A test of TMT: Mortality salience and avoidance of worldview threats

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A TEST OF TMT:
MORTALITY SALIENCE AND AVOIDANCE OF WORLDVIEW THREATS

An Abstract of a Thesis
Submitted
in Partial Fulfillment
of the Requirements for the Degree
Master of Arts

Taylor Wayne Wadian
University of Northern Iowa
July 2009
ABSTRACT

Imagine playing a game of catch with three people, and all the things that would influence to whom you throw. Were thoughts of death included as one of those factors? The hypothesis that mortality salience motivates avoidant behavior toward a worldview-threatening target was empirically tested on a sample of 200 undergraduate Caucasian college students from a Midwestern university. I induced participants to write about either their own death or dental pain, and presented them with summer descriptions of three fictitious male African American targets that they believed they were going to interact with later in the study. Targets’ descriptions were manipulated to be either consistent, neutral, or inconsistent with American stereotypes commonly associated with African Americans. Participants completed several personality and attitude measures about themselves and targets, and then played a simulated game of catch called cyberball over the internet, supposedly with the three targets who were in different locations.

Participants demonstrated a preference to toss the ball more to a stereotype inconsistent African American male target regardless of mortality salience condition or participants’ individual level of need for closure. Attitude and trait ratings mirrored the above results, with the exception of attitude ratings toward the stereotype consistent target, in which need for closure moderated the effects of mortality salience. Participants in the mortality salience condition who were high in need for closure rated the stereotype consistent target less favorably than both neutral and stereotype inconsistent targets.

These results suggest that mortality salience may not demonstrate the prominent effects on attitudes and behaviors that terror management theory has suggested (Solomon,
Greenberg, & Pyszczynski, 2004). However, the results do imply that stereotypes influence behavioral interaction with and favorability toward African Americans. In accordance with research on the effects of social exclusion, the increased avoidance of an African American based on his or her consistency with prominent African American stereotypes may in fact evoke behaviors that validate these negative stereotypes (i.e., hostility, social loafing, and decreased cognitive ability) and thus perpetuate the stereotypes associated with African Americans.
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Taylor Wayne Wadian
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This study by: Taylor Wayne Wadian

Entitled: A Test Of TMT:
Mortality Salience and Avoidance of Worldview Threats

has been approved as meeting the thesis requirements for the
Degree of Master of Arts

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CHAPTER 1
LITERATURE REVIEW

Introduction

With whom we interact is influenced by many factors and circumstances, ranging from simple immediacy (Latané, Liu, Nowak, Bonevento, & Zheng, 1995) to individual attitudes and preferences (Ickes, 1984). There is little doubt that stereotypes and prejudice influence with whom we interact and how we interact with them (Allport, 1954). However, recent research suggests that thoughts of death may actually influence these attitudes (Schimel et al., 1999) and behaviors (Ochsman & Mathy, 1994, as cited in Solomon, Greenberg, & Pyszczynski, 2004). According to terror management theory (Greenberg, Pyszczynski, & Solomon, 1986; Solomon, Greenberg, & Pyszczynski, 1991), an awareness of death can influence how people act toward others (McGregor et al., 1998), with whom they associate (Deschesne, Greenberg, Arndt, & Schimel, 2000), and how they feel about themselves (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004b). The goal of the current study is to further understand the effects of mortality salience on social interactions. Specifically, it addresses whether mortality primes can elicit avoidance of a worldview-threatening target.

Terror Management Theory

Terror management theory (Greenberg et al., 1986; Solomon et al., 1991) was inspired by the writings of Ernest Becker (1973, as cited in Solomon et al., 2004) and proposes that the awareness of inevitable death creates internal conflict with instinctual desires for continued existence. This conflict, if unmanaged, would create paralyzing
terror that would engross all cognitive functioning. An essential assumption of terror management theory (TMT) is that humans have adapted to this paralyzing fear by distracting themselves with various cultural conceptions of reality using (a) cultural worldviews and (b) self-esteem to buffer the anxiety and hence manage the terror associated with death (Solomon et al., 2004).

According to TMT, cultural worldviews are socially validated, self-constructed beliefs about the world that serve to shield individuals from the paralyzing realization of their own mortality (Solomon et al., 2004). Self-esteem is then acquired through believing in the validity of these worldviews and the perception that one is living up to the standards of value associated with one’s worldviews (Pyszczynski et al., 2004b).

So how do worldviews and self-esteem protect people from their underlying fear of death? TMT proposes that people have a need to believe (at least unconsciously) that they are part of a meaningful existence that endures past their own death. Validation of an individual’s worldview concordantly validates the assumption that all of his or her worldviews and beliefs are accurate, making the thought of his or her own death less frightening (Arndt, Cook, & Routledge, 2004). This validation is hypothesized to create a personal feeling of significance and meaningfulness in the world that also mitigates the terror association with death (Greenberg, Solomon, et al., 1992; Pyszczynski et al., 2004b). Similarly, self-esteem helps deal with fears of non-existence because it also creates feelings of importance and meaningfulness, removing the fear of simply being a transient being in a meaningless world (Pyszczynski et al.). From a TMT perspective, living up to one’s own cultural standards of value imbues a sense of literal or symbolic
meaningfulness that is achieved through any number of avenues, such as adherence to religious beliefs (Jonas & Fischer, 2006), identification with a larger group (Arndt, Greenberg, Schimel, Pyszczynski, & Solomon, 2002), identification with accomplishments (Dechesne, Greenberg, et al., 2000), or even belief in symbolic immortality through reproduction (Solomon et al., 1991). A central tenet of TMT is the hypothesis that if a psychological structure’s purpose is to provide protection from the fear of death, then the need for this structure should be increased when death is salient (Dechesne et al., 2003; Greenberg et al., 1990; Pyszczynski et al., 2004b; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989). In well over 200 studies, research has shown that both self-esteem and faith in one’s cultural worldview act as buffers against the anxiety caused by a cognitive awareness of death (Pyszczynski et al.). Increased self-esteem, whether experimentally induced or dispositionally inherent, reduces the effects of mortality salience (i.e., increased death thought accessibility or anxiety; see Pyszczynski et al. for review). Similarly, mortality salience increases favorability ratings of those who support one’s worldviews and decreases favorability of those who threaten these worldviews (e.g., Greenberg et al., 1990). In fact, mortality salience increases aggression toward and derogation of worldview-threatening targets (McGregor et al., 1998).

