholding cultural values” in subsequent analyses.

*Religious Certainty.* The level of confidence participants expressed in their personal religious beliefs was measured using a 3-question subset from McGregor’s Religious Zeal questionnaire (McGregor, Haji, Nash, & Teper, 2008). Specifically, participants were given a prompt to consider their religious belief system and then respond to three items about their certainty in their belief system (i.e., “I am confident in my belief system,” “My belief system is grounded in objective truth,” and “I aspire to live and act according to my belief system;” 7-point Likert scales, 1=Strongly disagree 7=Strongly agree). The questions appeared to tap into the same construct ($\alpha = .782$) and were averaged to form a compensatory bolstering measure called “religious certainty” in subsequent analyses.

*Worldview Defense.* Participants then read each of two essays ostensibly written by transfer students to The Ohio State University from another university (adapted from Greenberg et al., 1990). One was very flattering toward the participants’ current institution, and one was very critical. After each essay, participants were asked five questions about the essay and its author (e.g., “How much do you like this person?” 1-9 scale; see Appendix B for essays and all questions). Order of essay presentation was
randomized. Both the pro-OSU essay reactions and anti-OSU essay reactions showed good reliability ($\alpha = .888$ and .828, respectively), and each was averaged. Then, a difference score was calculated, with higher scores reflecting more differentiation between the essays, thus greater “worldview defense.”

**Manipulation Checks.** At the end of the session, participants were asked to indicate how uncertain, confident, fearful, and threatened they remembered feeling regarding what was going on in the scenario while imagining it. Responses were made on 7-point scales anchored at “Not at all” and “Extremely.” Responses to the fear and threat items were correlated ($r = .753, p < .001$), and were averaged to create the threat manipulation check. Responses to the uncertain and confident (reverse-scored) items were weakly correlated ($r = .257, p = .063$), but were nonetheless averaged to form a general uncertainty manipulation check.

**Study 1 Results**

**Compensatory Bolstering.** Prior to analysis, each of the measures of compensatory bolstering was standardized and entered as a 3-level within-subjects factor along with the experimental manipulation factor to create a 3 (bolstering measure: cultural values, religious certainty, worldview defense) × 2 (condition: uncertain threat, certain safe) mixed model ANOVA. As expected, the interaction term was non-significant $F(2,102) = .204, p = .816$, demonstrating that the manipulation had a similar
effect across all three measures (see Appendix D for results on each component measure).\(^2\)

Consistent with our hypothesis, the effect of condition across the collapsed bolstering measures was significant, \(F(1,51) = 4.485, p = .039\), demonstrating that participants who read the uncertain threat scenario engaged in more compensatory bolstering than those who read the certain safe scenario. That is, they became more extreme in their punishments and rewards in service of upholding cultural norms, more confident in their religious belief systems, and defended their cultural worldviews more firmly (see Figure 1). Controlling for positive and negative affect reported in the PANAS weakened the effect somewhat, \(F(1,51) = 3.688, p = .061\), but the pattern of results remained the same, and neither positive \((F(1,49) = .078, p = .781)\) nor negative \((F(1,49) = .068, p = .796)\) affect showed significant main effects, demonstrating that this effect is not driven simply by affect. See Table 1 for means and item correlations.

**Manipulation Checks.** As expected, the uncertain threat condition had a significant effect on recalling feeling threatened, \(F(1,51) = 18.461; p < .001\). That is, reported threat was higher in the high \((M = 4.31)\) than in the low \((M = 2.37)\) threat condition. There was not a significant effect on remembered uncertainty \(F(1,51) = 1.604; p = .211\), however, though it was directionally consistent with expectations, in that the high certainty condition revealed less uncertainty \((M = 3.39)\) than the low certainty condition \((M = 3.85)\). The same directional but non-significant effects occur on both the

\(^2\) Although the three separate compensatory measures were uncorrelated \((Chronbach’s \alpha = .148)\), it has not been demonstrated whether one should even expect a within-subjects correlation on these measures. Rather, past research only suggests that, across studies (and therefore conditions, in the present study), they tend to generate similar effects. Thus, the repeated measures ANOVA seems a more appropriate test of similarity of outcomes across measures than one of reliability within subjects.
measure of confidence, $F(1,51) = .623, p = .433$, and the measure of uncertainty, $F(1,51) = 1.389, p = .244$. The lack of effect may indicate that the manipulation simply did not induce feelings of uncertainty to a significant degree. It is also possible that the induction was effective in influencing felt certainty at the time, but after the delay and reporting of the dependent measures, the certainty had dissipated and participants had a more difficult time recalling the more common and vague feeling of uncertainty, rather than the more acute feeling of threat.

