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Fearing the Uncertain: A Causal Exploration of Self-Esteem, Self-Uncertainty, and Mortality Salience

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Fearing the Uncertain: A Causal Exploration of Self-Esteem, Self-Uncertainty, and

Mortality Salience

BY

Zachary P. Hohman

Claremont, California

2012

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APPROVAL OF THE REVIEW COMMITTEE

This dissertation has been duly read, reviewed, and critiqued by the Committee listed below, which hereby approves the manuscript of Zachary P. Hohman as fulfilling the scope and quality requirements for meriting the degree of Doctor of Philosophy in Psychology.

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Abstract

Fearing the Uncertain: A Causal Exploration of Self-Esteem, Self-Uncertainty, and Mortality Saliency

by

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Claremont Graduate University: 2012

Social identity theory (Tajfel & Turner, 1979) is one of the most influential social psychological theories of group behavior and intergroup relations. Early social identity research focused on many different group processes; however, the motivation behind group identification was not fully explored. Researchers have proposed a variety of accounts for why people join and identify with groups. This dissertation unravels the relationship between, on the one hand, mortality saliency, self-related uncertainty and self-esteem, and on the other group identification and ingroup defense. The general hypothesis derived from uncertainty-identity theory (Hogg, 2010) is that uncertainty and not fear of death or pursuit of self-esteem motivate people to identify with and defend their groups, and that identification mediates the relationship between uncertainty and defense of the group. Experiment 1 ($N = 112$) tested the relationship between uncertainty and self-esteem on defense of the ingroup, with the additional test of the mediating effects of identification with the group between uncertainty and ingroup defense. Results showed that uncertainty and not self-esteem motivate people to identify with a group, to defend their group, and that group defense is mediated by identification. Experiment 2 ($N = 112$) provided a replication of the typical TMT study, which suggests that self-esteem will buffer the effects of mortality saliency on ingroup defense, with the

additional test of the mediating effects of identification between mortality salience and defense of one's group. As predicted, mortality salience only increased identification and defense of the group when self-esteem was not enhanced, as well, the interactive effects of mortality salience and self-esteem on defense was mediated by identification.

Experiment 3 ($N = 294$) was a combination of both Experiments 1 and 2 and tested the hypothesis that uncertainty would moderate the relationship between self-esteem and mortality salience on group identification and ingroup defense. Exactly as predicted, only under high uncertainty the typical TMT results are demonstrated. Results across these three experiments demonstrate that self-uncertainty plays a significant role in reactions to mortality salience, and support uncertainty-identity theory's analysis of the role of self-uncertainty in ideological conviction and group behavior.

Dedication

I dedicate this work to my mother, father, and wife. Mom and dad you provided me with the opportunity to do anything with my life and I am forever grateful for that. Bre, before meeting you the thought of graduate school, more less a PhD, seemed laughable. However, you bring the best out of me and make me a better person.

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CHAPTER ONE

Background

The need to belong and be part of a group has been a critical topic of psychological research since the early 1900s. For example, Sigmund Freud highlighted the importance of contact between people in groups (Freud, 1930). A few years later, Abraham Maslow, in his famous hierarchy of human needs, placed the need to belong as a necessity after people meet their needs for water, food, and security. Maslow (1968) believed that only two other basic human needs had greater priority than the need to belong: physiological and security needs. It is now generally agreed that humans have a need to belong in and be part of a group (Baumeister & Leary, 1995; Levine & Kerr, 2007). However, there is no single agreed-upon explanation for the motivational force behind the need to join groups.

Social psychologists have proposed a large variety of different accounts of how and why people join and identify with groups (see, Hogg, Hohman, & Rivera, 2008); for example, the self-esteem hypothesis (e.g., Abrams & Hogg, 1988), uncertainty-identity theory (Hogg, 2000, 2007, 2012), and terror management theory (Greenberg, Pyszczynski, & Solomon, 1986; Greenberg, Solomon, & Pyszczynski, 1997; Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004) all propose a mechanism for why people are motivated to identify with groups. There is still much debate in the literature about which of these proposals best explains group motivation (Hogg, Hohman, Rivera, 2008; Hohman & Hogg, 2011; van den Bos, 2009). The purpose of this dissertation is to unravel the relationship between mortality salience, self-related uncertainty, and self-esteem as they relate to group identification and defense of the

group.

The focus of this dissertation is on the underlying processes that motivate people to identify with groups. To date, perhaps the most complete account of group identification and group processes comes from social identity theory (Tajfel & Turner, 1979). Therefore, the exposition begins by detailing the history and main components of social identity theory, which leads into an account of social identity theory's analysis of what motivates people to identify with a group. Following social identity theory, the three main theories (self-esteem hypothesis, uncertainty-identity theory, and terror management theory) compared in this dissertation are examined in detail. Finally, the general paradigm for the three reported experiments is discussed in detail - leading to the first experiment.

Social Identity Theory

Over the past 50 years social identity theory (SIT) has become one of the most influential social psychological theories of group behavior and intergroup relations (for recent reviews see, Abrams & Hogg, 2010; Hogg, 2006). SIT is a large theory that includes a number of sub-theories (Abrams & Hogg, 2004), such as individual processes, motivational accounts, and intergroup processes. The two main components of this theory are the "social identity theory of intergroup relations" proposed by Tajfel and Turner (1979) focusing mainly on intergroup relations (e.g., intergroup conflict, prejudice, discrimination), and the "social identity theory of the group", usually referred to as self-categorization theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), which focuses primarily on social cognitive processes and group life in general, including intragroup processes (e.g., group salience, group polarization, and group identification processes).

SIT developed from Tajfel's experiences as a Polish Jew during the Second World War and his understandable desire to explain discrimination and prejudice (Abrams & Hogg, 2010; Hogg & Abrams, 1988). As well, SIT developed from Tajfel's dissatisfaction with social psychology's focus on individual level explanations for group level phenomena – that is, the focus on individual characteristics, personality traits and interpersonal relations as the cause of group behaviors (Hogg, 2006). He proposed that prejudice and discrimination were not the expression of individual characteristics, but rather the result of a complex interplay of cognitive, interactive and societal level processes, in which the course of intergroup behavior was heavily influenced by people's representations of the nature of intergroup relations in society. Framed by these meta-theoretical convictions Tajfel famously defined social identity as “the individual's knowledge that he belongs to a certain social group together with some emotional and value significance to him of this group membership” (Tajfel, 1972, p. 292).

A key precursor of later social identity ideas was Tajfel's accentuation principle (Tajfel, 1959; Tajfel & Wilkes, 1963), which holds that people perceptually *accentuate* differences between stimuli that fall in different categories and perceptually *accentuate* similarities among stimuli that fall within the same category. Applied to people, we view those who come from the same group to be similar, and as distinct from members of another group, or we stereotype people according to their group membership. Subsequent research demonstrated that not only does perceptual accentuation occur after categorization, but we also behaviorally discriminate - we not only see people from the same group as similar but we treat them that way as well (Tajfel, 1972).

Based on studies employing the minimal group paradigm (ascribing participants

to minimally defined groups in an experimental setting, see, Billig & Tajfel, 1973; Tajfel, Billig, Bundy, & Flament, 1971), Tajfel found that categorization even on a trivial basis causes people to discriminate in favor of their ingroup at the expense of an outgroup. People strive to view their ingroup positively in comparison to relevant outgroups (Abrams & Hogg, 2010; Hogg, 2006; Hogg & Abrams, 1988; Tajfel, 1978). This is associated with a competitive orientation between ingroup and outgroup over status and prestige. All groups and their members strive for greater prestige and higher status than relevant outgroups. This competitive orientation between groups serves a positive intergroup distinctiveness need and can generate behavioral competition – together these can translate into prejudice and discrimination as the groups jockey for position to view themselves positively in comparison to the outgroup. Intergroup conflict is due to an individual and group level need to view the ingroup in a positive light, steered by subjective beliefs about the nature of status relations between groups (Tajfel & Turner, 1979).

Minimal group studies demonstrated that when thinking in terms of their groups, people categorize themselves as group members and not as individuals, making a clear distinction between personal identities and social identities. However, when examining the motivations behind people's behavior, the distinction between personal and social identities is not binary (either personal or social), but rather varies along a continuum ranging from behaviors based on individual characteristics and personalities to intergroup relations – behaving as a typical group member (Tajfel, 1978). This distinction suggests that one's social identity is not salient at all times, and that it shifts along this continuum to determine whether behavior is guided by individual/interpersonal processes or group

processes. When people are categorized as group members their behaviors are guided by the norms of the group.

The research program initiated by Tajfel and colleagues did a successful job at detailing intergroup processes and intergroup relations, which was largely lead by the desire to explain an individual's behavior at a group level. Due to the desire to focus on the group level, the social identity theory of intergroup relations did not focus on intragroup processes that lead individuals to categorize themselves as group members and the processes that occur after categorization.

Self-categorization theory focuses on social categorization processes and phenomena, i.e., the processes that occur around the categorization of the self in terms of the group – e.g., social influence, norms, deindividuation, deviance, etc. (Turner et al., 1987). Because self-categorization is a wider analysis than the earlier theory (Tajfel & Turner, 1979) focusing on group life in general rather than only intergroup relations it has been termed “the social identity theory of the group” (Turner et al., 1987, p. 42). The original work on self-categorization focused on how people identify with groups and when identification will occur. Oakes (1987) posited that people will socially identify with a group based on an interaction between *fit* and *accessibility* of the group, an idea that was drawn from Bruner (1957). Groups that are more often accessible because of use or because they are relevant to the situation are more likely to become salient. Also, groups will fit better to the extent that they can dictate the correct behavior for a person in a given situation and explain the behavior of other people in that situation. Thus, the group that is accessible and fits the best will become psychologically salient for the person in a given situation. After a group becomes psychologically salient people no

longer view themselves and others in idiosyncratic or interpersonal terms, but rather in terms of their group identities and associated group norms. That is, they become *depersonalized* and lose their personal identity for their social identity.

Depersonalization is the perceptual processes where people no longer see themselves as unique individuals, but as members of a group with a set of expectations described by that group's prototype (Turner et al., 1987; also cf. social identity model of deindividuation by Reicher, Spears, & Postmes, 1995). A consequence of depersonalization is that people are assumed to fit and behave in accordance with their group's prototype. Once a person is depersonalized we no longer see them as a unique individual; rather, they are viewed through the lens of their group's prototype and evaluated in comparison to that prototype. We not only depersonalize other people but ourselves as well. We no longer think of ourselves in terms of individual characteristics, but in terms of our group's prototype and how well we fit the prototype. The depersonalization process results in members of the ingroup being perceived as similar and members of the outgroup as different, following the metacontrast principle (Tajfel, 1959), which seeks to maximize intergroup differences relative to ingroup differences.

The conceptual and theoretical insights of self-categorization theory provide several key additions to social identity theory (Abrams & Hogg, 2010; Hogg, 2006; Hogg & Abrams, 1988) - namely: 1) referent informational influence - social influence in intragroup processes (Abrams & Hogg, 1990; Hogg & Turner, 1987; Turner, 1982; Turner & Oakes, 1989; Turner, Wetherell, & Hogg, 1989); 2) re-exploring group cohesiveness and group formation (Hogg, 1993; Hogg & Turner, 1985a, 1985b; Hogg, Hardie, & Reynolds, 1995; Turner, 1982, 1984; Turner, Sachdev, & Hogg, 1983); 3)

determining how salience affects social identification (Hogg & Turner, 1987; Oakes, 1987; Oakes, Haslam, & Turner, 1994; Turner, Oakes, Haslam, & McGarty, 1994); and 4) sparking an interest in the motivation behind group identification (Abrams & Hogg, 1988, 2010). The last addition is of focal importance to the current analysis. The initial work on social identity theory advanced by Tajfel and Turner (1979) and followed by Turner and colleagues (1987) did not fully develop and layout what motivates people to identify with groups.

Self-esteem hypothesis

To fill in the motivational gap, Abrams and Hogg (1988) further developed the self-esteem hypothesis (describe in the original work as the need for positive distinctiveness and a positive social identity, Tajfel & Turner, 1979) from the original work of the social identity theory. Abrams and Hogg (1988) identified two corollaries to the relationship between self-esteem and group identification. *Corollary 1* states that intergroup discrimination enhances social identity and elevates self-esteem – the more the ingroup is positively differentiated from an outgroup, the more self-esteem is enhanced as a group member. *Corollary 2* states that people have a motivational need for positive self-esteem, such that low self-esteem motivates intergroup discrimination and identification with the group in an effort to raise self-esteem. Based on *Corollary 2*, the primary motivation behind social identification is the desire for a positive social identity, which arises from an individual-level self-esteem need (Sedikides & Strube, 1997). Thus, intragroup processes could be motivated from an individual-level need for self-esteem (e.g., Turner, 1982). The self-esteem hypothesis provides a tidy explanation for social

identity motivation – we want to view our social groups and ourselves positively, therefore people with lowered self-esteem should be motivated to identify with groups.

The results of empirical tests, on the other hand, have been mixed and self-esteem has not consistently been found as a motivator for social identification (Abrams & Hogg, 1988; Rubin & Hewstone, 1998). A comprehensive study of the self-esteem hypothesis found support for *Corollary 1* but not *Corollary 2* (Houston & Andreopoulou, 2003). Some claim that the lack of support is due to methodological and conceptual problems in the definition and measurement of self-esteem (Long & Spears, 1997; Rubin & Hewstone, 1998). Others suggest that the relationship between self-esteem and group motivation may be moderated by the strength of group identification, the perception of outgroup threat, and the intensity of self-esteem (Abrams & Hogg, 1988; Crocker & Luhtanen, 1990; Rubin & Hewstone, 1998). However, even if self-esteem processes motivate group identification, many still recognize that other motivational mechanisms may be at least as important as (if not more important than) self-esteem in social identity processes (e.g., Hogg & Mullin, 1999). Accordingly, many researchers have moved beyond self-esteem to explore other possible mechanisms that motivate group identification.