Interestingly, worldview defense does not occur directly after becoming aware of one’s own mortality. People often deny their vulnerability to death when mortality is in focal attention but not after a delay or distraction, suggesting that there are two distinct defenses against the inherent fear of death (Arndt, Greenberg, Pyszczynski, & Solomon, 1997; Arndt, Greenberg, Solomon, Pyszczynski, & Simon, 1997). First, proximate
thoughts of death are suppressed to protect against the anxiety induced by the awareness of death. Then, when death is not in immediate focal attention, distal defenses are enacted that symbolically defend against the unconscious knowledge of death by necessitating unconscious or instinctual urges to validate one’s cultural worldviews (Greenberg, Arndt, Simon, Pyszczynski, & Solomon, 2000; Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994). For this reason, research using explicit manipulations of mortality salience often use distracter tasks such as the positive and negative affect scale (PANAS; Watson & Clark, 1994), short excerpts unrelated to death such as the Growing stone distraction task (Greenberg et al., 1994), or even word puzzles (Greenberg et al.).

Although delay and distraction are standard methodological practices, proximate defenses can also be circumvented by using subliminal primes, such as presenting the word “DEATH” for 42.8 ms (Arndt, Greenberg, Pyszczynski, et al., 1997; Landau, Goldenberg, et al., 2006) or the numbers 911 to American participants (Yum & Schenck-Hamlin, 2005). Simply being in immediate proximity of a funeral home can enact the effects of mortality salience, increasing death-thought accessibility and the need to validate cultural worldviews (Pyszczynski et al., 1996). The fact that these primes are found to be just as effective suggests that mortality primes could be more prevalent than once thought, and could be influencing more behavior than many would like to believe.

Mortality salience (MS) has a multitude of effects on individuals’ attitudes. Mortality salience increases preferences for a worldview-validating target (Greenberg et al., 1990), increases self-reported affiliation with winning sports team (Dechesne, Greenberg, et al., 2000), and even leads to more positive evaluations of a worldview-
validating target (Mikulincer & Florian, 1997). The influence of mortality salience is not restricted to attitudes, however. Thoughts of death cause participants to sit farther from a worldview-threatening target (Ochsmann & Mathy, 1994 as cited in Solomon et al., 2004), decrease peoples’ comfort with and compliance in desecrating a flag or using a crucifix as a hammer (Greenberg, Simion, Porteus, Pyszczynski, & Solomon, 1995), and even increase how much a person will donate to a particular charity (Jonas, Greenberg, & Frey, 2003). Mortality salience can increase fitness activity (Arndt, Schimel, & Goldenberg, 2003) and has been found to influence peoples’ driving behaviors (Taubman-Ben-Ari, 1999). Overall, mortality salience demonstrates a great breadth of influence on both attitudes and behaviors alike.

**Criticisms of TMT**

Terror management theory is often criticized for its perspective on the function of self-esteem. According to TMT, self-esteem functions as an anxiety buffer from the existential fear of death, which suggests that mortality salience should elicit actions to bolster self-esteem (see Pyszczynski et al., 2004b for review). Leary (2004) argues that self-esteem serves no such function, citing research that found no differences between experimental and control conditions in enhancement of self-evaluations after a mortality salience prime (Sowards, Moniz, & Harris, 1991). In rebuttal, Pyszczynski, Greenberg, Solomon, Arndt, and Schimel (2004a) pointed out that Sowards et al. (1991) failed to incorporate a delay or distraction after the mortality salience prime, which is necessary to elicit self-esteem bolstering as a distal defense to thoughts of death (Arndt, Greenberg, Pyszczynski et al., 1997; Greenberg et al., 2000; Greenberg et al., 1994).
Further research cited by Leary and Schreindorfer (1997) opposing the hypothesis that self-esteem serves as an anxiety buffer from thoughts of death found that self-esteem scores are significantly lower immediately after mortality salience in comparison to baseline scores (Chaudhary, Gardiner-Parks, & Hass, 1994, as cited in Leary & Schreindorfer, 1997). This finding directly contradicts what TMT would predict, suggesting that self-esteem may not serve to protect against the anxiety associated with thoughts of death. Although TMT researchers have not accounted for this unexpected decrease in self esteem immediately after a death prime, Pyszczynski et al. (2004a) suggest that Chaudhary et al.'s (as cited in Leary & Schreindorfer) results should remain suspect because of unexpected changes in self-esteem scores that were also observed in control conditions, suggesting that this decrease could be caused by something other than mortality salience.

Critics have also criticized terror management theory on a conceptual level, pointing out that a psychological structure that evolved to protect against the fear of death would have no evolutionary benefit (Leary & Schreindorfer, 1997). How could something that works to shield or distract from thoughts of death be evolutionarily beneficial? Fear is inherent for a reason and is necessary for survival. TMT does not disagree with this claim but suggests that the realization of absolute annihilation is paralyzingly frightening and cultural worldviews help to distract from thoughts of death in order to properly function (Pyszczynski et al., 2004a). It does not suggest in any way that this psychological process makes humans any worse at detecting life threatening situations. Others have similarly criticized TMT's assumption that death elicits a
"paralyzing" fear because there is no evidence for this (Leary, 2004). In rebuttal, Pyszczynski et al. suggest that the lack of direct evidence of this fear actually supports the theory, because all "functioning adults have been socialized into a worldview imbued with meaning and personal significance" (p. 487).

According to terror management theory, humankind's needs for culture and self-esteem are thought to have evolved gradually along with their emergent awareness of death (Pyszczynski et al, 2004b). However, Leary (2004) has criticized this aspect of TMT, stating that culture is a relatively recent phenomenon, emerging around 40,000 years ago. He suggests that TMT has major conceptual problems in the theoretical explanation of how or why self-esteem would have emerged as an evolutionarily adaptive mechanism to protect us from thoughts of death which, problematically, did not occur until relatively recently in our ancestral past. In response to this criticism, Pyszczynski et al. (2004a) points out that although "culture" is thought to be a relatively recent occurrence in evolution, it was still a gradual process that dates back much further than Leary suggested. There is evidence of ritual burial of the dead up to 100,000 years ago, long before this genuinely accepted appearance of culture. This archeological evidence demonstrates that early hominids were aware of death and had a general form of culture that was passed down through generations, suggesting that "culture" is a much older construct than previously thought.

Another criticism of terror management theory is its strict adherence to the assumption that death (i.e., absolute and utter non-existence) is mankind's greatest fear and is thus at the core of the phenomena TMT purports to explain (Leary, 2004). Many
researchers adamantly disagree with TMT’s proclamation, and suggest that these same
effects can be explained in a more parsimonious way. Of these arguments, two different
hypotheses arise in an attempt to explain why the anxiety associated with thoughts of
death elicits an increased need to validate cultural worldviews and bolster self-esteem: (a)
aversive thoughts and (b) uncertainty.