![Figure 1. Compensatory bolstering across all three measures as a function of condition. (Study 1)](image-url)
<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
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<td>1. Punish</td>
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<td>.158</td>
<td>-.046</td>
<td>.144</td>
<td>-.111</td>
<td>-.160</td>
<td>.097</td>
<td>.170</td>
<td>.265</td>
<td>.025</td>
<td>.041</td>
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<td>.034</td>
<td>.175</td>
<td>-.058</td>
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<td>.305*</td>
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<td>-.181</td>
<td>-.151</td>
<td>.097</td>
<td>.227</td>
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<td>4. Worldview defense</td>
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<td>-.254</td>
<td>.083</td>
<td>.063</td>
<td>.038</td>
<td>-.060</td>
<td>.450*</td>
<td>.278*</td>
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<td>5. Political orientation</td>
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<td>.128</td>
<td>.060</td>
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<td>-.012</td>
<td>.235</td>
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<td>6. Attitude toward prostitution</td>
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<td>-.076</td>
<td>.081</td>
<td>.065</td>
<td>-.324*</td>
<td>-.241</td>
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<td>7. PANAS pos</td>
<td>24.04 (7.70)</td>
<td>.203</td>
<td>-.192</td>
<td>.004</td>
<td>-.033</td>
<td>.025</td>
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<tr>
<td>8. PANAS neg</td>
<td>17.51 (7.77)</td>
<td>.130</td>
<td>.264</td>
<td>.052</td>
<td>.066</td>
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<tr>
<td>9. Need for closure</td>
<td>3.21 (.62)</td>
<td>.568**</td>
<td>-.047</td>
<td>-.066</td>
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<tr>
<td>11. Individualism</td>
<td>4.47 (.77)</td>
<td>.587**</td>
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<tr>
<td>12. Collectivism</td>
<td>4.26 (.70)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Table 1. Means and Correlations, Study 1

*Note. Political Orientation anchored at 1 = Very Liberal, 7 = Very Conservative; N = 53
* *p < .05
* **p < .01
Chapter 3: Study 2

Study 1 demonstrated that imagining a hypothetical scenario designed to induce feelings both of uncertainty and threat produced compensatory bolstering when compared to conditions of certainty and safety. Study 2 sought to test whether, as some theories would predict, the threatening nature of the hypothetical situation was driving the bolstering observed; if it was the uncertainty regarding what was going on, as others would predict; or if the confluence of both threat and uncertainty leads to greater bolstering than either independently. Thus, the high threat-high uncertainty condition from Study 1 was retained and compared to a high threat-low uncertainty condition (to isolate the effect of uncertainty holding threat constant) and a low threat-high uncertainty condition (to isolate the effect of threat holding uncertainty constant).

Methods

Study Design. One hundred nineteen undergraduate students (64 women, 5 preferred not to respond) at the Ohio State University were recruited for this study in exchange for credit or extra credit in their introductory psychology course. The study design was a 3x3 mixed factorial, with hypothetical situation (uncertain-threat, certain-threat, and uncertain-safe) varying between-participants alongside the same within-subjects factor used in Study 1 of measure type (upholding cultural values, religious certainty, and worldview defense).
Procedure. The experimental procedure used in Study 2 was identical to that used in Study 1, except that “uncertain-threat” is compared to two new conditions. As in Study 1, participants completed the task both in-lab (N = 46) and outside of the lab (N = 73). Location again showed no main effect (all ps > .32), nor did it qualify the effect of condition on any of the dependent measures (all ps > .55). Thus, online and in-lab participants are analyzed together.

Manipulation. Participants were randomly assigned to one of three conditions in which they imagined somebody at the front door of their home. The uncertain threat condition was identical to that used in Study 1: The visitor was a masked man attempting to open their front door at night. In the certain threat condition, the man was further described as “a large masked man with a gun,” and it was made clear that he successfully gained entry to the participant’s home. Thus, in contrast to the ambiguous nature of the threat in the uncertain-threat scenario, in this scenario the threat was quite certain. In the uncertain safe condition, the visitor was an unexpected and unknown man in uniform knocking on the door in the afternoon. Thus, like the uncertain-threat condition, there was some ambiguity as to the nature of the visitor, but there was no plausible threat involved. As in Study 1, participants were asked to list at least three thoughts they would have in that situation (see Appendix A for exact wording of all scenarios and prompt).

Individual Differences. The individual difference measures collected as possible moderating variables in Study 2 were identical to those described for Study 1.

Dependent Variables.
Upholding Cultural Values. The same “upholding cultural values” measure as in Study 1 was used, averaging the standardized values set by participants for a prostitute’s bail and the reward for a citizen who called a police tip-line despite the potential of future revenge. Although the two measures were again only weakly correlated ($r = 0.160$, $p = 0.081$), the same $2 \times 2$ (item: punish, reward) × (condition: certain safe, uncertain threat) analysis of variance used in Study 1, with item again entered as a within-subjects factor, was conducted to test whether the manipulation had a similar effect across the two measures. The interaction between the item factor and experimental condition was non-significant, $F(2,116) = 1.076, p = .344$. The two measures were therefore again combined into one measure of “upholding cultural values” in subsequent analyses.

Belief Certainty. The same three questions were used to measure religious certainty as in Study 1. The questions again showed good reliability ($\alpha = .898$) so were averaged to form a measure of “religious certainty.”

Worldview Defense. The same “worldview defense” measure was used as in Study 1. Again, both the pro-OSU essay reactions and anti-OSU essay reactions showed good reliability ($\alpha = .898$ and .836, respectively), and a “worldview defense” score was again created, with higher scores reflecting more differentiation between the essays.

Manipulation Checks

Due to the difficulty detecting a difference in perceived uncertainty as a result of the induction used in Study 1, manipulation checks for the procedure just described were collected in a separate sample (N=51, 24 women, 2 did not respond) for Study 2. The measures were taken immediately after administration of the manipulation and the
PANAS, rather than waiting until the end of completion of all measures, in hopes of better capturing the feelings of uncertainty before they could potentially be resolved through the dependent measures. The same two measures of threat again correlated highly \((r = .936, p < .001)\) and were averaged. The only uncertainty manipulation check in this study directly asked how uncertain participants felt while reading the scenario.