Uncertainty-identity Theory

To account for the inconsistent findings from the self-esteem hypothesis, Hogg (2000, 2007, 2012) proposed the idea that people are motivated to identify with groups out of an epistemic need to reduce self-uncertainties. One of the most basic motives that drive people is the desire to understand and be able to predict their world. For example, classic work by Festinger (1954) demonstrated that when people are uncertain they will

look to others on how to act or to determine their level of performance on a task – a process referred to as social comparison. Simply, people need to know and understand the world and their place within their world. Not knowing or being uncertain about one's self or one's place in the world is highly uncomfortable and sets in motion behaviors aimed at reducing that uncertainty.

That is not to say that all self-uncertainties are aversive and viewed as a threat. Some uncertainties can be considered a challenge that provides people with satisfaction when they are overcome; for example, a scientist who delves into some unknown to come with information about human nature. However, when viewed in a negative light, uncertainty is highly anxiety provoking and can make us feel powerless to control our world because we are unable to predict and plan for the future. Being socially marginalized, unclear about who we are, or where we belong, all raise uncertainty in an aversive way.

Uncertainty-identity theory (Hogg, 2001, 2005, 2007, 2012) is based upon the tenet that feeling uncertain about one's perceptions, attitudes, values, or feelings is uncomfortable. Feelings of uncertainty, especially those related to the self, motivate people to identify with social groups that have certain properties that reduce, control, or protect from feelings of uncertainty. The process of self-categorization as a group member reduces self-conceptual uncertainty because it provides a consensually validated group prototype that describes and prescribes who one is and how one should behave. The mechanism of uncertainty reduction is social categorization of self and others in terms of relevant group defining prototypes. It is a process that renders other people relatively predictable and that provides a social template for what one should feel, believe

and do. This occurs via the process of depersonalization. Social identities satisfy a basic human need to reduce uncertainty about the self (Hogg, 2007). This allows us to be able to program our behavior, plan action and reliably predict the behavior of others (Hogg, 2007). Therefore, social identity processes are tightly associated with very basic human motivational and cognitive processes – people seek, promote and protect valuable self-describing social identities and the social groups that define such identities.

Highly entitative groups are particularly well equipped to reduce self-uncertainty through self-categorization. Entitativity is that property of a group, resting on clear boundaries, internal homogeneity, social interaction, clear internal structure, common goals, and common fate, which makes a group “groupy” (Campbell, 1958; Hamilton & Sherman, 1996). Under uncertainty people prefer to identify with high entitativity groups, identify more strongly with them, and seek to make more entitative those groups to which they already belong (Hogg, 2004, 2005). With an increase in perceived entitativity comes an increase in adherence to the prototype. In this way the prototype provides its members with a clear sense of who they are, what they should believe, and how they should behave (Hogg, 2004, 2005, 2007). The more that people feel prototypical of the group, or the extent to which they believe they meet the group prototype, the less uncertain they feel.

There now exists a solid body of evidence demonstrating that uncertainty does in fact motivate group identification (e.g., Grieve & Hogg, 1999; Hogg, 2007; Hogg, Sherman, Dierselhuis, Maitner, & Moffitt, 2007; Hohman, Hogg, & Bligh, 2010). While research supports uncertainty as a motivator behind group identification, the relationship between uncertainty and self-esteem is less clear, and it is possible that manipulating uncertainty indirectly manipulates self-esteem (Hogg & Svensson, 2012). Therefore,

studies manipulating uncertainty may actually be manipulating and tracking the effects of self-esteem, not uncertainty, on group identification.

In order to unravel the possible confounding of uncertainty and self-esteem, Hogg and Svensson (2012) examined in two experiments the roles that uncertainty and self-esteem play in motivating people to identify with a group. In the first experiment they manipulated uncertainty and self-affirmation and then measured participants' identification with a group. The experiment was set up as an eyewitness account and uncertainty was manipulated by either creating a very difficult eyewitness account (high uncertainty) or very easy one (low uncertainty). Then participants were provided with the chance to either self-affirm or not. The dependent measure in the study was level of identification with a group created for the purposes of the study. Results indicated that participants identified more strongly with their group under high compared to low uncertainty and that self-affirmation had no effect on identification.

In the follow-up experiment, Hogg and Svensson (2012) manipulated uncertainty, self-prototypicality and self-affirmation, and measured state self-esteem. The methods were the same as in the first experiment except that self-prototypicality was manipulated after uncertainty and self-esteem was measured before identification. Results indicated that participants had lower self-esteem in the high compared to low uncertainty conditions; however, self-esteem was not significantly correlated with identification. Additionally, there was an interaction between uncertainty and prototypicality on identification, even when controlling for self-esteem – uncertainty increased identification when participants were prototypical of the group but decreased identification when they were not prototypical of the group.

Based on the results of the two experiments the researchers suggested that they found evidence to support the idea that uncertainty motivated group identification independent of self-esteem and self-affirmation. While these conclusions are warranted based on the results of their studies, they measured and did not manipulate self-esteem preventing causal conclusions to be made about the relationship between uncertainty and self-esteem on identification. Therefore, to fully tease apart the relationship between self-esteem and uncertainty the first experiment in this dissertation manipulates and crosses in a factorial design both uncertainty and self-esteem. This provides the opportunity to determine the causal relationship of both self-esteem and uncertainty on identification.

Terror Management Theory

Another account for why people are motivated to identify with groups comes from Terror management theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986; Greenberg, Solomon, & Pyszczynski, 1997; Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). TMT is one of the most widely researched theories in social psychology today (for a critique, see Leary, 2004), having, according to Arndt and Vess (2008; Burke, Martens, & Faucher, 2010), inspired more than 350 separate studies in at least 15 different countries.

TMT was inspired by the original writings of Ernest Becker (Pyszczynski et al., 2004), a sociologist who aspired to create a “general science of man” (Becker, 1971, p. 79). Becker attempted to explain a wide range of human behaviors based on information from the natural sciences, social sciences and humanities (Becker, 1973). For this reason, TMT has its roots in several different scientific fields, a property which has contributed to its success and popularity in psychology.

TMT argues that the unique cognitive abilities of humans gave rise to the ability to realize their own mortality – death is inevitable. This realization created the potential for “paralyzing terror.” To adapt to and overcome this terror, humans created cultural worldviews. Pyszczynski and colleagues define cultural worldviews as:

“Humanly constructed shared symbolic conceptions of reality that give meaning, order, and permanence to existence; provide a set of standards for what is valuable; and promise some form of either literal or symbolic immortality to those who believe in the cultural worldview and live up to its standards of value.”

(Pyszczynski et al., 2004, p. 436)

Cultural worldviews help humans overcome the terror associated with their death by making them believe they are immortal, either figuratively or literally. Humans infer this immortality through connections with cultural institutions that promote and confirm their worldview. People perceive how connected they are with cultural institutions through their self-esteem – people with higher self-esteem are more strongly connected. Self-esteem plays a key role in TMT because it is through self-esteem derived from social validation of their cultural worldview that people believe their worldview is “correct” and that they are socially connected.

Self-esteem is developed by the internalization of cultural worldviews through the socialization process. This means that self-esteem is based on a shared cultural context and will need social validation from others in society. Social validation of cultural worldviews is accomplished through the social comparisons process (Festinger, 1954). When other people in one’s culture (or social group) agree with a person’s worldview, it

implies that their worldview is correct and is based on an external reality. People will have a higher self-esteem when they feel that their worldview is justified. When people disagree with a one's worldview, a person feels threatened and experiences a heightened level of anxiety, which contributes to lower self-esteem. Self-esteem, at its core, is a culturally derived defense mechanism that is dependent on social validation.

Fear of death, unsurprisingly, provokes anxiety. According to TMT, socially validating one's worldview and meeting the standards of one's social group best reduce anxiety. If successful, this process elevates self-esteem. Though self-esteem serves other purposes, such as feeling good about the self, TMT proposes that the main purpose of self-esteem is to buffer people from anxiety associated with fear of their mortality. Indeed one of the original TMT studies (Greenberg, Solomon, Pyszczynski, Rosenblatt, Burling, & Lyon, 1992) has shown that elevated self-esteem does precisely this – it buffers against anxiety associated with thoughts of death. This finding has been replicated (e.g., Greenberg, Pyszczynski, Solomon, Pinel, Simon, & Jordan, 1993). There is little debate over the anxiety-buffering function of self-esteem against thoughts of death (for review, see Solomon, Greenberg, & Pyszczynski, 1991).

According to TMT, simply identifying with cultural institutions should also attenuate anxiety associated with thinking about death. Cultural institutions help people feel that their lives have meaning, and this feeling of existential meaningfulness should reduce anxiety associated with the fear of dying. People made to think about their death should therefore try to identify with their society or a cultural institution in an effort to confirm their cultural worldview. TMT research supports this assumption – mortality salience strengthens expressions of societal cultural identification (Arndt, Greenberg,

Schimmel, Pyszczynski, & Solomon, 2002; Castano, 2004; Castano, Yzerbyt, Paladino, & Sacchi, 2002).

While the results of TMT studies cannot easily be disputed, there have been a variety of criticisms of the theory (see, Heine, Proulx, & Vohs, 2006; McGregor, 2006; Van den Bos, 2009; Van den Bos, Poortvliet, Mass, Miedema, & Van den Ham, 2005; for a rebuttal see, Pyszczynski, Greenberg, Solomon, & Maxfield, 2006). For example, Proulx and Heine (2006; Heine, MacKay, Proulx, & Charles, 2005) propose that their meaning maintenance model can explain the effects of mortality salience, and McGregor (2006) proposes that a neurologically grounded account can explain why people identify zealously with ideologies and groups in response to mortality salience and other threats. However, most criticisms revolve around the manipulation of mortality salience.

One of the major questions focuses on the extent to which mortality salience creates terror and/or existential uncertainty (for a recent review see, Van den Bos, 2009). McGregor (2006), Van den Bos and colleagues (Van den Bos, 2009; Yavuz & Van den Bos, 2009), and Hogg and colleagues (Hogg, Adelman, & Blagg, 2010; Hogg, Hohman, & Rivera, 2008; Hohman & Hogg, 2011) have all argued that thoughts of death produce stronger identification and defensive reactions not because people are terrified over their impending death but rather because of the uncertainty surrounding death – although our own death is the only true certitude in our lives, how it will happen and what happens afterwards is uncertain. According to McGregor (2006) and Van den Bos (2009), uncertainty is highly anxiety provoking and it is this anxiety provoked by uncertainty that motivates people to identify and defend their groups.

However, Pyszczynski and colleagues (2006) disagree that uncertainty is the most unsettling aspect of death. They claim it is the inevitability of death that causes the anxiety associate with mortality salience. They also argue that not all types of uncertainty are anxiety provoking – after all, people can sometimes seek out uncertainty (e.g., base jumpers, sky divers, gamblers), making the construct of uncertainty too vague to be a viable predictor of specific behavior.

Pyszczynski and colleagues (2006) also claim that results from Van de Bos and colleagues' studies (Van den Bos, 2001; Van den Bos & Miedma, 2000; Van den Bos, Poortvliet, Maas, Miedema, & Van den Ham, 2005) are problematic because their dependent variable is procedural justice. However, other studies by Van den Bos and colleagues do in fact use different dependent variables and replicate the effects obtained on procedural justice (Van den Bos et al., 2005, Experiments 3 and 4; Yavuz & Van den Bos, 2009). TMT researchers claim they cannot replicate Van den Bos's results. Using Van den Bos and colleagues' (Van den Bos et al., 2005) manipulation of uncertainty with TMT dependent measures, (Friedman & Arndt, 2005); however, Yavuz and Van den Bos (2009) have been able to replicate their findings in a Turkish population.

Although Pyszczynski et al.'s (2006) concern over the way the effects of uncertainty are measured may be warranted, their dismissal of the role of uncertainty is less convincing. Death is inevitable; there is no uncertainty about whether or not it will happen– everyone dies. However, for most of us for most of our lives there is substantial uncertainty about when it will happen, what it will feel like to die, and above all, about what happens to us after death. Mortality salience may well make people frightened about dying, but it also raises substantial existential uncertainty focused on what happens to us

after we die (Van den Bos, 2009). It is perhaps no accident that religions and religious ideologies are so powerful and prevalent – among other things, religions have elaborate and sophisticated myths about ultimate causality and the nature of existence that effectively resolve existential uncertainty (see Hogg, Adelman, & Blagg, 2010). If thinking about one’s death causes both fear and uncertainty, how do we know which plays the main role in group identification and thus adherence to group ideologies?

While results from empirical tests of uncertainty-identity theory clearly demonstrate the motivational power of general and self-uncertainty on group identification and associated phenomena (for review see Hogg, 2000, 2007), the uncertainty evoked in TMT studies is a very specific type of uncertainty – existential uncertainty and uncertainty about the afterlife (Boyd & Zimbardo, 1997; Martin, 1999). Ultimately, the question is, does mortality salience raise fear of death (which TMT predicts), or does it raise uncertainty surrounding the afterlife (which uncertainty-identity theory would predict)? If it has both effects, which is primarily motivating group identification, ideological adherence, and worldview defense?