Some researchers suggest that worldview validation and self-esteem-bolstering
are not unique to thoughts of death but are common to all aversive events such as pain,
social exclusion, or even giving a public speech. In support of this hypothesis, trait self­
estee m is unrelated to thoughts of death and is in fact negatively correlated with thoughts
of rejection, suggesting that social exclusion may actually create more anxiety than
exclusion calls into question a person’s relational value (i.e., self-esteem) and, according
to sociometer theory, should elicit self-esteem bolstering not because of increased
thoughts of death but because thoughts of exclusion lower self-esteem. According to
sociometer theory, self-esteem is a metaphoric gauge that, when low, enacts processes to
increase self-esteem to a normal level (Leary, 2004). Others suggest that social exclusion
and ostracism may also lead to increased death-thought accessibility because the act of
being ostracized threatens one’s self-esteem and simultaneously demonstrates what it
would be like essentially to not exist (Dechesne & Kruglanski, 2004). However, repeated
research using social exclusion (Landau, Greenberg, Solomon, Pyszczynski, & Martens,
2006; Schimel, et al., 1999, study 4) and other aversive events such as thoughts of
experiencing intense pain (Greenberg et al., 1994, study 2), dental pain (Schimel et al.,
study 2), failure (Hirshberger, Florian, & Mikulincer, 2005, study 1), an upcoming exam (McGregor et al., 1998, study 1), and giving a public speech (Greenberg et al., study 2) have failed to produce effects that replicate those associated with thoughts of death (Greenberg, Solomon, & Pyszczynski, 1997).

The uncertainty hypothesis similarly suggests that TMT researchers have actually been studying the effects of uncertainty elicited from thoughts of death, creating an increased need for worldview validation and self-esteem bolstering (Leary, 2004). Supporting research has found that trait self-esteem is more strongly related to thoughts of uncertainty than those of non-existence (Leary, Saltzman, & Bednarski, 1995, as cited in Leary & Schreindorfer, 1997). Thoughts of death obviously do entail a great deal of uncertainty, making it difficult to differentiate whether thoughts of death cause bolstering of self-esteem or whether it is actually the uncertainty associated with death that impacts self-esteem. Support for the uncertainty hypothesis shows that evidence of an afterlife moderates the effects of mortality salience, suggesting that thoughts of death may not actually be directly responsible for increasing the need for worldview validation and self-esteem bolstering (Deschesne et al., 2003). Further research has found that threats to an individual's cultural worldview increase the accessibility of words associated with death (Schimel, Hayes, Williams, & Jahrig, 2007) and that bolstering of self worth reduces death-thought accessibility (Mikulincer & Florian, 2002). These results suggest that although uncertainty may be inherent in thinking about death, and play a moderating role in the relation between the anxiety associated with thoughts of death and worldview validation, worldview-threats have a unique relation to thoughts of death.
Need for Closure Moderating Mortality Salience

In response to criticisms of TMT that suggest that the effects of mortality salience could be due to the uncertainty associated with death, terror management theorists turned to lay epistemic theory and the concept of cognitive need for closure. Kruglanski, Webster, and Klem (1993) operationalize need for closure (NFC) as a cognitive desire for certainty and avoidance of ambiguity. According to lay epistemic theory (Kurglanski, 1989), people high in NFC desire quickly to attain information but then are no longer motivated to process any further information relevant to the topic, thus avoiding any discrediting information (Kruglanski et al., 1993). Those high in NFC essentially find uncertainty aversive, and accordingly attempt to avoid this aversive state by accepting any immediate information that would provide closure. Those low in NFC, however, are more at ease with uncertainty and demonstrate less avoidant behavior toward uncertainty (Kruglanski et al.). The culmination of this research on individual differences in NFC suggests that there could be individual variation in responses to the uncertainty associated with death, creating the possibility that NFC could have a moderating role in an individual’s response to mortality salience.

Research integrating lay epistemic theory and TMT finds that those who score high in NFC react differently to mortality primes than those who score low. People who score high in NFC (vs. those who score low) utilize much more rigid strategies to deal with the uncertainty associated with death. As an example, when an individual’s in-group is criticized, people who score high in NFC will defend the group by derogating the critic (Dechesne, Janssen, & van Knippenberg, 2000). They are also more susceptible to the
fear inherent in thinking about death and attempt to avoid the ambiguity and uncertainty associated with death. When given an extended period of time to write about thoughts of death, those who score high in NFC have shorter responses and respond more quickly than those low in NFC. When given the opportunity only to write one sentence about the feelings that death evokes, individuals who score high in NFC express distress and avoidance (Dechesne, Janssen, et al.).

Those who score low in NFC are not totally unaffected by mortality salience, however. Need for closure simply helps determine the nature of reactions to mortality salience (Dechesne, Janssen, et al., 2000). Those who score low in NFC favor self-enhancing strategies to manage their concerns about death (Dechesne & Kruglanski, 2004). For example, when faced with a worldview-threatening target who criticized participants' in-group (i.e., nationality), those low in NFC distanced themselves from the criticized group to preserve a positive sense of self, instead of derogating the critic (Dechesne, Janssen, et al., 2000). Those low in NFC can do this because they are less avoidant of uncertainties, and thus can be more flexible in their response to mortality salience conditions. They are also less avoidant of the uncertainty inherent in contemplating mortality and are therefore more curious about death and consequently take more time responding and respond in greater detail to questions about death (Dechesne, Janssen, et al.). When forced only to write one sentence about the feelings that death creates, people who score low in NFC tend to write about general acceptance and curiosity about their own death (Dechesne & Kruglanski, 2004).
According to lay epistemic theory (Kruglanski, 1990), those who score high in NFC are more likely to use and rely on stereotypes because these constructs provide certainty and an organized view of the world (Dechesne & Kruglanski, 2004). This preference for certainty is also related to strong preferences for similar others and a strong aversion toward those who express dissimilar opinions (Kruglanski & Webster, 1991). In fact, Kruglanski, Pierro, Mannetti, and De Grada (2006) suggest that high NFC is associated with a syndrome they describe as “group-centrism,” which is characterized by increased group conformity, in-group favoritism, out-group derogation, political conservatism, and rejection of those who deviate from the norm (Kruglanski, Shah, Pierro, & Mannetti, 2002; Shah, Kruglanski, & Thompson, 1998). According to TMT, these preferences for stereotypes and increased use group identification should then be exaggerated after mortality salience. Accordingly, after MS, participants who score high in NFC demonstrate increased in-group identification (Dechesne, Janssen, et al., 2000), recall more stereotypic information (Dechesne, Janssen, et al.), and demonstrate increased preferences for a stereotype-confirming individual (Schimel et al., 1999) compared to those who score low in NFC.