**Results**

*Compensatory Bolstering.* The three standardized measures were entered as a 3-level within-subjects factor along with the experimental manipulation factor to create a 3 (bolstering measure: cultural values, religious certainty, worldview defense) \(\times\) 3 (condition: uncertain threat, certain threat, uncertain safe) mixed model ANOVA, as in Study 1. Once again, the interaction term was non-significant, \(F(2,116) = .659, p = .519\), indicating that the manipulation had a similar effect across all three measures (see Appendix E for results on each component measure).\(^3\) As hypothesized, there was a significant effect of condition on the collapsed compensatory bolstering measure, omnibus \(F(2,116) = 7.060, p = .001\) (see Figure 2). A Tukey HSD post hoc comparison revealed that the uncertain threat condition showed significantly more bolstering than the certain threat condition \((p = .008)\) and the uncertain safe \((p = .003)\) condition. The latter two conditions did not differ from one another \((p = .925)\). Controlling for positive and negative affect did not change the effect of condition, \(F(2,114) = 7.832, p = .001\), and neither negative affect, \(F(1,117) = .004, p = .947\), nor positive affect, \(F(1,117) = 2.271, p = .135\) had significant main effects on compensatory behavior, demonstrating that this

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\(^3\) As was the case in Study 1, although the three compensatory measures were uncorrelated (Chronbach’s \(\alpha = .226\)), the ANOVA results indicated that they responded similarly to the manipulations.
effect was not driven simply by negative affect. See Table 2 for means and item correlations.

*Individual Differences.* Following the recommendations of Hayes (2014), conditions were dummy-coded, with the uncertain threat condition as the reference condition (i.e., $D_1 = 0$ for uncertain threat, 0 for certain threat, 1 for uncertain safe; $D_2 = 0$ for uncertain threat, 1 for certain threat, 0 for uncertain safe). Model 2 of the PROCESS macro (Hayes, 2013) was used to test for moderation of a three-condition categorical variable by continuous individual difference measures by referencing the change in $R^2$ due to adding both interactions (continuous variable × each dummy variable). Only one measure, individualism, showed significant moderation of the manipulation, $\Delta R^2 = .081$, $F(2,108) = 5.55$, $p = .005$. Probing the interaction by investigating conditional effects of individualism within experimental conditions revealed that individualism only had a significant effect on compensatory bolstering within the uncertain-threat condition ($t = 4.004$, $p < .001$), but no conditional effect within the uncertain safe condition ($t = .462$, $p = .645$) or certain threat ($t = -.806$, $p = .422$). Put differently, the effect observed in the overall analysis became more pronounced as individualism increased (see Figure 3).

Intolerance for uncertainty also showed a similar, marginally significant interaction, $\Delta R^2 = .042$, $F(2,112) = 2.788$, $p = .066$. As intolerance for uncertainty increased, it had a greater conditional effect on compensatory bolstering in the uncertain threat condition ($t = 2.012$, $p = .047$), but once again, no significant conditional effect was observed in the uncertain safe ($t = -1.309$, $p = .193$) or certain threat ($t = .547$, $p = .586$) conditions. As with individualism, as intolerance for uncertainty increased, the effect observed in the
overall analysis became more pronounced. No other individual difference measures moderated the effect of the manipulation (all \( ps \geq .378 \)).

*Manipulation Checks.* With respect to the separate manipulation check study, a one-way ANOVA on the threat measure indicated that the manipulation of threat was successful, \( F(2,48) = 8.326, p = .001 \), with the uncertain safe condition (\( M = 3.97 \)) experiencing less threat than both the certain threat (\( M = 5.971 \)) and uncertain threat (\( M = 5.529 \)) conditions (Tukey post-hoc comparison \( ps \leq .011 \)). Furthermore, the two threat conditions did not differ from one another (Tukey \( p = .670 \)). Because of the successful induction of threat, it suggests that threat alone is not sufficient to produce compensatory bolstering. However, as in Study 1 certainty was unaffected. That is, despite the fact that adding uncertainty to the threat induction appeared to magnify the compensatory bolstering effect in the experiment, the manipulation check study did not reveal a difference between the certain-threat (\( M = 4.765 \)), uncertain-threat (\( M = 4.941 \)), or uncertain-safe (\( M = 4.765 \)) conditions in felt uncertainty, omnibus \( F(2,48) = .053, p = .948 \) (all post hoc comparison \( ps \geq .957 \)). One possibility is that the manipulation check question on certainty did not hone in sufficiently on the uncertainty regarding the scenario.