According to TMT, “the terror management utility of meaning systems that promise literal immortality (e.g., heaven, reincarnation, nirvana) is rather obvious: they deny that death entails absolute annihilation or the end of one’s existence in a straightforward semantic and logical way” (Pyszczynski et al., 2006, p. 335). How would people respond if they were made certain there was no life after death? From TMT we would expect this to provoke extreme anxiety and motivate people to defend and identify with their cultural institutions. From uncertainty-identity theory we would expect the opposite. Those who are certain there is no afterlife are, by definition, are not uncertain –

they are very sure about what will happen, and will not be motivated to increase their identification with their cultural institution.

Research conducted by Hohman and Hogg (2011) explored this idea across two studies. In experiment 1, mortality salience was manipulated and uncertainty about the afterlife measured to predict national identification. As hypothesized, mortality salience strengthened identification only among those uncertain about the afterlife. In experiment 2, mortality salience was manipulated as before, but belief in an afterlife also was manipulated – participants were primed to believe there was an afterlife, there was not an afterlife, or the existence of an afterlife was uncertain. As in experiment 1, mortality salience strengthened identification only among the existentially uncertain. These experiments show that uncertainty plays a significant role in reactions to mortality salience, and support uncertainty-identity theory's analysis of the role of self-uncertainty in ideological conviction and group behavior. However, it is not clear if it is existential uncertainty or uncertainty in general that plays the important role in TMT and the buffering effects of self-esteem on MS (which is central to TMT) were not taken into account in these studies. As well, the typical TMT dependent variable (defense of one's worldview) was not the dependent measure in the Hohman and Hogg study; rather identification with worldview was measured. Taken together there are still several unresolved questions that need to be addressed to unravel the relationship between uncertainty and mortality salience.

The Current Research

This dissertation tests the general hypothesis derived from uncertainty-identity theory, that it is uncertainty and not fear of death or pursuit of self-esteem that motivates

people to identify with groups and defend their groups; and that identification with a group mediates the relationship between uncertainty and defense of the group. These experiments will demonstrate the unique role of uncertainty in group identification beyond fear of death or self-esteem and extend the research that was initiated by Hogg and Svensson (2012) and Hohman and Hogg (2011).

To investigate this idea three experiments were conducted. TMT terminology will be used in the following experiments in order to keep the studies as close as possible to the standard TMT study. Therefore, group identification will also be referred to as identification with cultural institutions and defense of the ingroup will also be referred to as defense of cultural institutions. The cultural institution used in this research is America and future discussion in this dissertation will refer to identification with America and defense of America. America was used as the cultural institution to keep the experiments consistent with Hohman and Hogg (2011).

Experiment 1 provides a more complete examination of the relationship between uncertainty and self-esteem on group identification and defense of the ingroup. The general hypothesis, from uncertainty-identity theory, is that uncertainty will increase defense of America and that this relationship will be mediated by identification with America, regardless of self-esteem. Self-esteem and uncertainty were the independent variables and both were manipulated. Uncertainty was manipulated using the standard uncertainty-identity theory manipulation (Hogg, Sherman, Dierselhuis, Maitner, & Moffitt, 2007). Self-esteem was manipulated using the procedures in early TMT studies (e.g., Greenberg and colleagues, 1992). The key dependent variable, defense of America when criticized by outgroup members, was measured using the standard TMT measure

(Greenberg, Simon, Pyszczynski, Solomon, & Chatel, 1992) and the mediating variable, identification with America, was measured using the items from Hohman and Hogg (2011).

Experiment 2 replicates and extends the typical TMT study, that self-esteem will buffer against the effects of mortality salience on defense of cultural institutions, with the additional test of the mediating effects of identification with the cultural institution between mortality salience and defense of one's cultural institution. Participants' self-esteem and mortality salience were manipulated using the methods detailed in the original studies conducted by Greenberg and colleagues (1992, 1997). The key dependent measure was defense of America as a cultural institution and the mediating variable was identification with America.

Finally Experiment 3 is a combination of both Experiment 1 and 2, i.e. this experiment is a 2 (self-esteem – positive v. neutral) X 2 (mortality salience – salient v. control) X 2 (uncertainty – uncertain v. certain) factorial design with defense of America as the main dependent variable and identification with America as the mediating variable. The general hypothesis, from uncertainty-identity theory, is that uncertainty will moderate the relationship between MS and self-esteem on national defense and nation identification – such that we should only expect the typical TMT results under high but not low uncertainty. In contrast, TMT would predict an interaction between mortality salience and self-esteem – all participants, irrespective of their self-uncertainty, will defend America more under neutral self-esteem and mortality salience than under high self-esteem or when mortality is not made salient.

CHAPTER TWO

Experiment 1

Method

Participants and Design. Forty-five male and 67 female participants ($N = 112$, mean age = 37.22, $SD = 13.37$) were recruited from mturk to participate in a study hosted on the Survey Gizmo website (an internet database for online studies). The sample was restricted to only American citizens because the main dependent measures were aimed at American citizens, thus non-American citizens who passed the protocol on mturk were removed from the final analyses ($N = 8$). There were two manipulated predictor variables – one was uncertainty, invoked by the standard UIT manipulation. Participants were randomly assigned to a high or low uncertainty condition. The other manipulated variable was self-esteem – using procedures outlined in Greenberg and colleagues (1992, 1997) participants were randomly assigned to a neutral or enhanced self-esteem condition. The key dependent variable was defense of America using the typical measure in TMT studies (Greenberg et al., 1992, 1997) and the mediating variable was a multi-item scale measuring how strongly participants identified with America (cultural institution).

Procedure and Measures. The research was introduced as a two-part study, the first of which deals with personality and opinions and values, and the second of which deals with people's reactions to foreigners' views and opinions of America. Participants were told that they would be asked to complete a short personality test and answer a few questions for the first part and then in the second part were told that they would be asked to read a few essays written by foreigners about America and answer a few questions. Before the self-esteem manipulation participants answered 13 true/false questions about

themselves (adapted from Forer, 1949) and were told that their answer to these questions will be used to create their personality assessment (see Appendix A for questions).

The self-esteem manipulation was presented as a psychological assessment report (see Appendix B). The reports (one for neutral self-esteem and one for enhanced self-esteem) were created using the same wording and procedures as Greenberg and colleagues (1992). For the neutral assessment condition participants read, "while you have some personality weaknesses, you are generally able to compensate for them" and "some of your aspirations may be a bit unrealistic." Similarly, in the enhanced esteem condition, it stated, "while you may feel that you have some personality weaknesses, your personality is fundamentally strong" and "most of your aspirations tend to be pretty realistic." After this manipulation participants answered two questions to ensure that the self-esteem manipulation was realized correctly – "rate on a scale of one (poor) to seven (perfect) how effective the personality test is in revealing personality" and "rate on a scale of one (not at all) to seven (completely) the degree to which the personality description reveals basic characteristics of your personality".

To manipulate uncertainty participants were asked to "please take a few minutes and think about those aspects in your life that make you feel the *most uncertain/certain* about yourself, your future or your place in the world. Then please list/write three of those below." These questions were adapted from previous UIT studies (Hogg et al., 2007; Hogg, Meehan, & Farquharson, 2010) that have successfully manipulated self-uncertainty.

After the uncertainty manipulation participants completed the Positive and Negative Affect Schedule (PANAS, Watson, Clark, & Tellegen, 1988, see Appendix C

for items) as a filler task before the dependent measures. The purpose of this filler task was to keep the methods and procedures of Experiment 1 as similar as possible to Experiment 2 and the standard TMT study. The PANAS is a 20-item scale comprising of two 10-item subsets that are averaged to create two scales, one to measure positive affect ($\alpha = .76$) and the other negative affect ($\alpha = .69$).

The mediating variable was participants' strength of identification as an American. Eight items adapted from previous research measuring group identification tapped American identification (e.g., Hogg & Hains, 1998; Hogg et al., 2007; Hohman & Hogg, 2011). Participants indicated (1 *not very much*, 9 *very much*) how much they would stand up for America, how much they identified with being American, how much of a feeling of belonging they had as an American, how important to their sense of self being American was, how much they liked Americans as a whole, how similar they felt to Americans, how well they felt they fit as an American, and what their overall impression of America was (this item 1 *not very favorable*, 9 *very favorable*), $\alpha = .94$.

After answering questions about their American identity participants proceeded onto the second part of the study which concerns reactions to foreigners' views of America and were reminded that their task would be to read a couple essays and answer a few questions. One essay was pro-America and the other was anti-America (presentation of the essays was counter balanced; essays taken from Greenberg et al., 1992; see Appendix D for essays). After reading each essay participants answered five evaluation questions of the essay (adapted from Greenberg et al., 1997). These questions measured participants' evaluation of the author (the extent to which participants liked the author, thought the author was intelligent, and thought the author was knowledgeable) and two

items that assessed the participants' evaluations of each of the essays (the extent to which the participants agreed with the author's opinions and how true they thought the author's opinion was), all questions are on 9-point scales (1 = not at all, 9 = totally), $\alpha = .87$ for positive essay and $\alpha = .92$ for negative essay. For statistical analyses a composite was made of these two essay evaluations. First an overall evaluation was made for each essay by averaging the five questions. Then the anti-essay score was subtracted from the pro-essay score to create the evaluation composite with positive scores indicating preference of the pro-essay over the anti-essay.

The final section of the questionnaire obtained demographic information (i.e. gender, age, education and ethnicity) and background information on political ideology, political party affiliation, and religious affiliation. To measure political ideology participants indicated their current political ideology (1 *liberal*, 9 *conservative*). They also checked their political party affiliation (*Democrat*, *Republican*, *no party affiliation*, *other*). For religious affiliation, participants indicated which the religion with which they most strongly identify.

Results

Experiment 1 was a 2 (self-esteem – positive v. neutral) X 2 (uncertainty – uncertain v. certain) factorial design with defense of America as the main dependent variable and identification with America as the mediator. The general hypothesis for this experiment, from uncertainty-identity theory, was that uncertainty would increase defense of America and that this relationship would be mediated by identification with America, regardless of self-esteem. A variety of background and demographic information was also measured.

Background Variables. Most participants had some college experience (8.9% high school diploma, 48.2% some college no degree, 29.5% bachelor degree, and 13.4% graduate degree) and the sample was predominately Caucasian (81.3% Caucasian, 2.7% Hispanic, 5.2% Multi-racial, 5.4% Asian, and 5.4% African American) – in both cases, proportions did not significantly differ as a function of the self-esteem or uncertainty manipulations. In terms of political ideology the sample was relatively moderate ($M = 4.71$ $SD = 2.60$) and 46 identified with the Democratic party, 27 with the Republican party, 35 did not identify with a party, and 4 identified with a third party. For religious affiliation, 16 identified themselves as Catholic, 7 Jewish, 20 Protestant, 2 Buddhist, 6 Baptist, 20 Christian, 7 spiritual, 6 other, and 28 atheist. Proportions of religious affiliation and political party identity did not differ as a function of the uncertainty or self-esteem manipulations.

A two-way, uncertainty by self-esteem ANOVA on age and political ideology revealed no main effects or interactions. Entry of these background variables as covariates in the ANOVAs reported below did not significantly change the results.

Self-esteem Manipulation Check. To ensure that the self-esteem manipulation was realized correctly participants answered two questions – one asking how revealing the personality assessment was of their personality and the other about how effective the assessment was at uncovering their personality. A two-way, uncertainty by self-esteem ANOVA on the effectiveness of the personality test revealed only a main effect for self-esteem, $F(1, 108) = 14.97, p < .001$. Participants believed the assessment was more effective in the high self-esteem condition than the neutral self-esteem condition ($M = 6.18, SD = 1.70$ vs. $M = 4.79, SD = 2.10$). A second two-way, uncertainty by self-esteem

ANOVA on how revealing the test was of their personality uncovered a main effect for self-esteem ($F(1, 108) = 13.01, p < .001$) and a main effect for uncertainty ($F(1, 108) = 4.59, p = .034$), there was no significant interaction between self-esteem and uncertainty. Participants believed the test was more revealing of their personality in the high self-esteem condition than the neutral self-esteem condition ($M = 6.34, SD = 1.41$ vs. $M = 5.11, SD = 2.17$) and participants believed the personality test was more revealing in the low uncertainty compared to high uncertainty condition ($M = 6.08, SD = 1.79$ vs. $M = 5.36, SD = 1.99$). Entered as a covariate in the analyses reported below, the manipulation check did not significantly alter the results. Across the two questions the results suggest that the self-esteem manipulation was realized successfully by participants.

Filler Task - PANAS. We provided a filler task between the manipulation and the dependent measure to ensure that the procedures from Experiment 1 were similar to Experiment 2. Results of a two-way ANOVA on the positive and negative PANAS scales found that the uncertainty and self-esteem manipulations or their interaction had no effect on people's affect.