**Stereotypes, Prejudices and Preferences**

Stereotypes are often considered to be socially validated categorizations of individuals or groups that serve to provide order to the world (e.g., Allport, 1954). This categorization also serves a self-protective function in which downward comparison increases personal feelings of self worth and value (Tajfel & Turner, 1979). According to TMT, thoughts of death should elicit increased use of these categorizations because they
provide self-affirming feelings of meaningfulness and provide order to the universe (Dijksterhuis, van Knippenberg, Kruglanski, & Schaper, 1996). Supporting evidence finds that Christians attribute more negative stereotypic traits toward a Jewish target after mortality salience (Greenberg et al., 1990). Similarly, United States college students make more stereotypic personality trait ratings of Germans when thoughts of death are primed compared to control conditions (Schimel et al., 1999).

Mortality salience not only increases stereotype activation, but it also influences with whom participants identify. Thoughts of death increase identification with, and favorability toward, similar others and concordantly decrease identification with and favorability toward those who are dissimilar (e.g., Greenberg, Simon, Pyszczynski, Solomon, & Chatel, 1992; see Greenberg et al., 1997 for review). For example, White participants identify with and demonstrate more sympathy toward a White racist advocating White pride vs. an African American racist advocating Black pride after mortality salience compared to those experiencing control conditions, who are more sympathetic toward the African American racist (Greenberg, Schimel, Martens, Solomon, & Pyszczynski, 2001).

Schimel et al. (1999) suggests that the mere existence of dissimilar worldviews threatens an individual’s faith in his or her own personal worldviews, enacting negative behaviors and attitudes (i.e., prejudice, hostility, and derogation) toward those who hold worldview-threatening views. From this perspective one should like an individual who acts according to one’s cultural worldview and dislike those who threaten this worldview (Greenberg et al., 1990). Rosenblatt et al. (1989) tested this general hypothesis by
presenting college students, and in a later study actual judges, with a case of an alleged prostitute, finding that mortality salience increased subsequent bail bond recommendations from both students and judges alike. An increased awareness of death can make even those prized for impartialness (i.e., judges) adhere more strictly to their cultural worldviews of morality.

If thoughts of death lead to increased preferences for worldview-validating information, resulting in lower evaluations of worldview-threatening targets (Greenberg et al., 1990), increased in-group identification (Dechesne, Janssen, et al., 2000), and increased stereotype activation (Schimel et al., 1999), then it is logical to assume that mortality salience would cause participants to prefer a stereotype-consistent target (i.e., a worldview-validating target) over a stereotype-inconsistent target (i.e., a worldview-threatening target). To test this hypothesis, Schimel et al. had participants read essays about three African American students’ summer vacations and rate their attitudes toward each after a mortality salience prime or a similarly matched control condition. The race of the target and the stereotype-consistency of targets’ essays were manipulated, resulting in four conditions: African American stereotype-consistent, African American stereotype-inconsistent, African American neutral, and White neutral. Control participants preferred the stereotype inconsistent African American student (i.e., a worldview-threatening target) over the stereotype-consistent. After MS, however, participants preferred the stereotype-consistent African American (i.e., a worldview-validating target) over the stereotype inconsistent African American.
Subsequent studies replicated these findings by manipulating the stereotypicality of applicants for two gender stereotypical jobs (Study 4) and the stereotypicality of a homosexual male (Study 5). Participants preferred a worldview-validating target after mortality salience, demonstrating significantly lower ratings of the worldview-threatening target (i.e., the stereotype inconsistent target). Control conditions preferred the worldview-threatening target and rated the worldview-validating target significantly lower in favorability ratings. Interestingly, Study 5 also included a measure of NFC and found that the increased preference for a worldview-validating target in mortality salience conditions was moderated by NFC, with only those high in NFC demonstrating this preference. Those low in NFC were unaffected by mortality salience, and generally rated the stereotype-consistent target more positively than the stereotype-inconsistent target. These findings imply that people high in NFC prefer a target who confirms their cultural worldviews when death is salient, regardless of the specific stereotype content. Any information that validates an individual's cultural worldviews helps them to deal with the anxiety associated with thoughts of death, especially in people who score high in NFC.

**Current Study**

Mortality salience can increase stereotypic thinking (Schimel et al., 1999, Study 1), identification with an in-group (Arndt et al., 2002; Dechesne et al., 2003), and preferences for a stereotype confirming individual (Schimel et al., Study 3, 4, & 5), but there has been very little research examining the implications of these findings. There are only a handful of studies linking TMT with explicit behaviors, such as derogation or aggression toward those who threaten this stereotypic worldview (Dechesne, Janssen, et
al., 2000, McGregor et al., 1998). McGregor et al. assessed aggression by measuring how much hot sauce participants gave targets, finding that mortality salience caused increased aggression toward a worldview-threatening target. Interestingly, further studies (Study 2 & 3) suggest that that derogation and aggression may serve the same terror management function in that participants either derogated or demonstrated aggression toward a worldview-threatening target depending on which opportunity was presented first. If participants were first given a chance to derogate the target, there were no differences in hot sauce allocation. If they were first given the chance to give the target hot sauce however, they did not derogate the threat.

Although hostility may be one response to these worldview-threats, Solomon et al. (2004) suggest that thoughts of death can also lead to avoidance of a worldview-threatening target, especially for participants high in NFC. The only research to date linking TMT and avoidance found that mortality salience primes caused German participants to sit closer to a German confederate who validated their cultural worldview and further from a Turkish confederate who criticized their worldviews (i.e., criticized participants’ nationality; Ochsman & Mathy, 1994, as cited in Solomon et al., 2004). Although this study could be interpreted as demonstrating avoidance of a worldview-threatening target, it could also be interpreted as demonstrating increased in-group identification. Participants could merely have been identifying with a fellow German who advocated similar views (i.e., an in-group member) and thus sitting further from a Turkish confederate advocating dissimilar views (i.e., indicative of an out-group member).
Mortality salience can cause any number of behavioral and attitudinal effects such as derogation (Dechesne, Janssen, et al., 2000), aggression (McGregor et al., 1998), and increased in-group identification (Greenberg et al., 2000). More importantly to the current study, thoughts of death have led to increased favorability toward a worldview-validating out-group member and decreased favorability toward a worldview-threatening out-group member (Schimel et al., 1999).