*Combined Analysis on Studies 1 and 2*

For exploratory purposes only, the data from Studies 1 and 2 were combined and re-standardized to create an overall \( 2 \times 2 \) design (certainty vs. uncertainty \( \times \) threat vs. no-threat). Because both studies were run within three months of one another at The Ohio State University, and the same uncertain threat induction and dependent variables were
used across studies, it was determined that combining them was appropriate for exploration. First, an initial test of whether study had a significant effect on compensatory bolstering of participants in the uncertain threat conditions was conducted. A one-way ANOVA revealed no effect of study, $F(1,64) = .721, p = .399$. Thus, as in Studies 1 and 2, a subsequent analysis was conducted to test whether measure type interacted with conditions in a $2 \times 2 \times 3$ (certainty $\times$ threat $\times$ measure type) general estimating equations analysis, with measure type as a repeated-measures factor, in order to test whether measure type behaved similarly across condition. This analysis revealed that measure type did not significantly interact with uncertainty, $\chi^2(2) = .906, p = .636$, or threat $\chi^2(2) = 1.143, p = .565$, nor was the 3-way interaction significant, $\chi^2(2) = .834, p = .659$, demonstrating that the manipulations behaved consistently across measures. This analysis also revealed the hypothesized interaction between threat and uncertainty across the collapsed bolstering measures, $\chi^2(1) = 3.680, p = .055$. To further investigate differences between conditions, the data were then entered into a 3-condition dummy coded regression, with uncertain-threat as the initial reference condition and the collapsed compensatory bolstering measure as the outcome variable. This test revealed that uncertain threat was significantly greater than the other three conditions (all $p$\textless 0.003; see Figure 4. Further regressions were conducted, varying the reference condition, to test whether any of the other three conditions differed from one another. They did not (all $p$ \geq .661).
Figure 2. Compensatory bolstering across all three measures as a function of condition. (Study 2).
<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Correlations</th>
<th></th>
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<tbody>
<tr>
<td>1. Punish</td>
<td>527.44 (280.81)</td>
<td>.160</td>
<td>.028</td>
<td>.026</td>
<td>.111</td>
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<td>.099</td>
<td>-.030</td>
<td>.082</td>
<td>-.149</td>
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<td>2. Reward</td>
<td>2795.32 (3109.84)</td>
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<td>.027</td>
<td>-.187*</td>
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<td>-.006</td>
<td>-.129</td>
<td>.006</td>
<td>-.010</td>
<td>-.012</td>
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<td>3. Belief certainty</td>
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<td>.121</td>
<td>.242**</td>
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<td>4. Worldview defense</td>
<td>3.80 (2.21)</td>
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<td>.195*</td>
<td>-.235*</td>
<td>.087</td>
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<td>5. Political orientation</td>
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<td>.096</td>
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<td>-.073</td>
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<td>25.52 (7.49)</td>
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<td>8. PANAS neg</td>
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<td>.293**</td>
<td>.399**</td>
<td>.041</td>
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<td>9. Need for closure</td>
<td>3.21 (.62)</td>
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<td>.492**</td>
<td>.087</td>
<td>.185*</td>
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<tr>
<td>12. Collectivism</td>
<td>4.26 (.70)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Means and Correlations, Study 2.

*Note.* Political Orientation anchored at 1 = Very Liberal, 7 = Very Conservative; n = 118

* p < .05
** p < .01
Figure 3. Effect of individualism across the three conditions (Study 2)
Figure 4. Collapsing across study, compensatory bolstering as a function of condition and bolstering measure
Chapter 4: Discussion

After first replicating the general finding that a combination of threat and uncertainty leads to more compensatory bolstering than a certain-safe condition (Study 1), a second study demonstrated that feelings of uncertainty or threat alone lead to significantly less compensatory bolstering than elicited by a combination of the two. To the best of our knowledge, this is the first time any measures of psychological defense have been used to test the independent effects of uncertainty and threat on compensatory bolstering. This is important because the psychological defense literature reveals a divide between theories that emphasize the importance of threat and theories that emphasize uncertainty, while failing to actually test the two independently. As reviewed earlier, several theories argue that feelings of dread, alarm, or insecurity at perceived threats lead to compensatory reactions. Other theories, however, explicitly or implicitly argue that it is feelings of uncertainty that ultimately drive the compensatory effects. Importantly, no prior study in the compensatory bolstering literature has manipulated uncertainty and threat separately despite making theoretical claims of primacy of one over the other. At best, studies have done well at keeping one constant while manipulating the other, but until Haas and Cunningham (2014) developed their vignettes, there had been no attempt to manipulate both in the same study.
Those who *have* ventured to take on whether feelings of threat or uncertainty are driving the effects more than the other have not done so convincingly. For example, the van den Bos, et al. (2005) study reviewed previously was one of few studies explicitly attempting to demonstrate whether uncertainty or threat in isolation from the other can induce compensatory bolstering processes by asking participants to either write about feelings induced by thoughts of their own death or by thoughts of feeling uncertain, with the presumption that uncertainty would be present in both conditions, but threat would only be present in the mortality salience condition. The effect size was three times greater in the pure uncertainty condition, and only those in the mortality salience whose responses were coded as including uncertainty showed the effects, so the authors argued that uncertainty is sufficient to produce the effects, and is likely the primary driver of mortality salience effects. However, if uncertainty was also present in the mortality salience condition, it is not clear why this uncertainty was insufficient to produce bolstering. Also, given the open-ended nature of the free-response inductions, it is quite possible that the particular instance of uncertainty brought to mind by participants in the experiment was a moment of uncertainty about their own safety—these are very salient moments of uncertainty, and the “weightiness” of them would likely make them seem a good option to participants eager to please an experimenter. The researchers only coded the free responses for whether they were about death in particular, rather than threatening in general, so it is unclear whether threat was present in the supposedly pure uncertain condition.
The only theory to explicitly focus on both threat and uncertainty is Jost and colleagues’ uncertainty-threat model of political conservatism (e.g., Jost & Napier, 2011), but this theory predicts that psychological needs to reduce uncertainty and threat are uniquely associated with political conservatism. Support for this theory comes from correlational studies and historical trends. They have not tested the theory through experimental manipulation. We do not make the same ideological argument. In fact, the current research did not find significant moderation by political orientation, controlling for extremity as suggested by Jost and Napier (see Appendix F). Regarding the focus on conservatism, we again see an instance in which a more integrated view of the field would likely improve the understanding of the findings: When considering two separate findings, an alternate explanation of conservatives’ sensitivity to threat and uncertainty arises. As described previously, Hogg and colleagues have found that groups who seem more cohesive and united (i.e., more entitative) are more attractive in compensatory bolstering contexts (for a summary, see Hogg, 2014). Separately, Jost and colleagues (Stern, West, Jost, & Rule, 2014) have found that conservatives are more likely to see their political group as more likely to perceive in-group consensus than liberal individuals, suggesting that conservatives will perceive their political group as more entitative than liberals. Combining these two findings provides a less ideological, purely psychological explanation of the “uncertainty-threat model of political conservatism.” That is, conservatives tend to see their group as more entitative, and those who see their group as highly entitative are more likely to defend against threat and uncertainty by relying on their membership in that group. With a name as confrontational and accusatory
as the “uncertainty-threat model of political conservatism,” the more neutral mediating mechanism of entitativity provides Jost and colleagues’ theory with a less contentious psychological mechanism.