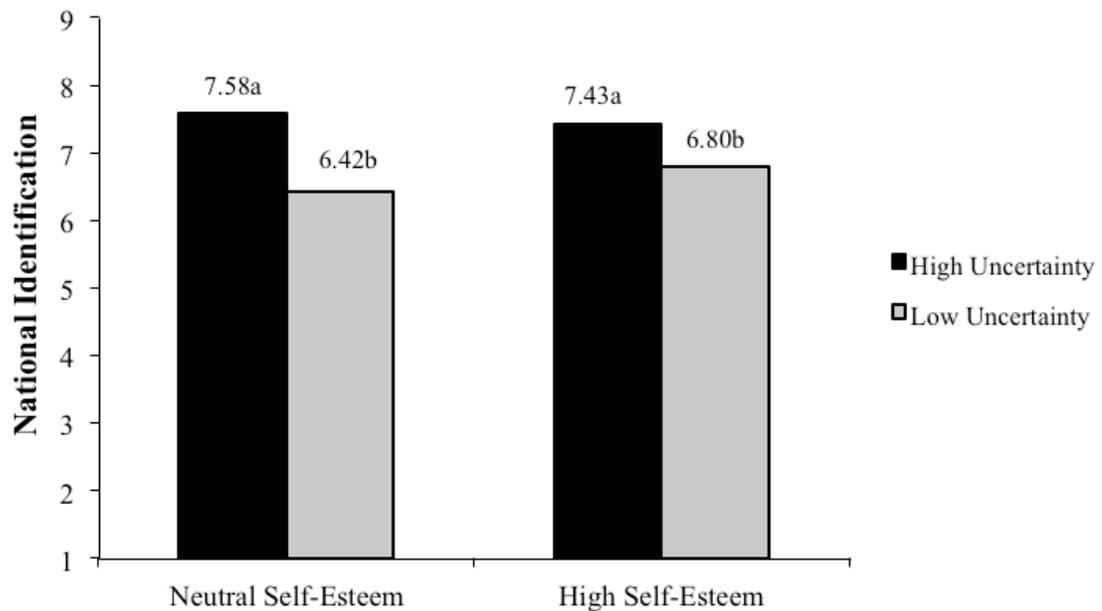


Figure 1. Experiment 1: National identification as a function of uncertainty and self-esteem. Notes. Bars not sharing the same letter differ at $p < .05$.

National Identification. A two-way, uncertainty by self-esteem, ANOVA on national identification only revealed a significant main effect for uncertainty ($F(1, 108) = 8.93, p = .003$), there was no main effect for self-esteem ($F(1, 108) = .161, p = .689$) and no interaction between self-esteem and uncertainty ($F(1, 108) = .769, p = .382$), see Figure 1. As predicted, participants in the high uncertainty condition significantly identified greater with America ($M = 7.51, SD = 1.20$) than those participants in the low uncertainty condition ($M = 6.61, SD = 1.88$).

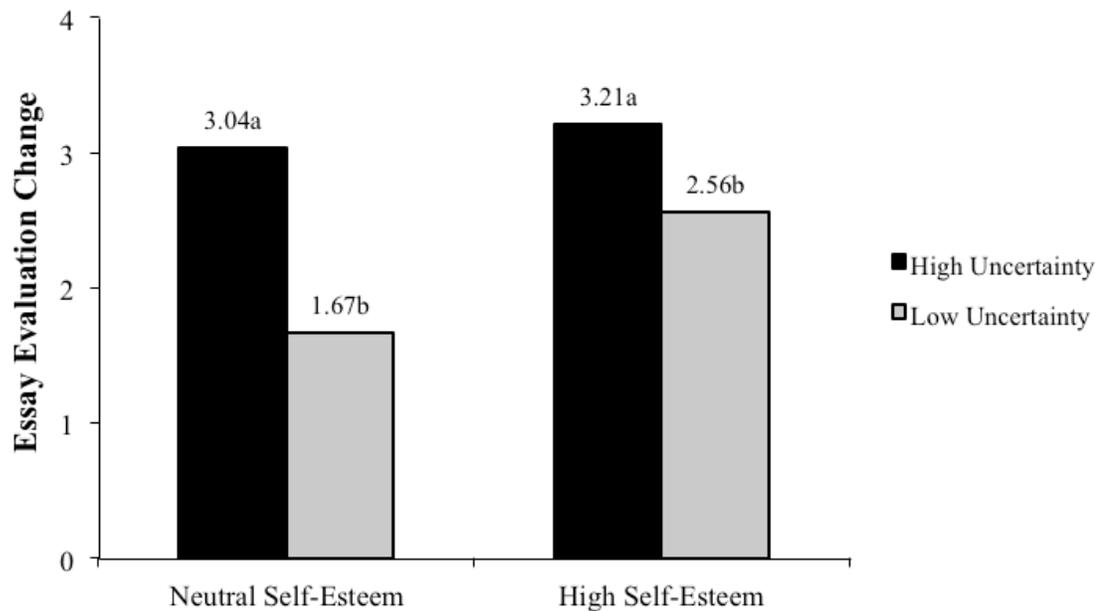


Figure 2. Experiment 1: Essay evaluation change as a function of uncertainty and self-esteem. Notes. Bars not sharing the same letter differ at $p < .05$.

Essay Evaluation. A two-way, uncertainty by self-esteem, ANOVA on the difference between the two essays only revealed a significant main effect for uncertainty ($F(1, 108) = 4.46, p = .037$), there was no main effect for self-esteem ($F(1, 108) = 1.23, p = .270$) and no interaction between self-esteem and uncertainty ($F(1, 108) = .56, p = .456$), see Figure 2. As predicted, uncertainty significantly increased the pro-essay evaluation over the anti-essay evaluation ($M = 3.12, SD = 2.07$) compared to those participants in the low uncertainty condition ($M = 2.11, SD = 2.91$).

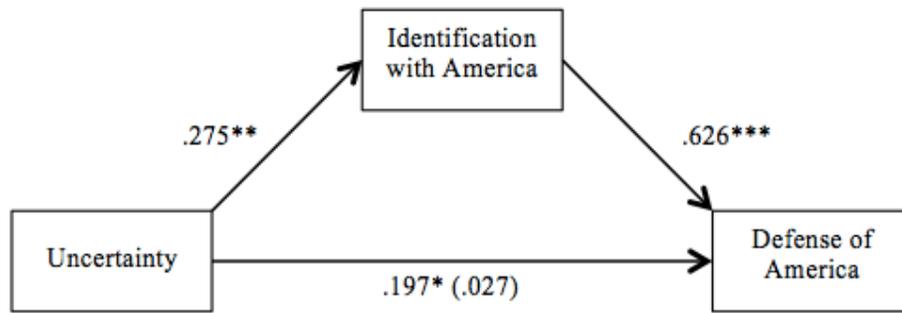


Figure 3. Experiment 1: Identification with America mediating the relationship between uncertainty and defense of America. Notes. * $p < .05$, ** $p < .01$, *** $p < .001$.

Mediation Analysis. A mediation analysis was conducted to determine if national identification mediated the relationship between uncertainty and essay evaluation change following the methods of Baron and Kenny (1986). National identity and essay evaluation change were significantly associated ($\beta = .626$, $t = 8.42$, $p < .001$), and uncertainty significantly affected both national identification ($\beta = .275$, $t = 3.00$, $p = .003$) and essay evaluation change (path c; $\beta = .197$, $t = 2.11$, $p = .037$). However, with national identification entered in the model uncertainty no longer significantly predicted essay evaluation change (path c', $\beta = .027$, $t = .352$, *ns*; sobel $z = 2.82$, $p = .005$). Thus, national identification fully mediated the relationship between uncertainty and essay evaluation change (see Figure 3).

Discussion

Experiment 1 provides a complete examination of the relationship between uncertainty and self-esteem on group identification and defense of the ingroup. The general hypothesis, from uncertainty-identity theory, was that uncertainty will increase defense of America and that this relationship will be mediated by identification with America, regardless of self-esteem. Research by Hogg and Svensson (2012) first tested

the relationship between self-esteem and uncertainty on identification; however, a limitation to that study was that there was no direct test of the causal relationship between self-esteem and uncertainty. This experiment provided that causal analysis and results demonstrated that regardless of self-esteem, participants identified more strongly with and defended America more when they were uncertain. As well, identification with America mediated the relationship between uncertainty and defense of America.

The inclusion of defense of America as a dependent measure provides a unique contribution to the UIT literature, as no study to date has explored the effects of uncertainty on defending one's ingroup. Though the implication could clearly be made from social identity theory that we would expect an increase in defending one's groups under high uncertainty – and that is exactly what the results of this study demonstrated. These results also suggest that uncertainty plays a more important role in identification than self-esteem. Hogg and Svensson (2012) suggested this and this study further bolsters the idea that it is uncertainty not self-esteem that plays a key role in motivating people to identify with and defend their ingroup. However, uncertainty is not the only theory that has been utilized to predict group motivation – TMT as well has been applied to this domain. The second experiment was designed to replicate experiment 1 in the context of the TMT paradigm.

CHAPTER THREE

Experiment 2

Experiment 2 provided a replication of the typical TMT study, that self-esteem would buffer against the effects of mortality salience on defense of cultural institutions, with the additional test of the mediating effects of identification with the cultural

institution. Participants' self-esteem and mortality salience were manipulated using the methods detailed in the original studies conducted by Greenberg and colleagues (1992, 1997). The key dependent measure was defense of America as a cultural institution and the mediating variable was identification with America. According to TMT, we should expect an increase in defense of American when mortality is made salient, however increasing self-esteem will buffer against this effect under conditions of heightened self-esteem there would not be an increase in defense of America. Additionally, this experiment examined if participants increase in defense was due to an increase in identification with America. Based on social identity theory participants will only strengthen their defense of their ingroup to the extent that they identified with the group, therefore the increased defense of one's ingroup demonstrated in TMT studies can be attributed to mortality salience causing an increase in identification.

Method

Participants and Design. Forty-five male and 67 female participants ($N = 112$, mean age = 33.62, $SD = 13.39$) were recruited from mturk to participate in a study hosted on the Survey Gizmo website (an internet database for online studies). Eighteen non-American citizens who got through the protocol on mturk were removed from the final analyses. There were two manipulated predictor variables. Mortality salience (MS) was invoked by the standard TMT manipulation. Participants were randomly assigned to the MS condition or control condition (thinking about watching television). The second manipulated variable was self-esteem – using procedures outlined by Greenberg and colleagues, participants were randomly assigned to a neutral or enhanced self-esteem condition. The key dependent variable is defense of America using the typical measure in

TMT studies (Greenberg et al., 1992, 1997) and the mediating variable was a multi-item scale measuring how strongly participants identified with America.

Procedure and Measures. The research was introduced as a two-part study, the first dealing with personality and opinions and values, and the second of which dealing with people's reactions to foreigners' views and opinions of America. Participants were told that they would be asked to complete a short personality test and answer a few questions for the first part and then in the second part were told that they would be asked to read a few essays written by foreigners about America and answer a few questions. Before the self-esteem manipulation participants answered 13 true/false questions about themselves (adapted from Forer, 1949) and were told that their answer to these questions would be used to create their personality assessment (see Appendix A for questions).

The self-esteem manipulation was presented as a psychological assessment report. The reports (one for neutral self-esteem and one for enhanced self-esteem) were created using the same wording as Greenberg and colleagues (1992) and was the same manipulation used in the first experiment. For the neutral assessment condition participants read, "while you have some personality weaknesses, you are generally able to compensate for them" and "some of your aspirations may be a bit unrealistic." Similarly, in the enhanced esteem condition, it stated, "while you may feel that you have some personality weaknesses, your personality is fundamentally strong" and "most of your aspirations tend to be pretty realistic." After this manipulation participants answered two questions to ensure that the self-esteem manipulation was realized correctly – "rate on a scale of one (poor) to seven (perfect) how effective the personality test is in revealing personality" and "rate on a scale of one (not at all) to seven (completely) the

degree to which the personality description reveals basic characteristics of your personality”.

To manipulate MS, participants answered “please briefly describe the emotions that the thought of *your death(MS)/watching television(control)/* arouses in you” and “please write down, as specifically as you can, what you think will happen to you as you physically *die/watch television* and once you are physically *dead/watching television*”. These questions were taken from previous TMT studies (see, McGregor, Zana, Holmes, & Spence, 2001; Pyszczynski et al., 2004) in which mortality salience had been successfully manipulated.

After the MS manipulation participants completed the Positive and Negative Affect Schedule (PANAS, Watson, Clark, & Tellegen, 1988; see Appendix B for questions) as a filler task before the dependent measures. TMT studies typically do this (e.g., Arndt, Greenberg, Solomon, Pyszczynski, & Schimel, 1999; Dechesne, Janssen, & Van Knippenberg, 2000) in order to allow sufficient time for the MS manipulation to impact participants’ thoughts of death. The PANAS is a 20-item scale comprising of two 10-item subsets that are averaged to create two scales, one to measure positive affect ($\alpha = .82$) and the other negative affect ($\alpha = .79$).

The mediating variable was participants’ strength of identification as an American. Eight items adapted from previous research measuring group identification tapped American identification (e.g., Hogg & Hains, 1998; Hogg et al., 2007; Hohman & Hogg, 2011). Participants indicated (1 *not very much*, 9 *very much*) how much they would stand up for America, how much they identified with being American, how much of a feeling of belonging they had as an American, how important to their sense of self

being American was, how much they liked Americans as a whole, how similar they felt to Americans, how well they felt they fit as an American, and what their overall impression of America was (this item 1 *not very favorable*, 9 *very favorable*), $\alpha = .95$.

After answering questions about their American identity participants proceed onto the second part of the study which concerns reactions to foreigners' views of America and were reminded that their task will be to read a couple essays and answer a few questions. One essay was pro-America and the other was anti-America (presentation of the essays was counter balanced, see Greenberg et al., 1992; see Appendix C for the essays). After reading each essay participants answered five evaluation questions of the essay (adapted from Greenberg et al., 1997). These questions measured participants' evaluation of the author (the extent to which participants liked the author, thought the author was intelligent, and thought the author was knowledgeable) and two items that assessed the participants' evaluations of each of the essays (the extent to which the participants agreed with the author's opinions and how true they thought the author's opinion was), all questions are on 9-point scales (1 = not at all, 9 = totally), $\alpha = .90$ for positive essay and $\alpha = .95$ for negative essay. For statistical analyses a composite was made of these two essay evaluations. First an overall evaluation was made for each essay by averaging the five questions. Then the anti-essay score was subtracted from the pro-essay score to create the evaluation composite with positive scores indicating preference of the pro-essay over the anti-essay. The final section of the questionnaire obtained the same demographic information and background information as Experiment 1.