Avoidance may, in fact, be related to this type of decreased favorability. White participants avoided interacting with an African American confederate after observing another African American confederate act negatively (e.g., hostile), and this avoidance was reflective of participants’ negative attitudes (Henderson-King & Nisbett, 1996). In fact, avoidant behavior is most likely to occur toward a disliked target (Kuppens, Van Mechelen, & Meulders, 2004). These findings suggest that negative attitudes or preferences are related to avoidant behaviors. Together with literature on TMT, these findings suggest that thoughts of death will create a decreased preference or favorability toward a worldview-threatening target, and this preference could then lead to avoidance. However, no published study to date has explicitly tested whether mortality salience will lead to increased avoidance of a worldview-threatening target. For the purposes of the current study, avoidance is operationalized as the intentional and purposeful lack of or decrease in interaction with a specific individual. The current research is intended to demonstrate that mortality salience increases participants’ need for worldview validation and efforts to maintain these worldviews, leading to avoidance of a worldview-threatening target through social exclusion.
Cyberball (Williams, Cheung, & Choi, 2000) is a computer simulated game of catch used to manipulate feelings of social exclusion. Ostracism through cyberball creates the same feelings of social exclusion as demonstrated in previous research paradigms such as physical ball tossing (Williams et al., 2000, Williams et al., 2002), or imagining life alone (Baumeister, Twenger, & Nuss, 2002; Zadro, Williams, & Richardson, 2004). Although no published studies have yet used cyberball as a dependent measure, this paradigm is ideal for measuring avoidance, assuming tossing behavior is indicative of intentional interaction. Through the use of cyberball, interactions can be completely controlled without the use of confederates, whose individual characteristics can introduce confounds into a study. The computer program tells the individual who is throwing and receiving. Number of tosses, both to the participant and to other targets, can be controlled by the experimenter. Participants can choose to whom to throw by selecting the picture associated with the player, and the program records tosses to and from each target (Williams, 2007; Williams & Jarvis, 2006).

In accordance with terror management theory and previous research, the current study will test the following hypotheses.

H1. After MS, participants will toss the ball more frequently to the stereotype consistent target than the stereotype inconsistent target.

H2. After MS, participants will rate the stereotype consistent target higher on both attitude and trait favorability measures than the stereotype inconsistent and neutral targets.
H3. The effects of MS will be moderated by participants' need for closure; only those high in NFC will be significantly affected by MS in frequency of tosses and favorability ratings. Participants low in NFC will be unaffected by MS.

H4. In the control conditions, participants will toss the ball more to, and have an increased preference for, the stereotype inconsistent target.
CHAPTER 2

METHOD

A Priori Effect Size

Effect sizes from similar studies conducted by Schimel et al. (1999, studies 3, 4, & 5) had an average Cohen’s d effect size index of .74 whereas studies from McGregor et al. (1998) using aggression measures had an average effect size of .46. For the purposes of this study, a more conservative effect size estimate was used of .40. A priori power analysis suggested that a sample size of at least 168 would be necessary to achieve a power of .95 in the current study.

Participants and Design

Two-hundred psychology students from a Midwestern university ($M_{age}=18.68$, $SD=1.15$; 143 females, 57 males) were randomly assigned to experimental conditions in a 2 (condition: death vs. dental pain) X 3 (target: stereotype consistent vs. stereotype inconsistent vs. neutral) mixed design in exchange for course credit.

Procedure

The White male experimenter greeted each participant individually and instructed him or her to sit at a desk equipped with a computer. The experimenter then stated, in correspondence with the cover story, that this was a cooperative study with another graduate student from Tennessee State University entitled “Impression formation” in which they would be interacting with three other students from UNI or TSU via the internet. The experimenter further explained that the intent of this study was to assess how people perceive others from very minimal information, and how these perceptions
change with interaction. In addition, the experimenter instructed participants that this study would also examine whether people’s perceptions of how they are perceived by others is congruent with actual perceptions by others, and whether interaction increases the accuracy of these self-perceived impressions.

After acquiring consent, the experimenter explained that a pivotal part of first impressions are people’s reactions to how others look, thus requiring a picture to be taken of each participant. The experimenter took a picture of each participant and instructed him or her to begin the experiment by clicking “start” on the computer screen. The experimenter then left the room, supposedly to upload the picture. All further instructions and measures were administered via the computer.

Each participant first wrote a short essay describing his or her summer (see Appendix A) under the guise that these descriptions would be circulated among participants. The instructions informed participants that their picture, along with their essay, was the only information available for the other students to create a first impression. In congruence with the cover story, participants rated themselves using an attitude and trait questionnaire as they thought the other students would perceive them from only the information they have provided. Participants then completed four “personality” measures, including need for closure (Kruglanski et al., 1993), the mortality attitudes personality survey about death or dental pain (Rosenblatt et al., 1989), the Positive and Negative Affect Schedule – Expanded form (Watson & Clark, 1994), and an opinion questionnaire on “The Growing Stone” taken from Albert Camus’s *Exile and the Kingdom* (1957, as cited in Greenberg et al., 1994).
Rosenblatt et al.'s (1989) Mortality Attitudes Personality survey (see Appendix B) consists of a set of open-ended questions about mortality or dental pain and was used as the manipulation of mortality salience. Experimental conditions were instructed to: “Please briefly describe the emotions that the thought of your own death arouses in you” and “Jot down, as specifically as you can, what you think will happen to you as you physically die and once you are physically dead.” Control conditions were given two similar questions regarding dental pain, stating “Please briefly describe the emotions that the thought dental pain arouses in you” and “Jot down, as specifically as you can, what you think will happen to you as you experience dental pain and once you have physically experienced dental pain” (Greenberg et al., 1994; Schimel et al., 1999).

After completion of these measures, participants read three fictitious students' summer descriptions that were modified to be stereotypically consistent, neutral, or inconsistent with prevalent American stereotypes of African Americans. Descriptions were based on Schimel et al. (1999, study 3) and were modified for believability (see Appendix C). Modifications of essays were based on media portrayals of African Americans and were intended to utilize the most prevalent American stereotypes of African Americans such as “unintelligent,” “musical,” “promiscuous,” and “athletic” (Devine & Elliott, 1995). The stereotype inconsistent description was presented with no colloquialisms or grammatical errors and stated that the target spent the summer working for a software company while taking summer classes. The neutral description referred to spending the summer as a lifeguard, hanging out with friends, watching movies, and playing video games. The stereotype consistent description referred to spending the
summer playing basketball and enjoying the nightlife. This description incorporated stereotypic slang along with nonstandard grammar such as “me and my boyz,” “lookin for honies,” and getting “crunked.” Each description was presented in association with one of three pictures of African American males. Descriptions were presented in the same order (i.e., stereotype inconsistent, neutral, stereotype consistent) while the pictures associated with each description were presented in a counterbalanced order. Pictures consisted of three standard headshots of smiling African American males in front of a blue background (courtesy of Dr. Christian Meissner, UTEP; see Appendix D).