Although psychological defense researchers have yet to manipulate threat and uncertainty orthogonally, it seems that theorists are moving in that direction. In addition to the political tolerance research by Haas and Cunningham (2014), Martin and van den Bos (2014) have recently published a review of terror management theory, suggesting that, among other critiques, uncertainty plays an important role in mortality salience that many researchers have ignored. Although they do not make a strong claim as to what that role may be beyond stating it “may be a complex one” (p. 55), they urge researchers to consider the influence of uncertainty when studying threat and psychological defensiveness. As evidence to support the importance of uncertainty, they cite a study in which worldview defense was found in response to mortality salience only among participants who reported thinking about uncertainty while completing the mortality salience induction (van den Bos et al., 2005). Additionally, they cite a study (Burgin, Sanders, vanDellen, & Martin, 2012) which split the two mortality salience questions into two separate conditions (“Please jot down, as specifically as you can, what will happen to your body as you physically die and once you are physically dead” versus “Please briefly describe the emotions that the thought of your own death arouses in you”). In that study, the question about feelings aroused by death did not result in increased upholding of cultural values, whereas the question asking about death and afterlife did. This may be interpreted as being due to the high uncertainty about what happens after we die, whereas
we can be more certain about what feelings are aroused by the thought of death, even if both questions are equally threatening. Finally, in arguing for uncertainty as sufficient to induce compensatory bolstering, Martin and van den Bos (2014) cite a paper briefly mentioned above (Hohman & Hogg, 2011), in which the authors demonstrate that identification with the United States was strengthened in response to a mortality salience induction only for those who were uncertain about an afterlife; certainty in either direction wiped out the effect. Thus, whether participants were certain they were moving on to an afterlife or expected complete obliteration, just being sure of what was to come led to reduced compensatory bolstering effects. The “complex relationship” between uncertainty and mortality salience being described by Martin and van den Bos sounds a lot like the effect predicted in the current research: All three studies cited above seem to have demonstrated that a combination of uncertainty and threat would lead to more bolstering than either alone. That is, feeling threatened (via writing about one’s own death) resulted in compensatory bolstering only when also accompanied by feelings of uncertainty. Thus, the evidence seems to strongly support our proclamation that uncertainty and threat should not be studied in isolation from one another: They may both be necessary to see bolstering effects.

Limitations

Of course, the present research was not without its limitations. First and foremost, a full factorial design was never realized in a single study. This made testing whether the observed effects were an interaction between uncertainty and threat or two additive main effects impossible to determine. However, because both studies were run within three
months of one another at the same university, using the same participant pool, and the shared uncertain-threat condition did not differ across study, it was reasonable to combine the studies to run the exploratory analysis reported in the results. In addition, the threat and uncertainty manipulation checks from Study 1, which compared uncertain-threat to certain-safe, can be used to analyze the study along two continuous measures of uncertainty and threat. Using a stepwise regression, mean-centered self-reported uncertainty and threat were first entered into the regression, predicting the collapsed compensatory bolstering variable. Neither had significant effects in this model (threat $t = .996, p = .324$; uncertainty $t = .489, p = .627$). In the second step, their interaction was included. Threat ($t = 1.447, p = .154$) and uncertainty ($t = -.221, p = .826$) remained non-significant, but the interaction showed the expected effect, $t = 2.582, p = .013$. That is, as depicted in Figure 5, those participants who experienced low levels of uncertainty were relatively unaffected by whether they experienced feelings of threat ($t = -.4414, p = .661$), but those who experienced high uncertainty showed a significant effect of also feeling threatened ($t = 2.526, p = .015$) on compensatory bolstering. Combined, these supplemental analyses suggest that the interaction hypothesis may be more likely than the additive one, but we acknowledge that these analyses are not conclusive.

Furthermore, additional process measures would have strengthened the claim that feelings of uncertainty and threat were driving these effects, rather than alternative appraisals of the vignettes. In particular, we were surprised to find no effect on uncertainty in our manipulation checks, whereas past research has not seemed to have difficulty detecting felt uncertainty. However, upon closer inspection, it is unclear
whether other researchers’ measures directly measure uncertainty or instead measure more downstream consequences that are presumed to be due to uncertainty, or more cognitive thoughts about uncertainty, but not necessarily the experience of uncertainty per se. McGregor and colleagues (McGregor et al., 2001), for example, when reporting “felt uncertainty” were using an index of “bothered,” “uneasy,” “uncomfortable,” “aroused,” “anxious,” and “excited.” These seem more like a measure of general discomfort than a specific measure of uncertainty. Indeed, the measure is similar to that designed to capture the discomfort from cognitive dissonance (Elliot & Devine, 1994).

Also notable, van den Bos and colleagues asked participants not how uncertain they felt, but whether and to what extent “they had been thinking about uncertainty while writing down their answers” (van den Bos, Poortvliet, Maas, Miedema, & van den Ham, 2005), as well as independent raters coding free responses as being about “uncertainty-related issues” or not (dichotomous). This does not tap directly into felt uncertainty, either.