Results

Experiment 2 was a 2 (self-esteem – positive v. neutral) X 2 (mortality salience –

MS v. control) factorial design with defense of America as the main dependent variable and identification with America as the mediating variable. The hypotheses tested was that self-esteem would buffer against the effects of mortality salience on defense of the group, and that identification with the group would mediate the relationship between mortality salience and defense of the group. A number of background and demographic information were also measured.

Background Variables. Most participants had some college education (2.7% high school diploma, 44.1% some college no degree, 34.2% bachelor degree, and 18.9% graduate degree) and the sample was predominately Caucasian (82.7% Caucasian, 2.7% Hispanic, .9% Multi-racial, 10.9% Asian, and 1.8% African American) – in both cases, proportions did not differ significantly as a function of the self-esteem or mortality salience manipulations. In terms of political ideology the sample was relatively moderate ($M = 4.82$, $SD = 2.23$) and 33 identified with the Democratic party, 28 with the Republican party, 46 did not identify with a party, and 6 identified with a third party. For religious affiliation, 14 identified themselves as Catholic, 4 Jewish, 26 Protestant, 1 Buddhist, 4 Baptist, 15 Christian, 14 spiritual, 12 other, and 22 atheist. Proportions of religious affiliation and political party identity did not differ as a function of the mortality salience or self-esteem manipulations.

A two-way, mortality salience by self-esteem ANOVA on age and political ideology revealed no main effects; however there were significant interactions between mortality salience and self-esteem for both age and political ideology. Investigation of the simple main effects of the interaction on age revealed that participants were younger ($M = 29.35$, $SD = 11.47$) in the mortality salience condition under high self-esteem compared

to low self-esteem ($M = 36.85$, $SD = 14.25$), no other conditions differed on age.

Investigation of the simple main effects of the interaction on political ideology revealed that participants were more conservative ($M = 5.33$, $SD = 2.18$) in the high self-esteem condition in the control condition compared to the mortality salience condition ($M = 4.13$, $SD = 2.03$), no other conditions differed. Entry of these background variables as covariates in the ANOVAs reported below did not significantly change the results.

Self-esteem Manipulation Check. To ensure that the self-esteem manipulation was realized correctly participants answered two questions – one asking how revealing the personality assessment was of their personality and the other about how effective the assessment was at uncovering their personality. A two-way, mortality salience by self-esteem ANOVA on the effectiveness of the personality test revealed only a main effect for self-esteem, $F(1, 108) = 6.98$, $p = .009$. Participants believed the assessment was more effective in the high self-esteem condition than the neutral self-esteem condition ($M = 6.11$, $SD = 1.60$ vs. $M = 5.22$, $SD = 1.91$). A second Two-way, mortality salience by self-esteem ANOVA on how revealing the test was of their personality only uncovered a main effect for self-esteem, $F(1, 108) = 9.18$, $p = .003$. Participants believed the test was more revealing of their personality in the high self-esteem condition than the neutral self-esteem condition ($M = 6.45$, $SD = 1.55$ vs. $M = 5.43$, $SD = 1.88$). Based on these results the self-esteem manipulation was realized successfully.

Filler Task - PANAS. A filler task was provided between the manipulation and the dependent measure to ensure that the prime had time to cognitively embed thoughts of death. Previous research (Van den Bos et al., 2005) had found that mortality salience should not have an effect on people's affect. Results of a two-way ANOVA on the

positive and negative PANAS scales found an interaction between mortality salience and self-esteem on both positive affect and negative affect. Investigation of the simple main effects of the interaction on positive affect revealed that participants had greater positive affect ($M = 2.73, SD = .78$) in the high self-esteem condition under mortality salience compared to the control condition ($M = 2.08, SD = .59$), no other conditions differed. Investigation of the simple main effects of the interaction on negative affect revealed that participants had greater negative affect ($M = 2.19, SD = .76$) in the high self-esteem condition under mortality salience compared to the control condition ($M = 1.72, SD = .53$), no other conditions differed. Entry of these background variables as covariates in the ANOVAs reported below did not significantly change the results.

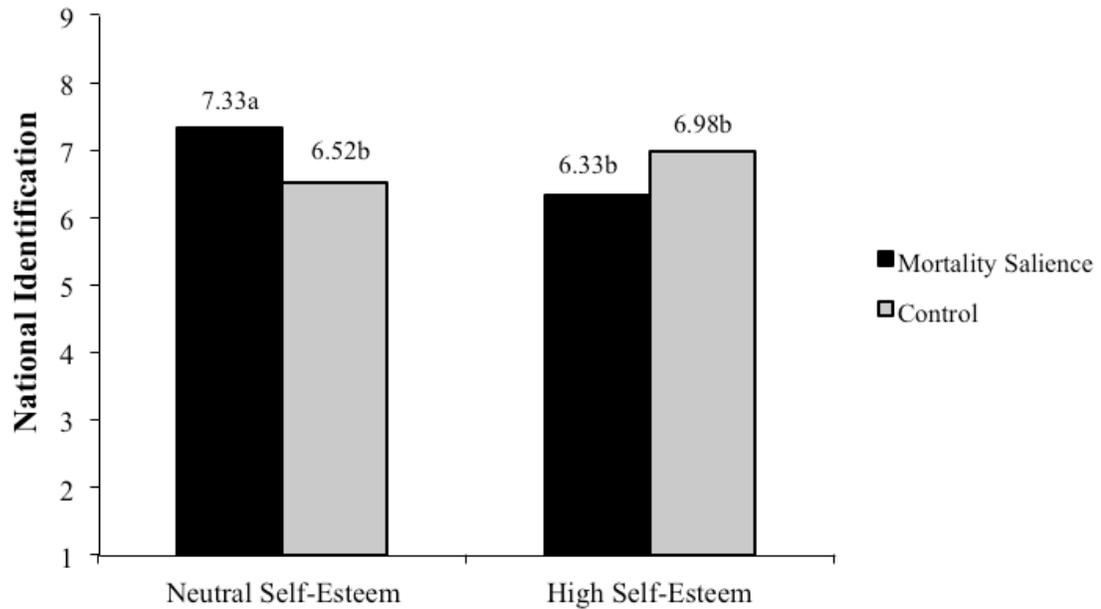


Figure 4. Experiment 2: National identification as a function of mortality salience and self-esteem. Notes. Bars not sharing the same letter differ at $p < .05$.

National Identification. A two-way, mortality salience by self-esteem, ANOVA on national identification uncovered no significant main effects. However, there was a significant interaction, $F(1, 108) = 5.37, p = .022$ (see Figure 4). As predicted, mortality salience significantly strengthened national identification among participants who were in the neutral compared to high self-esteem condition, $F(1, 108) = 5.53, p = .02$. There was no significant difference between the esteem conditions in the mortality salience control condition ($F(1, 108) = .98, ns$). Investigation of the simple main effect of mortality salience within each self-esteem condition revealed that there was a significant difference between the mortality salience conditions under the neutral self-esteem condition ($F(1, 108) = 4.17, p = .044$) but not under the high self-esteem condition ($F(1, 108) = .74, ns$).

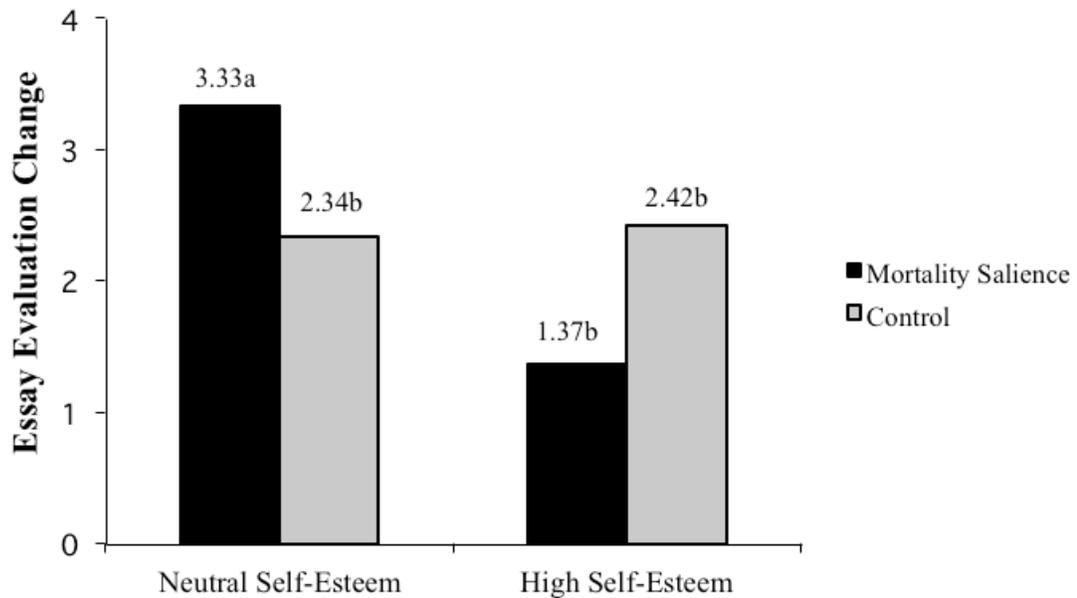


Figure 5. Experiment 2: Essay evaluation difference as a function of mortality salience and self-esteem. Notes. Bars not sharing the same letter differ at $p < .05$.

Essay Evaluation. A two-way, mortality salience by self-esteem, ANOVA on the difference between the two essays uncovered no significant main effects. However, there was a significant interaction, $F(1, 108) = 3.95, p = .049$ (see Figure 5). As predicted, mortality salience significantly increased the pro-essay evaluation over the anti-essay evaluation among participants who were in the neutral compared to high self-esteem condition, $F(1, 108) = 7.97, p = .006$. There was no significant difference between the esteem conditions under the mortality salience control condition ($F(1, 108) = .01, ns$). Investigation of the simple main effect of mortality salience within each self-esteem condition revealed that there was no significant difference between the mortality salience conditions under the neutral self-esteem condition ($F(1, 108) = 1.73, p = .19$) and under the high self-esteem condition ($F(1, 108) = 2.34, p = .13$).

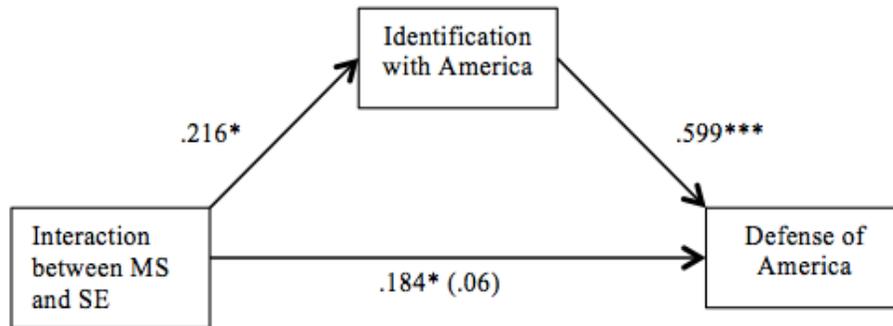


Figure 6. Experiment 2: Identification with America mediating the relationship between mortality salience and self-esteem on defense of America. Notes. * $p < .05$, ** $p < .01$, *** $p < .001$; MS = mortality salient; SE = self-esteem.

Mediation Analysis. Following Preacher, Rucker, and Hayes (2007), moderated mediation analyses were conducted to examine the conditional indirect effect of national identification on the interaction of mortality salience and self-esteem on essay evaluation. This approach has several advantages over the traditional Baron and Kenny (1986) method (see Hayes, 2009; Antonakis, Bendahan, Jacquart, & Lalive, 2010) and was used in this experiment over the method used in the first because this method allows to test for a mediation when there is an interaction between two variables on both the mediator and dependent measures (Preacher et. al, 2007). National identity and essay evaluation change were significantly associated ($\beta = .599$, $t = 7.85$, $p < .001$), and the interaction between mortality salience and self-esteem significantly affected both national identification ($R^2 = .062$, $\Delta R^2 = .047$, $F(1, 108) = 5.37$, $p = .022$, $\beta = .216$, $t = 2.32$, $p = .022$) and essay evaluation change (path c; $R^2 = .071$, $\Delta R^2 = .034$, $F(1, 108) = 3.95$, $p = .049$, $\beta = .184$, $t = 1.99$, $p = .049$). However, with national identification entered in the model the interaction between mortality salience and self-esteem no longer significantly

predicts essay evaluation change (path c' , $\beta = .06$, $t = .776$, *ns*). Examining this mediation, the conditional indirect effect of national identification on essay evaluation remained significant for mortality salience under neutral self-esteem ($z = -1.95$, $p = .05$), whereas it was not significant under high self-esteem ($z = 1.29$, $p = .196$). Thus, national identification mediated the interactive effect of mortality salience and self-esteem on essay evaluation (see Figure 6).

Discussion

Experiment 2 replicated the typical TMT study, that self-esteem buffers against the effects of mortality salience on defense of the group, with the additional test of the mediating effect of identification on the relationship between mortality salience and defense of one's group. As predicted, and in accordance with previous research, mortality salience only increased identification with America and defense of America when self-esteem was not enhanced – enhancing self-esteem attenuated the effects of mortality salience. Also following predictions, but unique to the literature, the interactive effects of mortality salience and self-esteem on defense of America was mediated by identification with America. According to social identity theory, defense of the ingroup should only increase to the extent that people identify with the group, and this was demonstrated with these results.