After advancing to the next page, participants then played a game called cyberball (Williams et al., 2000) with the three targets under the belief that these were actual students. Cyberball (see Appendix E) is played on a computer in which participants are included in a game of catch (see Williams et al., 2000 for review). Participants choose who to throw to by selecting the picture of the player (Williams et al.). The program was set to toss the ball to the participant 43% of the time. The instructions to the game told participants not to focus on actually throwing or catching the ball, but to use the game to assist in visualizing the other players and what they are like. After agreeing that they had read and understood the instructions, participants played cyberball for a duration of 60 tosses. Participants then completed items assessing perceived frequency of ball tosses to the three fictitious students and rated their attitudes toward these individuals and themselves using similar trait and attitude questionnaires to those used previously. As manipulation checks, participants also indicated the race of each student and rated how stereotypic each student was on a 6-point Likert scale ranging from (1) not at all
to (6) *extremely stereotypical*. Once completed, the experimenter came back into the room, probed the participant for suspicion, thoroughly debriefed him or her, and then thanked each participant for his or her time.

**Measures**

**Need for Closure**

Need for closure \((\alpha = .85; \text{see Appendix F})\) was assessed using a 42-item scale in which participants rated their level of agreement on a 6-point Likert scale with statements such as: "I think that having clear rules and order to work is essential for success" and "I enjoy having a clear and structured mode of life." The scale is intended to assess an individual’s cognitive need for closure and avoidance of ambiguity. Previous research has found this measure to be highly reliable with a Cronbach’s alpha of .84 and test-retest reliability of .86 (Kruglanski et al., 1993). This measure demonstrates acceptable convergent and discriminant validity, being slightly correlated with authoritarianism \((r = .27)\), intolerance of ambiguity \((r = .29)\), dogmatism \((r = .29)\), impulsivity \((r = .27)\), the fear of invalidity scale \((r = -.21)\), need for cognition \((r = -.28)\), and IQ \((r = -.17)\) and is not correlated with the Crowne-Marlowe Social Desirability scale \((r = -.02; \text{Webster & Kruglanski, 1994; see Kruglanski et al., 1997 for review})\).

**PANAS-X**

The Positive and Negative Affect Schedule- Expanded form (see Appendix G) has participants rate themselves on 60 trait items such as “cheerful,” “bold,” “at ease,” and “energetic” on a 5-point Likert scale from *not at all* (1) to *extremely* (5; Watson & Clark, 1994). This measure has eleven affective subscales consisting of fear \((\alpha = .82)\),
hostility ($\alpha = .80$), guilt ($\alpha = .82$), sadness ($\alpha = .79$), joviality ($\alpha = .90$), self assurance ($\alpha = .75$), attentiveness ($\alpha = .65$), shyness ($\alpha = .85$), fatigue ($\alpha = .79$), serenity ($\alpha = .77$), and surprise ($\alpha = .69$), along with two higher order scales consisting of positive and negative affect ($\alpha$'s = .80, .85, respectively). This scale has a test-retest reliability ranging from .59 to .71 on the higher order scales and has convergent correlations with six scales from the Profile of Mood States (POMS) ranging from .85 to .91, suggesting relatively strong construct validity. The PANAS-X also demonstrates moderately strong internal discriminant validity between scales, with coefficients ranging from -.05 to -.35 between positive affect scales and negative affect scales (see Watson & Clark for review).

The Growing Stone

A short excerpt was taken from “the Growing Stone,” from the collection Exile and the Kingdom by Albert Camus (1957, as cited in Greenberg et al., 1994; see Appendix H). This excerpt is commonly used in the literature as a distraction task because of its neutral affective tone and lack of references to death (Greenberg et al., 1994). After reading the excerpt, participants indicated how descriptive the excerpt was on a 6-point Likert scale and whether they thought the author was male or female.

Attitude and Trait Measures

The measure evaluating participants’ attitudes toward themselves and targets ($\alpha$'s > .81; see Appendix I) consisted of 7 statements such as “I think I would like this person,” and “I am interested in getting to know this person,” which participants rated on 6-point Likert scale ranging from strongly disagree (1) to strongly agree (6; Schimel et al., 1999). Participants identified the three different targets by their picture, which was
located above each attitude measure. Self-rated attitude measures were changed slightly (e.g., “I think people will say that I’m a nice person,” “I think people will say they would be interested in getting to know me”).

Participants also rated themselves and targets on 12 traits (as > .71) consisting of “intelligent,” “conceited,” “nice,” “arrogant,” “antisocial,” “trustworthy,” “hostile,” “hardworking,” “athletic,” “friendly,” “freeloader,” “productive” on 6-point Likert scales ranging from 1 (not at all) to 6 (extremely) using the same methodology listed above (Schimel et al., 1999). These items remained the same for self-ratings.

**Percent of Tosses**

Number of tosses to each target was measured via cyberball. Percent of tosses to each target was calculated by dividing participants’ frequency of tosses to each target by their total number of tosses.

**Perceived Frequency of Ball Tosses**

Participants rated how often they received the ball from each student and how often they threw the ball to each student, identified by his or her picture, on a scale from 0-100% of the time (see Appendix J).

**Manipulations Check**

Participants indicated the race of each target and rated how stereotypical each target was for his or her race on a 6-point Likert scale ranging from 1 (not at all stereotypical) to 6 (very stereotypical). Participants also rated how similar each target was on a similar 6-point Likert scale ranging from 1 (not at all similar) to 6 (very similar). Targets were identified by their picture at the top of the page (see Appendix K).
CHAPTER 3

RESULTS

Excluded Data

Seventeen participants were excluded due to their race (only data from Caucasians were used) and an additional five for incorrectly identifying the race of the targets. Of the remaining 178 participants, 26 displayed suspicion as to the true nature of the study during debriefings. Analyses conducted with and without these participants demonstrated similar trends; thus these 26 suspicious participants were included in all further analyses to conserve power. Due to technical problems associated with cyberball, 11 of the remaining 178 participants' frequency of ball tosses data were not recorded; however, their data were used in all other analyses.

Manipulation Checks

Consistent with previous research (Greenberg et al., 1994; Schimel et al., 1999), a one-way multivariate analysis of variance (MANOVA) on the 11 affective subscales of the PANAS-X found that mortality salience had no effects on mood ($F_{10} < 2.55$).