Developing a valid, specific measure of felt uncertainty would undoubtedly strengthen our (and others’) claims that feelings of uncertainty, specifically, are contributing to the effects being studied.

**Future Directions**

Why might a threat that is uncertain in nature result in greater compensatory bolstering than one which is certain? Where is the usefulness in that? Although this may seem counterintuitive, it is important to note that these compensatory behaviors are not instrumental, meant to defend directly against the threat; it seems more likely that they are palliative, automatic reactions in order to reduce psychological discomfort. In the case
of a certain threat, palliative responses may not be as functional as taking or preparing for instrumental action that can respond to the presence of the threat. And in an uncertain but safe condition, the automatic favoring of one’s group seen in compensatory processes may be disadvantageous because one would not learn new things about the environment if in a closed-minded mentality. To regain certainty in an uncertain but safe condition, it may be most advantageous to be open-minded, rather than the closed-mindedness seen in compensatory bolstering. Future research should seek to investigate whether these compensatory reactions really are automatic, or if they are deliberative. If deliberative, why do they seem to be preferred over more direct defense against a threat in states of uncertainty? Is it because they really are perceived as helpful in managing a threat, or are they merely palliative?

There are many other directions in which the current research might be taken. First and foremost, a full 2x2 replication with improved process measures would help differentiate whether the effects observed are due to two independent main effects or an interaction between uncertainty and threat. This is especially intriguing because the research from which the vignettes were adapted (Haas & Cunningham, 2014) found a significant interaction on political tolerance. Although the concept of political tolerance is not directly translatable to compensatory bolstering and extremization which was the focus of this work, it is not difficult to draw parallels between the two concepts. In that work, feeling uncertain and threatened resulted in a reduction of tolerance, as might be expected if extending the present findings to the concept of tolerance. However, feeling
uncertain and safe led to an increase in tolerance, no analog of which was found in the present research.

Given the interaction on political tolerance and the present findings on compensatory bolstering, it would be extremely informative for future research to also investigate the possibility of differential valence weighting as an effect of uncertainty and threat. Valence weighting is the extent to which one favors positive or negative information during attitude generalization and evaluation of novel stimuli (e.g., Rocklage & Fazio, 2014). It is possible that uncertainty would lead to a negative valence weighting (thus becoming more closed-minded and intolerant of novel stimuli) when accompanied by feelings of threat, but a positive valence weighting (thus more open-minded and open to novel stimuli) when threat is lacking. This may be the more upstream psychological mechanism leading to the effect found by Haas & Cunningham (2014) and could, in part, be leading to the ingroup/outgroup differentiation seen across the psychological defense literature.

A final suggestion for future work is to investigate whether stances on actual, contentious issues show the same pattern as these more traditionally used compensatory measures, as well as whether repeated or chronic exposure to uncertain and threatening contexts can actually change a person’s disposition, rather than the more ephemeral effects found in traditional, one-shot laboratory experiments.

It is clear that although much prior work using traditional persuasion paradigms has documented conditions under which people can become more polarized in their attitudes (e.g., careful consideration of message arguments; see Petty & Wegener, 1998),
these studies examine only a subset of the possibilities. Another means by which judgments may become polarized is through defensive, compensatory reactions. Despite over a quarter-century of research and many specific theories on these defensive reactions, their cause is still ambiguous. Although there are numerous theories that make theoretical claims of one mechanism over another, researchers have failed to operationally differentiate between feelings of threat and uncertainty. The present research sought to accomplish this by using vignettes carefully designed to independently vary the two states. Using these vignettes, we demonstrated that neither uncertainty nor threat, alone, produced effects on par with those of their combination. In fact, when collapsing across both studies reported in the present research, the only condition with a significant increase over the others was the combination of uncertainty and threat, suggesting that their combination is necessary, with neither uncertainty nor threat being sufficient to produce compensatory bolstering on their own.
Figure 5. Compensatory bolstering as a function of self-reported uncertainty and threat (Study 1)
References


Appendix A: Orthogonal Manipulation of Threat and Uncertainty

Participants received one of the following paragraphs (beginning with “Imagine that you are…”), then all participants received the italicized prompt found in the bottom cell of the following table.

<table>
<thead>
<tr>
<th>Threat</th>
<th>Uncertain</th>
<th>Certain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Possible Intruder:</strong></td>
<td><strong>Definite Intruder:</strong></td>
</tr>
<tr>
<td></td>
<td>(Study 1 and 2)</td>
<td>(Study 2)</td>
</tr>
<tr>
<td></td>
<td>Imagine that you are in your house alone one</td>
<td>Imagine that you are in your house one night and you hear someone trying to open the front door. You are not expecting anybody, so you peek out a window. You see a masked man with something in his hand at your door, but you're not sure whether he will be able to get in or what's going on.</td>
</tr>
<tr>
<td></td>
<td>night and you hear someone trying to open the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>front door. You are not expecting anybody, so</td>
<td></td>
</tr>
<tr>
<td></td>
<td>you peek out a window. You see a masked man</td>
<td></td>
</tr>
<tr>
<td></td>
<td>with something in his hand at your door, but</td>
<td></td>
</tr>
<tr>
<td></td>
<td>you're not sure whether he will be able to</td>
<td></td>
</tr>
<tr>
<td></td>
<td>get in or what's going on.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Expected Visitor:</strong></td>
<td><strong>Expected Visitor:</strong></td>
</tr>
<tr>
<td></td>
<td>(Study 1)</td>
<td>(Study 2)</td>
</tr>
<tr>
<td></td>
<td>Imagine that you are in your house alone one</td>
<td>Imagine that you are in your house one afternoon and you hear someone ring the doorbell. You are not expecting anybody, so you peek out a window and see an unfamiliar man in a uniform with something in his hand. You're not sure what's going on.</td>
</tr>
<tr>
<td></td>
<td>afternoon and you hear someone ring the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>doorbell. You are not expecting anybody, so</td>
<td></td>
</tr>
<tr>
<td></td>
<td>you peek out a window and see an unfamiliar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>man in a uniform with something in his hand.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>You're not sure what's going on.</td>
<td></td>
</tr>
</tbody>
</table>