One of the major questions surrounding TMT focuses on the extent to which mortality salience creates terror and/or existential uncertainty (for a recent review see, Van den Bos, 2009). McGregor (2006), Van den Bos and colleagues (Van den Bos, 2009; Yavuz & Van den Bos, 2009), and Hogg and colleagues (Hogg, Adelman, & Blagg, 2010; Hogg, Hohman, & Rivera, 2008; Hohman & Hogg, 2011) have all argued that

thoughts of death produce stronger identification and defensive reactions not because people are terrified over their impending death but rather because of the uncertainty surrounding death – although our own death is the only true certitude in our lives, how it will happen, what happens afterwards, and when it happens is uncertain. While the results of this experiment cannot be disputed (mortality salience does increase identification and ingroup defense), the underlying process is not explicitly tested and therefore we cannot be certain if fear of death or uncertainty account for the results. Therefore, experiment 3 was designed to determine the effect of uncertainty on mortality salience, identification and defense of the ingroup by using an experimental design. By experimentally manipulating uncertainty, either making people more or less uncertain, we will be able to determine if uncertainty is the key underlying process that occurs when people think about their death. If uncertainty is the key process, in the low uncertainty condition we would not expect that thinking about one's death would increase identification with or defense of the group.

CHAPTER FOUR

Experiment 3

Experiment 3 was a combination of both Experiment 1 and 2: this experiment was a 2 (self-esteem – positive vs. neutral) X 2 (mortality salience – salient vs. control) X 2 (uncertainty – low vs. high uncertainty) factorial design with defense of America as the main dependent variable and identification with America as the mediating variable. The general hypothesis, from uncertainty-identity theory, was that uncertainty would moderate the relationship between MS and self-esteem on national defense and nation identification – such that we should have only expected the typical TMT results under

high but not low uncertainty. In contrast, TMT would have predicted an interaction between mortality salience and self-esteem – all participants, irrespective of their uncertainty, would have defended America more under neutral self-esteem and mortality salience than under high self-esteem or when mortality was not made salient.

Method

Participants and Design. There were 123 male and 171 female participants ($N = 294$, mean age = 33.96, $SD = 12.92$) recruited from mturk to participate in a study hosted on the Survey Gizmo website (an internet database for online studies). Twenty-six non-American citizens who got through the protocol on mturk were removed from the final analyses. There were three manipulated predictor variables; self-esteem – using procedures outlined in Greenberg and colleagues (1992, 1997) participants were randomly assigned to a neutral or enhanced self-esteem condition. The second manipulated variable was uncertainty, invoked by the standard UIT manipulation. Participants were randomly assigned to a high or low uncertainty condition. The final manipulated variable was MS, invoked by the standard TMT manipulation. Participants were randomly assigned to the MS condition or control condition (thinking about watching television). The key dependent variable was defense of America using the typical measure in TMT studies (Greenberg et al., 1992, 1997) and the mediating variable was a multi-item scale measuring how strongly participants identified with America (cultural institution).

Procedure and Measures. The procedures in Experiment 3 were the same as used in Experiments 1 and 2. Experiment 3 was introduced as a two-part study, the first of which deals with personality and opinions and values, and the second of which deals with

people's reactions to foreigners' views and opinions of America. Participants were told that they would be asked to complete a short personality test and answer a few questions for the first part and then in the second part were told that they will be asked to read a few essays written by foreigners about America and answer a few questions. Before the self-esteem manipulation participants answered 13 true/false questions about themselves (adapted from Forer, 1949) and were told that their answer to these questions would be used to create their personality assessment. The same self-esteem manipulation from Experiment 1 and 2 was used in Experiment 3 (see Experiment 1 for details). The same manipulations from Experiment 1 (uncertainty) and Experiment 2 (MS) were used in Experiment 3 (see, Experiment 1 and 2 for manipulation details). The mortality salience and uncertainty manipulations were counterbalanced to ensure that order effects did not bias the results. Order of presentation had no effect on the results reported below.

After the uncertainty and mortality salience manipulations participants completed the Positive and Negative Affect Schedule (PANAS, Watson, Clark, & Tellegen, 1988) as a filler task before the dependent measures. The PANAS is a 20-item scale comprising of two 10-item subsets that are averaged to create two scales, one to measure positive affect ($\alpha = .76$) and the other negative affect ($\alpha = .74$).

The mediating variable was participants' strength of identification as an American using the same eight items from Experiment 1, $\alpha = .95$. After answering questions about their American identity participants were told that they would now proceed onto the second part of the study which concerns reactions to foreigners' views of America and were reminded that their task will be to read a couple essays and answer a few questions. The same two essays (one pro-American and one anti-America) from Experiment 1 and 2

were used in Experiment 3. As well, the same questions following each essay were used (see Experiment 1 for details). A composite was made of these two essay evaluations, one for the pro-American essay ($\alpha = .91$) and the other for the anti-American essay ($\alpha = .91$). First an overall evaluation was made for each essay by averaging the five questions. Then the anti-essay score was subtracted from the pro-essay score to create the evaluation composite with positive scores indicating preference of the pro-essay over the anti-essay. The final section of the questionnaire obtained the same demographic information and background information as Experiment 1 and 2.

Results

Experiment 3 was a 2 (self-esteem – positive vs. neutral) X 2 (mortality salience – salient vs. control) X 2 (uncertainty – low vs. high uncertainty) factorial design with defense of America as the main dependent variable and identification with America as the mediating variable. The general hypothesis, from uncertainty-identity theory, is that uncertainty will moderate the relationship between MS and self-esteem on national defense and nation identification – such that we should only expect the typical TMT results under high but not low uncertainty. A number of background and demographic information were also measured.

Background Variables. Most participants had a bachelors degree (13.7% high school diploma, 31.7% some college no degree, 10.6% associate degree, 33.1% bachelors degree, and 10.9% graduate degree) and the sample was predominately Caucasian (77% Caucasian, 4.8% Hispanic, 4.8% Multi-racial, 4.1% Asian, 7.5% African American, and 1.7% declined to respond) – in both cases, proportions did not differ significantly as a function of the self-esteem, uncertainty, or mortality salience manipulations. In terms of

political ideology the sample was relatively moderate ($M = 4.44$, $SD = 2.17$) and 100 identified with the Democratic party, 50 with the Republican party, 127 did not identify with a party, and 13 identified with a third party. For religious affiliation, identified themselves as 37 Catholic, 2 Jewish, 41 Protestant, 2 Buddhist, 6 Baptist, 66 Christian, 2 Muslim, 19 spiritual, 17 other, and 100 none. Proportions of religious affiliation and political party identity did not differ as a function of the mortality salience or self-esteem manipulations.

A three-way, uncertainty by mortality salience by self-esteem ANOVA on age and political ideology revealed no main effects, however there was a significant interaction between uncertainty and self-esteem on age. Investigation of the simple main effects of the interaction on age revealed that participants were older ($M = 36.73$, $SD = 15.17$) in the high uncertainty condition under neutral self-esteem compared to high self-esteem ($M = 32.82$, $SD = 11.36$). Under low uncertainty participants were older ($M = 35.95$, $SD = 12.73$) under high self-esteem compared to neutral self-esteem ($M = 30.99$, $SD = 11.72$). Entry of these background variables as covariates in the ANOVAs reported below did not significantly change the results.

Self-esteem Manipulation Check. To ensure that the self-esteem manipulation was realized correctly participants answered two questions – one asking how revealing the personality assessment was of their personality and the other about how effective the assessment was at uncovering their personality. A three-way, uncertainty by mortality salience by self-esteem ANOVA on the effectiveness of the personality test only revealed a main effect for self-esteem, $F(1, 286) = 18.91$, $p < .001$. Participants believed the assessment was more effective in the high self-esteem condition than the neutral self-

esteem condition ($M = 6.23, SD = 1.74$ vs. $M = 5.24, SD = 1.92$). A second three-way, uncertainty by mortality salience by self-esteem ANOVA on how revealing the test was of their personality only uncovered a main effect for self-esteem, $F(1, 286) = 16.73, p < .001$. Participants believed the assessment was more revealing of their personality in the high self-esteem condition than the neutral self-esteem condition ($M = 6.47, SD = 1.65$ vs. $M = 5.55, SD = 1.91$). Based on these results the self-esteem manipulation was realized successfully.

Filler Task - PANAS. A filler task was provided between the manipulation and the dependent measure to ensure that the prime had time to cognitively embed thoughts of death. Results of a three-way (uncertainty by mortality salience by self-esteem) ANOVA on the positive and negative PANAS scales found an interaction between mortality salience and self-esteem on positive affect. Investigation of the simple main effects of the interaction on positive affect revealed that participants had greater positive affect ($M = 2.43, SD = .57$) in the high self-esteem condition under the control condition compared to the mortality salience condition ($M = 2.22, SD = .69$), as well under mortality salience participants in the neutral self-esteem condition had greater affect ($M = 2.36, SD = .65$) than in the high self-esteem condition ($M = 2.22, SD = .69$) – no other conditions differed. Entry of these background variables as covariates in the ANOVAs reported below did not significantly change the results.

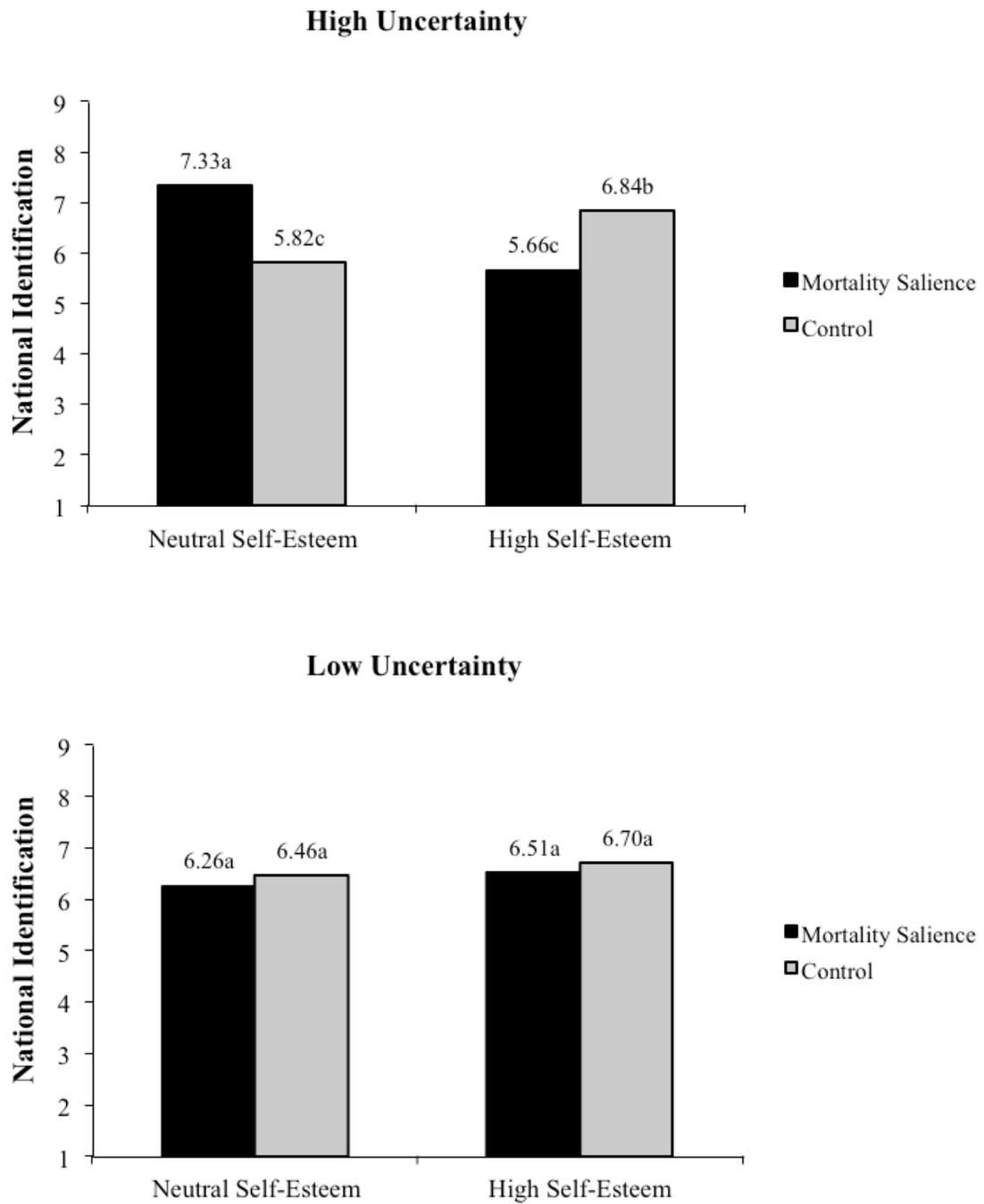


Figure 7. Experiment 3: National identification as a function of uncertainty, self-esteem, and mortality salience. Notes. Bars not sharing the same letter differ at $p < .05$.

National Identification. A three-way, uncertainty by mortality salience by self-esteem, ANOVA on national identification uncovered no significant main effects. However, there was a significant two-way interaction between mortality salience and self-esteem, $F(1, 286) = 9.44, p = .002$. Mortality salience significantly strengthened national identification among participants who were in the neutral ($M = 6.82, SD = 1.82$) compared to high self-esteem condition ($M = 6.02, SD = 2.06$), $F(1, 286) = 4.69, p = .031$. In the control condition the opposite occurred; people identified significantly more strongly with America under high self-esteem ($M = 6.76, SD = 1.78$) compared to neutral self-esteem ($M = 6.17, SD = 1.82$), $F(1, 286) = 4.79, p = .029$. Investigation of the simple main effect of mortality salience within each self-esteem condition revealed that there was a significant difference between the mortality salience conditions under the neutral self-esteem condition ($F(1, 286) = 4.66, p = .032$) and under the high self-esteem condition ($F(1, 286) = 4.78, p = .03$).