Repeated measures $t$-tests were used to determine the stereotypicality of the targets. The stereotype consistent target was rated as more stereotypical ($M = 4.27, SD = 1.23$) than both the neutral target ($M = 2.50, SD = 1.05$), $t(174) = 15.72, p < .001, d = 2.40$, and the stereotype inconsistent target ($M = 2.01, SD = .86$), $t(174) = 20.17, p < .001, d = 3.08$. Consistent with expectations, the stereotype inconsistent target was rated as being less stereotypical than the neutral target, $t(174) = 6.93, p < .001, d = 1.06$. 
Hypothesis Tests

Percent of Ball Tosses

**ANCOVA.** To avoid problems with multicollinearity, only the percent of tosses to the stereotype consistent and stereotype inconsistent targets were used. Percent of ball tosses were then analyzed using a 2 (condition: death vs. dental pain) x 2 (target: stereotype consistent vs. stereotype inconsistent) x 2 (need for closure: high vs. low, based on a median split) mixed ANCOVA. An initial analysis included age, political orientation, family socioeconomic status (SES), current SES, and sex as covariates. Because the first four variables had no effect on the results (ps > .14), the analysis was re-run using sex as the only covariate.

There was a significant main effect of target, $F(1, 162) = 6.97, p = .01, \eta^2 = .04$, in which participants tossed the ball more to the stereotype inconsistent target than the stereotype consistent target (see Figure 1). Contrary to predictions, mortality salience did not affect participants' tossing behaviors, $F(1, 162) = .002, p = .97, \eta^2 < .01$. The two-way interaction of target by condition was not significant, $F(1, 162) = .51, p = .48, \eta^2 < .01$ (see Figure 2).
Note. Values represent adjusted means. Error bars represent standard error of the mean. Percent of ball tosses to the neutral target is included for comparison purposes only and was not included in the analysis. \( n = 167 \)

**Figure 1.** Percent of tosses as a function of target stereotypicality.

Note. Values represent adjusted means. Error bars represent standard error of the mean. \( n = 167 \)

**Figure 2.** Percent of ball tosses as a function of condition and stereotypicality.
The main effect of NFC was not significant, $F(1, 162) = .05, p = .83, \eta^2 < .01$. Contrary to predictions, the two-way interaction of target by level of NFC was not significant, $F(1, 162) = .01, p = .93, \eta^2 < .01$. Similarly, the three-way interaction of condition by target by NFC was not significant, $F(1, 162) = 2.54, p = .11, \eta^2 = .02$ (see Table 1). Neither mortality salience, NFC, nor their interactions had a significant effect on percent of ball tosses.

Table 1

*Cell Means for the Three-Way Need for Closure X Condition X Stereotypicality Interaction on Percent of Ball Tosses.*

<table>
<thead>
<tr>
<th>Target</th>
<th>Need For Closure</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>MS Control</td>
<td>MS Control</td>
</tr>
<tr>
<td>Stereotype consistent</td>
<td>$M_{adj}$</td>
<td>$SE$</td>
<td>$M_{adj}$</td>
</tr>
<tr>
<td>.34</td>
<td>.01</td>
<td>.31</td>
<td>.01</td>
</tr>
<tr>
<td>Stereotype inconsistent</td>
<td>.33</td>
<td>.01</td>
<td>.35</td>
</tr>
</tbody>
</table>

*Note. n = 167*

Regression Analysis. Because of problems with using a median split, three hierarchical regressions were also used to determine whether NFC moderated the effects of mortality salience. Need for closure was standardized into z-scores to avoid problems with multicollinearity among variables as outlined by Frazier, Tix, and Barron (2004; for
further explanation see Cohen, Cohen, West, & Aiken, 2003) and for ease of interpretation (Aiken & West, 1991). Percent of ball tosses to each target was predicted using the standardized NFC, mortality salience, and their interaction as independent variables. Sex, condition, and the standardized z-scores of NFC were all entered in the first step, with the interaction of condition and the standardized NFC z-scores entered in the second step. Contrary to hypotheses, neither NFC, MS, nor their interaction significantly predicted percent of ball tosses (\(p > .37\); see Table 2).

Table 2

*Multiple Regression Results: Unstandardized Regression Coefficients and Changes in \(R^2\) on Percent of Ball Tosses Controlling for Sex.*

<table>
<thead>
<tr>
<th>Step and Predictor</th>
<th>Percent of Tosses</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stereotype Consistent</td>
<td>Neutral</td>
<td>Stereotype Inconsistent</td>
</tr>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>.04*</td>
<td>-.04*</td>
<td>.00</td>
</tr>
<tr>
<td>MS</td>
<td>.01</td>
<td>-.00</td>
<td>-.01</td>
</tr>
<tr>
<td>NFC</td>
<td>-.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>(R^2)</td>
<td>.05</td>
<td>.08</td>
<td>.00</td>
</tr>
<tr>
<td>Adjusted (R^2)</td>
<td>.03</td>
<td>.06</td>
<td>-.02</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>.04*</td>
<td>-.04*</td>
<td>.00</td>
</tr>
<tr>
<td>MS</td>
<td>.01</td>
<td>-.00</td>
<td>-.01</td>
</tr>
<tr>
<td>NFC</td>
<td>-.01</td>
<td>.01</td>
<td>.00</td>
</tr>
<tr>
<td>MS X NFC</td>
<td>.01</td>
<td>-.01</td>
<td>-.01</td>
</tr>
<tr>
<td>(\Delta R^2)</td>
<td>.01</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>(R^2)</td>
<td>.06</td>
<td>.08</td>
<td>.01</td>
</tr>
<tr>
<td>Adjusted (R^2)</td>
<td>.03</td>
<td>-.06</td>
<td>-.02</td>
</tr>
</tbody>
</table>

*Note. Sex was coded as 1 (male), 0 (female), and MS was coded as 1 (MS), 0 (control); \(*p < .05*\)
Attitudes

**ANOVA.** Mean attitude ratings were computed for each target to determine which target participants preferred. Data were analyzed using a 2 (mortality salience: death vs. dental pain) X 3 (target: stereotype consistent vs. neutral vs. stereotype inconsistent) X 2 (need for closure: high vs. low) mixed ANCOVA. An initial analysis found that the covariates of age, political orientation, family SES, current SES and sex had no effects on the results (ps > .43); therefore, they were removed from further analysis to conserve power. Attitude favorability ratings mirrored the results of percent of ball tosses; the main effect of condition and the two-way interaction of target by condition were not significant ($F(1, 174) = .14, p = .71, \eta^2 < .01, F(2, 348) = .38, p = .68, \eta^2 < .01$ respectively; see Figure 3). However, there was a significant main effect of target, $F(2, 348) = 127.87, p < .001, \eta^2 = .47$. Participants rated the neutral ($M_{adj} = 4.61, SE = .05$) and stereotype inconsistent ($M_{adj} = 4.71, SE = .05$) targets more favorably than the stereotype consistent target ($M_{adj} = 3.72, SE = .07$) regardless of condition, $t(177) = 12.44, p < .001, d = 1.88, t(177) = 12.66, p < .001, d = 1.91$, respectively (see Figure 4). There was no difference between neutral and stereotype inconsistent targets in attitude favorability ratings, $t(177) = 1.89, p = .06, d = .28$. 
Note. Values represent adjusted means. Error bars represent standard error of the mean. Scale ranged from 1 (Strongly Disagree) to 6 (Strongly Agree). n = 178

Figure 3. Attitude ratings as a function of condition and target stereotypicality.