*Please take a few minutes to think and write about how you would feel if you were in this situation. Try to write at least three thoughts in the spaces below.*
Appendix B: Dependent Variables

Upholding Cultural Values:

**Punish:**

A woman has been arrested for the second time in 12 months for the crime of prostitution. She did not miss her last trial. Her trial date for the current violation has been scheduled for 1 month from now, and it is your job to decide her bail.*

*Definition of Bail*, adapted from Wikipedia: Money deposited or pledged to a court to persuade it to release a suspect from jail, on the understanding that the suspect will return for trial or forfeit the bail (and possibly be brought up on charges of the crime of failure to appear). Generally, bail money will be returned after the trial, if all court appearances are made.

Typically, bail amounts for similar situations are somewhere between $0 and $1000.

Please enter the bail amount you would set for her in the box below and click "Continue".

**Reward:**

There have been several violent robberies in the news lately, with no suspects. Finally, however, a woman called the local tip hotline because she realized her neighbor matched the description that had been released, despite her fear that the man would take revenge on her if he ever found out she turned him in. Generally, tips like this to the tip hotline receive a cash reward of $50-$10,000.

Please enter the amount you think she deserves in the box below and click "Continue".
Religious Certainty:

Please choose with which religion you most closely identify:

- Atheist; Buddhist; Christian; Jewish; Muslim; Other (specify)

This series of questions asks about your ‘belief system.’

As you answer these questions, please refer to the religious orientation you selected above as the "belief system" being asked about for the next few questions.

1. I am confident in my belief system.
2. I aspire to live and act according to my belief system.
3. My belief system is grounded in objective truth.

Responses were on 7-point Likert scale ranging from Strongly Disagree to Strongly Agree
Defending Cultural Worldviews:

Participants read the two following essays (orders randomized) and answered five questions after each. Responses to the questions were on 9-point scales, anchored at 1=Not at all and 9=Very much so.

**Pro-Ohio State**

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How much do you like this person?</td>
<td></td>
</tr>
<tr>
<td>2. How intelligent did you think this person was?</td>
<td></td>
</tr>
<tr>
<td>3. How knowledgeable did you think this person was?</td>
<td></td>
</tr>
<tr>
<td>4. How much did you agree with this person's opinion of Ohio State?</td>
<td></td>
</tr>
<tr>
<td>5. From your perspective, how true do you think this person’s opinion of Ohio State is?</td>
<td></td>
</tr>
</tbody>
</table>

The first thing that hit me when I got to Ohio State was how incredibly happy the students seem to be here. At Ohio University, where I went before transferring here, students weren’t nearly as happy. Here, the students are super smart, but they also seem so happy. Comparatively, the students I knew back at Ohio University seem less competent and far less fun. Students who graduate from Ohio State seem like they will be much better prepared for successful careers and lives after school, already having demonstrated the ability to balance work and play. While there are obviously problems at any university, Ohio State is truly a great school, and I don’t regret my decision to transfer to here at all.

**Anti-Ohio State**

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How much do you like this person?</td>
<td></td>
</tr>
<tr>
<td>2. How intelligent did you think this person was?</td>
<td></td>
</tr>
<tr>
<td>3. How knowledgeable did you think this person was?</td>
<td></td>
</tr>
<tr>
<td>4. How much did you agree with this person's opinion of Ohio State?</td>
<td></td>
</tr>
<tr>
<td>5. From your perspective, how true do you think this person’s opinion of Ohio State is?</td>
<td></td>
</tr>
</tbody>
</table>

When I first got here from Ohio University, I believed I was coming to the better university, but I soon realized I was very mistaken. People here aren’t as nice, fun, or smart as the folks I met at OU. I would think a big school like this would at least have one of those traits, but not here. OSU students are super antagonistic and mean toward anyone who deviates from their standards in the slightest way, and the comments I hear in classes here are ridiculously simplistic or just plain stupid. Compared to my old school, Ohio State is unwelcoming, boring, and not that smart. It thinks it’s a great school, but it’s not.
Appendix C: Moderation in Study 1

*Attitude Toward Prostitution.* As expected, investigating moderation of the experimental manipulation by attitudes toward prostitution in a regression on the amount participants set for the prostitute’s bail revealed a trend-level interaction ($t=1.454, p=.152$), characterized by a conditional trend-level effect of attitudes on punishment within the certain safe condition ($t=-1.484, p=.144$), in the intuitive direction, in that more favorable attitudes toward prostitution led to decreased punishments. However, in the uncertain threat condition, attitudes toward the legality of prostitution did not have an effect on punishments ($t=.676, p=.502$). Attitudes toward prostitution did not moderate the effect of condition on the collapsed measure of compensatory behavior (interaction $t=1.035, p=.306$).