This two-way interaction needs to be interpreted with caution because of a significant three-way interaction between uncertainty, mortality salience, and self-esteem, $F(1, 286) = 9.59, p = .002$ (see Figure 7). Investigation of the simple main effects for the difference between neutral self-esteem and high self-esteem uncovered significant differences under high uncertainty and mortality salience ($F(1, 286) = 14.64, p < .001$), participants identified more strongly with America under neutral self-esteem ($M = 7.33, SD = 1.53$) compared to high self-esteem ($M = 5.66, SD = 2.21$). As well, there was a significant difference for the high uncertainty and control condition ($F(1, 286) = 5.79, p = .017$); participants identified more strongly with America under high self-esteem ($M = 6.84, SD = 1.78$) than neutral self-esteem ($M = 5.82, SD = 1.99$). There were no

significant differences under low uncertainty and mortality salience ($F(1, 286) = .268, ns$) or the low uncertainty and the control condition ($F(1, 286) = .383, ns$).

Analysis of the simple main effects for the difference between mortality salience and the control revealed a significant difference under high uncertainty and high self-esteem ($F(1, 286) = 7.67, p = .006$), participants identified more strongly with America under the control condition ($M = 6.84, SD = 1.78$) compared to mortality salience ($M = 5.66, SD = 2.21$). As well, there was a significant difference for high uncertainty and neutral self-esteem ($F(1, 286) = 312.07, p = .001$), participants identified more strongly with America under mortality salience ($M = 7.33, SD = 1.53$) compare to the control ($M = 5.82, SD = 1.99$). There were no significant differences under low uncertainty and neutral self-esteem ($F(1, 286) = .214, ns$) or high uncertainty and high self-esteem ($F(1, 286) = .69, ns$).

Examination of the simple main effects for the difference between low and high uncertainty revealed only a significant difference under neutral self-esteem and mortality salience ($F(1, 286) = 5.90, p = .016$), participants identified more strongly with America under high ($M = 7.33, SD = 1.53$) than low uncertainty ($M = 6.26, SD = 1.97$). There was a marginal trend for high self-esteem and mortality salience ($F(1, 286) = 3.09, p = .08$), participants tended to identify more strongly with America under low ($M = 6.51, SD = 1.75$) than high uncertainty ($M = 5.66, SD = 2.21$). There were no significant differences under neutral self-esteem and the control conditions ($F(1, 286) = 2.29, ns$) or high self-esteem and the control condition ($F(1, 286) = .124, ns$).

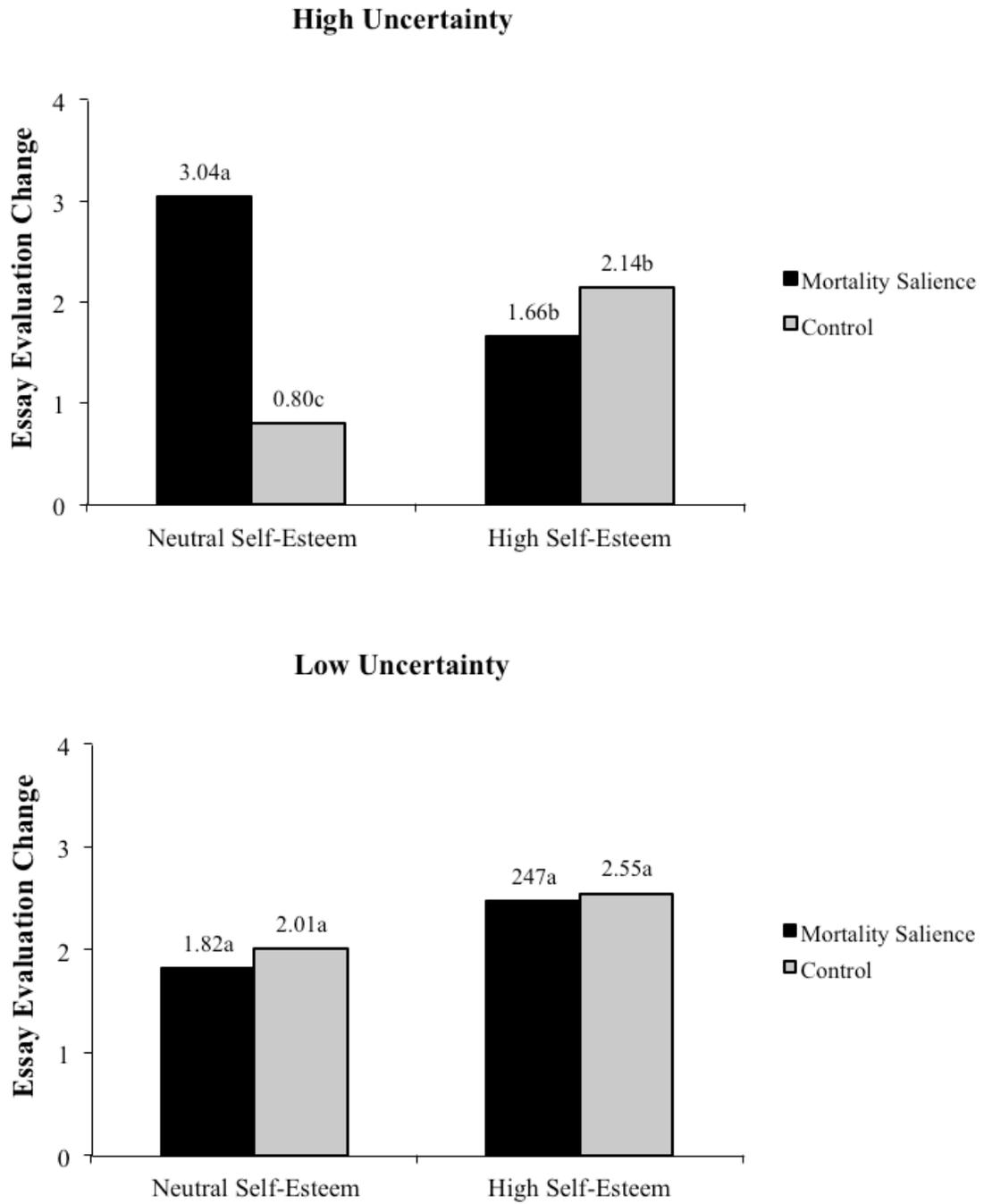


Figure 8. Experiment 3: Essay evaluation change as a function of uncertainty, self-esteem, and mortality salience. Notes. Bars not sharing the same letter differ at $p < .05$.

Essay Evaluation. A three-way, uncertainty by mortality salience by self-esteem, ANOVA on the difference between the two essays uncovered no significant main effects. However, there was a significant two-way interaction self-esteem and mortality salience, $F(1, 286) = 4.07, p = .003$. In the control condition participants significantly increased the pro-essay evaluation over the anti-essay evaluation among participants who were in the high self-esteem ($M = 2.34, SD = 2.81$) compared to the neutral self-esteem condition ($M = 1.40, SD = 2.63$), $F(1, 15.60) = 7.97, p = .019$. There was no significant difference between the esteem conditions under mortality salience ($F(1, 286) = .650, ns$). Investigation of the simple main effect of mortality salience within each self-esteem condition revealed that there was a significant difference between the mortality salience conditions under the neutral self-esteem condition ($F(1, 286) = 5.95, p = .015$) – participants significantly increased the pro-essay evaluation over the anti-essay evaluation under mortality salience ($M = 2.43, SD = 2.32$) compared to the control ($M = 1.40, SD = 2.63$). There was no significant difference between mortality salience conditions under the high self-esteem condition ($F(1, 286) = .412, ns$).

As predicted, there was a significant three-way interaction between uncertainty, mortality salience, and self-esteem, $F(1, 286) = 5.48, p = .02$ (see Figure 8). Investigation of the simple main effects for the difference between neutral self-esteem and high self-esteem uncovered significant differences under high uncertainty and mortality salience ($F(1, 286) = 5.22, p = .023$), significantly increased the pro-essay evaluation over the anti-essay evaluation under neutral self-esteem ($M = 3.04, SD = 2.15$) compared to high self-esteem ($M = 1.66, SD = 2.89$). As well, there was a significant difference for the high uncertainty and control condition ($F(1, 286) = 5.24, p = .023$); participants significantly

increased the pro-essay evaluation over the anti-essay evaluation under high self-esteem ($M = 2.14$, $SD = 2.70$) than neutral self-esteem ($M = .80$, $SD = 2.64$). There were no significant differences under low uncertainty and mortality salience ($F(1, 286) = .926$, *ns*) or the low uncertainty and the control condition ($F(1, 286) = 1.02$, *ns*).

Analysis of the simple main effects for the difference between mortality salience and the control revealed a significant difference under high uncertainty and neutral self-esteem ($F(1, 286) = 13.81$, $p < .001$), participants significantly increased the pro-essay evaluation over the anti-essay evaluation under mortality salience ($M = 3.04$, $SD = 2.15$) compared to the control ($M = .80$, $SD = 2.64$). There were no significant differences under low uncertainty and neutral self-esteem ($F(1, 286) = .093$, *ns*), high uncertainty and high self-esteem ($F(1, 286) = .658$, *ns*), and low uncertainty and high self-esteem ($F(1, 286) = .015$, *ns*).

Examination of the simple main effects for the difference between low and high uncertainty revealed a significant difference under neutral self-esteem and mortality salience ($F(1, 286) = 3.94$, $p = .048$); participants significantly increased the pro-essay evaluation over the anti-essay evaluation under high ($M = 3.04$, $SD = 2.15$) than low uncertainty ($M = 1.82$, $SD = 2.37$). There was also a significant difference for neutral self-esteem and the mortality salience control ($F(1, 286) = 4.30$, $p = .039$); participants significantly increased the pro-essay evaluation over the anti-essay evaluation under low ($M = 2.01$, $SD = 2.53$) than high uncertainty ($M = .80$, $SD = 2.64$). There were no significant differences under high self-esteem and mortality salience ($F(1, 286) = 1.48$, *ns*) or high self-esteem and the control condition ($F(1, 286) = .578$, *ns*).

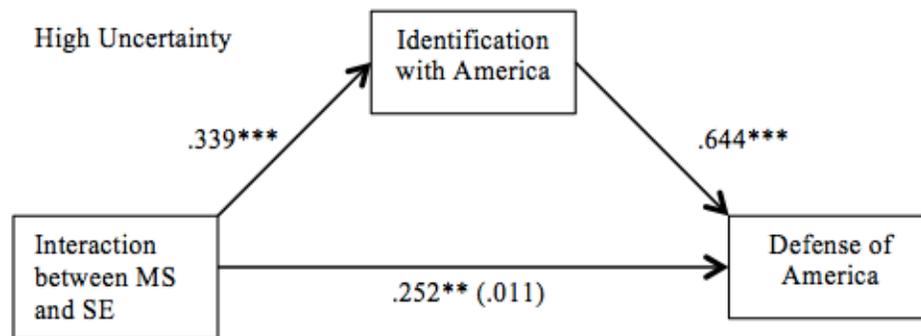


Figure 9. Experiment 3: Identification with America mediating the relationship between mortality salience and self-esteem on defense of America under high uncertainty. Notes.

** $p < .01$, *** $p < .001$; MS = mortality salient; SE = self-esteem.

Mediation Analysis. Following Preacher, Rucker, and Hayes (2007), moderated mediation analyses were conducted to examine the conditional indirect effect of national identification on the interaction of uncertainty, mortality salience and self-esteem on essay evaluation. This approach has several advantages over the traditional Baron and Kenny (1986) method (see Hayes, 2009; Antonakis et al., 2010). National identity and essay evaluation change were significantly associated ($\beta = .644$, $t = 14.39$, $p < .001$), and the interaction between uncertainty, mortality salience and self-esteem significantly affected both national identification ($R^2 = .071$, $\Delta R^2 = .031$, $F(1, 286) = 9.59$, $p = .002$, $\beta = .78$, $t = 3.10$, $p = .002$) and essay evaluation change (path c; $R^2 = .058$, $\Delta R^2 = .018$, $F(1, 286) = 5.49$, $p = .02$, $\beta = .135$, $t = 2.34$, $p = .02$). With national identification entered in the model the interaction between uncertainty, mortality salience, and self-esteem no longer significantly predicted essay evaluation change (path c', $\beta = .023$, $t = .495$, ns). As well, following the method of Preacher and Hayes (2008), the indirect effect of the three-way interaction on the essay evaluation difference through American identification

(indirect effect = 2.345) using the 20,000 bootstrap method produced a 95% confidence interval of .885 and 3.869 – the confidence interval does not include zero which suggest that the indirect effect is statistically significant. In order to explain the significant mediation of identification, two separate mediation moderation analyses were performed on the interaction between mortality salience and self-esteem on the essay difference through identification – one under high uncertainty and the other under low uncertainty.