<table>
<thead>
<tr>
<th></th>
<th>Negative Attitude Toward Prostitution (1SD below mean)</th>
<th>Positive Attitude Toward Prostitution (1SD above mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certain Safe</td>
<td>$587.36$</td>
<td>$421.48$</td>
</tr>
<tr>
<td>Uncertain Threat</td>
<td>$487.61$</td>
<td>$582.48$</td>
</tr>
</tbody>
</table>

Table 3. Moderation of condition’s effect on punishing a prostitute, moderated by attitudes toward prostitution (Study 1)
**Political Orientation.** Self-reported political orientation regarding social issues (on a scale of 1-7, anchored at “Very Liberal” and “Very Conservative”; $M=3.68$) revealed a directional trend in moderating the effect of condition on the collapsed index of compensatory bolstering (interaction $t=1.427, p=.160$), in that the manipulation had no effect on participants who identified as more liberal (1SD below the mean of our scale, or 2.215; $t=.736, p=.465$). However, the conditional effect of the manipulation was significant among those who identified as more conservative (1SD above the mean, or 5.145; $t=2.736, p=.009$).

<table>
<thead>
<tr>
<th></th>
<th>Predominantly Liberal (1SD below mean)</th>
<th>Predominantly Conservative (1SD above mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certain Safe</td>
<td>-.239</td>
<td>-.088</td>
</tr>
<tr>
<td>Uncertain Threat</td>
<td>-.090</td>
<td>.480</td>
</tr>
</tbody>
</table>

Table 4. Moderation of condition's effect on compensatory bolstering, collapsed across measure, moderated by political orientation (Study 1)
Appendix D: Results on Individual Dependent Measures, Study 1

The dependent measures below were entered into a multivariate ANOVA, with condition (certain safe vs. uncertain threat) as the between-subjects factor.

<table>
<thead>
<tr>
<th>Dependent Measure</th>
<th>F(1,51)</th>
<th>p-value</th>
<th>Mean (SD) Certain Safe</th>
<th>Uncertain Threat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upholding Cultural Values Punish</td>
<td>.177</td>
<td>.675</td>
<td>490.74 (66.08)</td>
<td>526.92 (54.37)</td>
</tr>
<tr>
<td>Reward</td>
<td>.971</td>
<td>.329</td>
<td>2828.44 (622.91)</td>
<td>3759.73 (713.51)</td>
</tr>
<tr>
<td>Total (mean of z-scores)</td>
<td>.941</td>
<td>.337</td>
<td>-.095 (.139)</td>
<td>.099 (.143)</td>
</tr>
<tr>
<td>Belief Certainty</td>
<td>1.510</td>
<td>.225</td>
<td>4.95 (.22)</td>
<td>5.36 (.25)</td>
</tr>
<tr>
<td>Worldview Defense</td>
<td>2.324</td>
<td>.134</td>
<td>3.28 (.41)</td>
<td>4.26 (.50)</td>
</tr>
</tbody>
</table>

Table 5. Multivariate ANOVA results on individual DVs (Study 1)
Appendix E: Results on Individual Dependent Measures, Study 2

The dependent measures below were entered into a multivariate ANOVA, with condition (certain threat vs. uncertain threat vs. uncertain save) as the between-subjects factor.

<table>
<thead>
<tr>
<th>Dependent Measure</th>
<th>F(2,116)</th>
<th>p-value</th>
<th>Certain Threat</th>
<th>Uncertain Threat</th>
<th>Uncertain Safe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upholding Cultural Values</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Punish</td>
<td>4.854</td>
<td>.009</td>
<td>459.15(43.02)</td>
<td>635.50(43.02)</td>
<td>486.64(43.57)</td>
</tr>
<tr>
<td>Reward</td>
<td>2.075</td>
<td>.130</td>
<td>2796.25(487.29)</td>
<td>3492.33(487.29)</td>
<td>2079.49(493.50)</td>
</tr>
<tr>
<td>Total (mean of z-scores)</td>
<td>5.219</td>
<td>.007</td>
<td>-.137(.11)</td>
<td>.277 (.11)</td>
<td>-.203(.12)</td>
</tr>
<tr>
<td>Belief Certainty</td>
<td>3.788</td>
<td>.025</td>
<td>5.15 (.22)</td>
<td>5.683 (.22)</td>
<td>4.829(.22)</td>
</tr>
<tr>
<td>Worldview Defense</td>
<td>1.147</td>
<td>.321</td>
<td>3.45(.35)</td>
<td>4.20 (.35)</td>
<td>3.76(.35)</td>
</tr>
</tbody>
</table>

Table 6. Multivariate ANOVA results on individual DVs (Study 2)
Appendix F: Testing for moderation by political orientation, controlling for extremity

As a test of Jost and Napier’s (2011) uncertainty-threat model of political conservatism, which suggests that conservatives are particularly vulnerable to threat and uncertainty, we ran regressions testing for an interaction between condition and political orientation on the collapsed measure of compensatory bolstering, controlling for the extremity of political orientation.

In Study 1, the interaction between condition and political orientation, controlling for political extremity, was non-significant, $t = 1.36, p = .179$. A similar regression model was tested in Study 2, examining whether political orientation moderated the effect of condition (coded in this regression as uncertain threat condition versus the collapsed uncertain safe and certain threat)\(^4\) on compensatory bolstering when controlling for political extremity. Again, despite the larger sample size, political orientation did not moderate the effect of condition on compensatory bolstering when controlling for extremity, $t = -.867, p = .388$.

\(^4\) Rerunning the analysis with uncertain safe, and then with certain threat, as the treatment group, did not change the interpretation of the analysis: Political orientation, controlling for extremity, did not moderate condition’s effect in either (certain threat vs. others interaction $t=.710, p=.479$; uncertain safe vs others interaction $t=.073, p=.942$).