Under high uncertainty, the interaction between mortality salience and self-esteem significantly affected both national identification ($R^2 = .120$, $\Delta R^2 = .114$, $F(1, 143) = 18.50$, $p < .001$, $\beta = .339$, $t = 4.30$, $p < .001$) and essay evaluation change (path c; $R^2 = .087$, $\Delta R^2 = .063$, $F(1, 143) = 9.88$, $p = .002$, $\beta = .252$, $t = 3.14$, $p = .002$). However, with national identification entered in the model the interaction between mortality salience and self-esteem no longer significantly predicted essay evaluation change (path c', $\beta = .011$, $t = .181$, *ns*). Examining this mediation, the conditional indirect effect of national identification on essay evaluation remained significant for mortality salience under neutral self-esteem ($z = 3.24$, $p = .001$), whereas it was significant under high self-esteem ($z = -2.62$, $p = .009$), however it was in the opposite direction. As predicted, national identification mediated the interactive effect of mortality salience and self-esteem on essay evaluation under high uncertainty (see Figure 9).

Under low uncertainty, the interaction between mortality salience and self-esteem did not significantly predict national identification ($R^2 = .008$, $\Delta R^2 < .001$, $F(1, 143) < .001$, *ns*, $\beta = .002$, $t = .018$, *ns*) or essay evaluation change (path c; $R^2 = .016$, $\Delta R^2 < .001$, $F(1, 143) = .015$, *ns*, $\beta = .01$, $t = .124$, *ns*). Because the interaction did not significantly predict the mediator or dependent variable there cannot be mediation and there is no

reason to test the indirect effects. Therefore, as predicted, national identification does not mediate the interactive effect of mortality salience and self-esteem on essay evaluation under low uncertainty.

Discussion

Experiment 3 tested the general hypothesis, from uncertainty-identity theory, that uncertainty will moderate the relationship between MS and self-esteem on national defense and nation identification – such that we should only expect the typical TMT results (demonstrated in Experiment 2) under high but not low uncertainty. Exactly as predicted, under high uncertainty the typical TMT results are demonstrated – mortality salience increased identification with America and defense of America only when self-esteem was not enhanced. As well, under high uncertainty, the interactive effects of mortality salience and self-esteem on defense of America were mediated by identification with America. However, under low uncertainty, mortality salience did not increase identification or defense of the ingroup nor did self-esteem buffer against the effects of MS. These results support the uncertainty-identity theory analysis of the role of uncertainty in the TMT paradigm and suggest that uncertainty is a key moderator that needs to be considered when making mortality salient.

CHAPTER FIVE

General Discussion

Humans have a need to feel they belong in and are part of a group (Baumeister & Leary, 1997). While there are many overlapping partial explanations for why people are motivated to join groups, there is no single comprehensive explanation. According to the self-esteem hypothesis (as outlined by Abrams & Hogg, 1988), the primary motivation

behind social identification is the desire for a positive social identity, which arises from an individual-level self-esteem need. However, uncertainty-identity theory (Hogg, 2001, 2005, 2007, 2012) argues that feelings of uncertainty, especially those related to the self, motivate people to identify with social groups that best reduce, control, or protect from feelings of uncertainty. Finally, TMT suggest that identifying with groups attenuates anxiety associated with thinking about death. Groups help people feel that their life has meaning, and this feeling of existential meaningfulness reduces anxiety associated with their fear of dying (Arndt, Greenberg, Schimel, Pyszczynski, & Solomon, 2002; Castano, 2004; Castano, Yzerbyt, Paladino, & Sacchi, 2002). The purpose of this dissertation was to unravel the relationship between mortality salience, self-related uncertainty, and self-esteem on group identification and defense of the ingroup across three experiments.

Experiment 1 provided a complete examination of the relationship between uncertainty and self-esteem on group identification and defense of the ingroup. The general hypothesis, from uncertainty-identity theory, was that uncertainty would increase defense of the ingroup and that this relationship would be mediated by identification with the ingroup, regardless of self-esteem. Research by Hogg and Svensson (2012) first tested the relationship between self-esteem and uncertainty on identification; however, a limitation to that study was that there was no direct test of the causal relationship between self-esteem and uncertainty. Both self-esteem and uncertainty were manipulated, with defense of the ingroup as the dependent variable and identification with the ingroup as the mediator. Following predictions, results demonstrated that regardless of self-esteem participants identified more strongly with and defended the ingroup more when they were uncertain. As well, identification with the ingroup mediated the relationship between

uncertainty and defense of the ingroup. These results suggest that uncertainty plays a more important role in identification than self-esteem – bolstering the results of Hogg and Svensson (2012). Also, the inclusion of defense of the ingroup as a dependent measure provides a unique contribution to the UIT literature, as no study to date has explored the effects of uncertainty on defending one’s ingroup. When self-uncertainty is high not only will people seek out and identify with groups but they will also be more likely to defend their ingroup if it is criticized. Future research should continue exploring the affects of self-uncertainty on other non-identification related group behaviors, such as the willingness to tolerate ingroup dissenters.

Experiment 2 provided a replication of the typical TMT study, that self-esteem would buffer against the effects of mortality salience on defense of the ingroup, with the additional test of the mediating effects of identification with the ingroup between mortality salience and defense of one’s group. Participants’ self-esteem and mortality salience were manipulated and the same dependent measures from experiment 1 were used in experiment 2. As predicted, and in accordance with previous research, mortality salience only increased identification with and defense of the ingroup when self-esteem was not enhanced – enhancing self-esteem attenuated the effects of mortality salience. Also following predictions, but unique to the literature, identification mediated the effects of the relationship between self-esteem and mortality salience on defense of the ingroup.

Finally, Experiment 3 was a combination of Experiment 1 and 2, experimentally manipulating self-esteem, mortality salience, and self-uncertainty. The general hypothesis, from uncertainty-identity theory, was that uncertainty would moderate the relationship between mortality salience and self-esteem on defense of and identification

with the ingroup – such that we should only expect the typical TMT results (demonstrated in Experiment 2) under high but not low uncertainty. In contrast, TMT would predict an interaction between mortality salience and self-esteem – all participants, irrespective of their self-uncertainty, would defend the ingroup more under neutral self-esteem and mortality salience than under high self-esteem or when mortality is not made salient. Exactly as predicted, under high uncertainty the typical TMT results are demonstrated – mortality salience only increased identification with the ingroup and defense of the ingroup when self-esteem was not enhanced. As well, under high uncertainty, the interactive effects of mortality salience and self-esteem on defense of ingroup were mediated by identification. However, under low uncertainty, mortality salience did not increase identification or defense of the ingroup nor did self-esteem buffer against the effects of MS. These results support the uncertainty-identity theory analysis of the role of uncertainty in the TMT paradigm and suggest that uncertainty is the key underlying process that occurs when people think about their death, because, when uncertainty was low, thinking about one’s death had no impact on participants identification with or defense of America.

Overall, focusing on the key prediction, the research reported in this dissertation provides reliable support across three experiments for uncertainty-identity theory’s analysis of the relationship between uncertainty and group identification – namely that it is uncertainty and not terror associated with mortality salience or self-esteem that produces group identification and thus ideological conviction and other group identification-related phenomena. Low self-esteem is an unsettling state that has been associated with a host of negative outcomes and self-protecting and enhancing

motivations (e.g., Leary & Baumeister, 2000; Leary, Tambor, Terdal, & Downs, 1995), however, this research combined with Hogg and Svensson (2012) suggest that motivation to identify with a group is not one of them. As well, dying is a fearful, so there is little doubt that there may be terror associated with thinking about one's own death and that this powerful emotion will cause certain effects. However, group identification and ideological conviction may not be "caused" by terror, but rather by self-uncertainty associated with thoughts about the afterlife. Especially when we combine these results with Hohman and Hogg (2011) and the work by Van den Bos (2009), and McGregor (2006).

One immediate direction for future studies on uncertainty-identity theory and TMT would be to empirically show, as predicted by uncertainty-identity theory, that uncertainty is a stronger determinant of people's desire to identify with highly entitative groups, and develop intolerant attitudes towards both ingroup and outgroup dissenters. As well, because the focus of TMT is death, future research should explore the relationship between mortality salience and uncertainty in a religious context to determine if these results are replicated using religious groups (cf. Hogg, Adelman & Blagg, 2010). Another interesting program of research would be to conceptualize and empirically demonstrate conditions that incline mortality salience to generate existential terror or incline it to generate uncertainty.

Beyond TMT and the self-esteem hypothesis, there are other theories that predict motivators for identification (e.g., optimal distinctiveness, Brewer, 1991; sociometer model, Leary et al., 1995) – future research is necessary to determine the relationship between these constructs and uncertainty on group identification. Finally, as of yet, few if

no meta-analyses have been conducted to compile all of the research on the various motivators for group identification. A well-designed and thorough meta-analysis would provide a more complete picture of the various motivators' absolute impact on group identification and uncover moderators for when and how each motivator will be more likely to stimulate people to identify with a group and defend their ideological conviction.

What we have learned from this dissertation is that uncertainty plays a key role in motivating people to identify with groups and may very well be the most important motivator of group identification. While self-esteem may be enhanced from identifying with a group, these results demonstrated that self-esteem does not invoke group identification motivation. As well, thinking about one's own death may lead one to identify more strongly with one's cultural institutions, but it is uncertainty, not terror associated with death that strengthens identification and ideological defense – a finding that is consistent with uncertainty-identity theory.

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Appendix A: Personality Test

You have a great need for other people to like and admire you.

True False

You have a tendency to be critical of yourself.

True False

You have a great deal of unused capacity, which you have not turned to your advantage.

True False

While you have some personality weaknesses, you are generally able to compensate for them.

True False

Your sexual adjustment has presented problems for you.

True False

Disciplined and self-controlled outside, you tend to be worrisome and insecure inside.

True False

At times you have serious doubts as to whether you have made the right decision or done the right thing.

True False

You prefer a certain amount of change and variety and become dissatisfied when hemmed in by restrictions and limitations.

True False

You pride yourself as an independent thinker and do not accept others' statements without satisfactory proof.

True False

You have found it unwise to be too frank in revealing yourself to others.

True False

At times you are extroverted, affable, and sociable, while at other times you are introverted, wary, reserved.

True False

Some of your aspirations tend to be pretty unrealistic.

True False

Security is one of your major goals in life.

True False

Appendix B: Personality Assessment

Psychological Assessment Report
Confidential

Based on the answers you provided for the personality test the following assessment has been put together.

ELEVATED SELF-ESTEEM CONDITION

While you may feel that you have some personality weaknesses your personality is fundamentally strong. Most of your aspirations tend to be pretty realistic.

NEUTRAL SELF-ESTEEM CONDITION

While you have some personality weaknesses, you are generally able to compensate for them. However, some of your aspirations may be a bit unrealistic.

Please Answer the following two questions about your personality assessment.

Please indicate how effective the personality test is in revealing your personality.

Poor 1 2 3 4 5 6 7 8 9 Perfect

Please indicate the degree to which the personality description reveals basic characteristics of your personality.

Not at all 1 2 3 4 5 6 7 8 9 completely

Appendix C: PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate the extent to which you feel this way right now, that is, at this present moment. Use the following scale to record your answers.

1	2	3	4	5
Very Slightly	a little	moderately	quite a bit	extremely
Or not at all				
_____	Interested	_____	Irritable	
_____	Distressed	_____	Alert	
_____	Excited	_____	Ashamed	
_____	Upset	_____	Inspired	
_____	Strong	_____	Nervous	
_____	Guilty	_____	Determined	
_____	Scared	_____	Attentive	
_____	Hostile	_____	Jittery	
_____	Enthusiastic	_____	Active	
_____	Proud	_____	Afraid	

Appendix D: Essay Stimuli

Second Study.

The second part of this study is concerned with foreigners' views of the US and Americans reactions to these views. We have collected several essays written by foreigners about America, we have selected two essays for you to read and evaluate.

Please read each essay carefully and answer the questions that follow.

Essay 1 (*Pro-America Essay*).

The first thing that hit me when I came to this country was the incredible freedom people had. Freedom to go to school, freedom to work in any job you want. In this country people can go to school and train for the job they want. Here anyone who works hard can make own their success. In my country most people live in poverty with no chance of escape. In this country people have more opportunity for success than in any other and success does not depend on the group belong to. While there are problems in any country, America truly a great nation and I don't regret my decision to come here at all.

How much do you like this person?

Not at all 1 2 3 4 5 6 7 8 9 Totally

How intelligent did you think this person was?

Not at all 1 2 3 4 5 6 7 8 9 Totally

How knowledgeable did you think this person was?

Not at all 1 2 3 4 5 6 7 8 9 Totally

How much did you agree with this person's opinion of America?

Not at all 1 2 3 4 5 6 7 8 9 Totally

From your perspective, how true do you think this person's opinion of America is?

Not at all 1 2 3 4 5 6 7 8 9 Totally

Essay 2 (*Anti-America Essay*).

When I first came to this country I believed it was the “land of opportunity” but I soon realized this was only true for the rich. The system here is set up for rich against the poor. All people care about here is money and trying to have more than other people. This no sympathy for people. Its all one group putting down others and nobody cares about the foreigners. Americans are spoiled and lazy and want everything handed to them. America is a cold country that is insensitive to needs and problems of foreigners. It thinks it’s a great country but its not. If America does not change how they threat the rest of the world there will be more terrorist attacks on their soil.

How much do you like this person?

Not at all 1 2 3 4 5 6 7 8 9 Totally

How intelligent did you think this person was?

Not at all 1 2 3 4 5 6 7 8 9 Totally

How knowledgeable did you think this person was?

Not at all 1 2 3 4 5 6 7 8 9 Totally

How much did you agree with this person’s opinion of America?

Not at all 1 2 3 4 5 6 7 8 9 Totally

From your perspective, how true do you think this person’s opinion of America is?

Not at all 1 2 3 4 5 6 7 8 9 Totally