Note. Values represent adjusted means. Error bars represent standard error of the mean. Scale was from 1 (not at all) to 6 (extremely). n = 178

Figure 4. Attitude favorability ratings as a function of target stereotypicality.
The main effect of NFC was not significant, $F(1, 174) = 1.56, p = .21, \eta^2 = .01$, nor was the interaction of target by NFC, $F(2, 348) = 1.14, p = .32, \eta^2 = .01$. The three-way interaction was also not significant, $F(2, 348) = 2.91, p = .06, \eta^2 = .02$, suggesting that neither MS, NFC, nor their interaction significantly affected participants' attitude favorability ratings (see Table 3).

Table 3

*Cell Means for the Three-Way Need for Closure X Condition X Stereotypicality Interaction on Attitude Ratings.***

<table>
<thead>
<tr>
<th>Target</th>
<th>Need For Closure</th>
<th>High</th>
<th>Control</th>
<th>Low</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stereotype</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>consistent</td>
<td>$M_{adj}$</td>
<td>3.44</td>
<td>.14</td>
<td>3.79</td>
<td>.15</td>
</tr>
<tr>
<td>Neutral</td>
<td>$M_{adj}$</td>
<td>4.58</td>
<td>.10</td>
<td>4.60</td>
<td>.10</td>
</tr>
<tr>
<td>Stereotype</td>
<td></td>
<td>4.67</td>
<td>.09</td>
<td>4.70</td>
<td>.10</td>
</tr>
<tr>
<td>inconsistent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. n = 178*

**Regression Analyses.** Three hierarchical regressions were used to determine whether NFC moderated the effects of mortality salience on attitude favorability using similar procedures as described for analysis of percent of ball tosses. Need for closure explained a significant proportion of variance in attitude scores toward the stereotype consistent target, $R^2 = .06, F(1, 174) = 3.59, p = .02$. Although NFC did not moderate
attitude favorability ratings for the neutral or stereotype inconsistent targets, there was a significant interaction of condition by NFC in attitude ratings toward the stereotype consistent target, \( B = -.34, t(174) = 2.43, p = .02, \Delta R^2 = .03, \Delta F(1, 174) = 5.92, p = .02 \) (see Table 4).

Two more hierarchical regressions controlling for MS condition were used to determine how NFC moderated the effects of mortality salience on attitude favorability toward the stereotype consistent target (Baron & Kenny, 1986). In the mortality salience condition, participants scoring higher in NFC rated the stereotype consistent target less favorably, \( B = -.33, t(83) = 3.31, p = .001 \), and NFC explained a significant proportion of the variance in favorability, \( R^2 = .11, F(1, 83) = 10.97, p = .001 \). Need for closure, however, had no influence on attitude ratings toward the stereotype consistent target in the control condition, \( B = .01, R^2 < .01, p = .92 \).
Table 4

Multiple Regression Results: Unstandardized Regression Coefficients and Changes in $R^2$ on Attitude Favorability Ratings.

<table>
<thead>
<tr>
<th>Step and predictor</th>
<th>Stereotype Consistent</th>
<th>Neutral</th>
<th>Stereotype Inconsistent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS</td>
<td>-.06</td>
<td>-.05</td>
<td>.02</td>
</tr>
<tr>
<td>NFC</td>
<td>-.15*</td>
<td>-.01</td>
<td>.02</td>
</tr>
<tr>
<td>$R^2$</td>
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<td>.00</td>
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<tr>
<td>Adjusted $R^2$</td>
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<td>-.01</td>
</tr>
<tr>
<td>Step 2</td>
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<tr>
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<td>-.05</td>
<td>.03</td>
</tr>
<tr>
<td>NFC</td>
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<td>.05</td>
</tr>
<tr>
<td>MS X NFC</td>
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<td>-.05</td>
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<tr>
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<tr>
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<tr>
<td>Adjusted $R^2$</td>
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</table>

Note. *$p < .05$; $n = 178$.

Trait

ANOVAs. Mean trait ratings were also computed to determine how positively participants would rate each target and were analyzed using a 2 (mortality salience: death vs. dental pain) X 3 (target: stereotype consistent vs. neutral vs. stereotype inconsistent) X 2 (need for closure: high vs. low) mixed ANOVA. An initial analysis found that the covariates of age, political orientation, family SES, current SES, and sex had no effects on the results ($ps > .06$); therefore, they were removed from further analysis to conserve power. The main effect of condition and the two-way interaction of target by condition was not significant, $F(1, 176) = 1.12, p = .29, \eta^2 = .01, F(2, 348) = 1.37, p = .25, \eta^2 = .01,$
respectively (see Figure 5). There was a significant main effect of target, $F(2, 348) = 297.43, p < .001, \eta^2 = .63$, in which participants’ trait ratings were more positive for the stereotype inconsistent target ($M_{adj} = 4.87, SE = .03$) than the neutral target ($M_{adj} = 4.70, SE = .04$), $t(177) = 5.19, p < .001, d = .78$, and the stereotype consistent target ($M_{adj} = 3.82, SE = .05$), $t(177) = 20.12, p < .001, d = 3.04$ (see Figure 6). In fact, the stereotype consistent target was rated the lowest, with significantly lower ratings than the neutral target, $t(177) = 17.61, p < .001, d = 2.66$.

![Diagram](image.png)

**Note.** Values represent adjusted means. Error bars represent standard error of the mean. Scale ranged from 1 (*Not at All*) to 6 (*Extremely*). $n = 178$

**Figure 5.** Trait ratings as a function of condition and target stereotypicality.
Further analyses determining whether NFC moderated the effects of mortality salience on trait ratings of targets found similar results; the three-way interaction was not significant $F(2, 348) = .24, p = .79, \eta^2 < .01$ (see Table 5), nor was the interaction of target by NFC, $F(2, 348) = .69, p = .50, \eta^2 < .01$. The main effect of NFC was also not significant $F(1, 174) = .04, p = .83, \eta^2 < .01$. Hierarchical regressions supported the above results, finding that NFC did not moderate the effects of MS on trait ratings ($ps > .47$; see Table 6).
Table 5

Cell Means for the Three-Way Need for Closure X Condition X Stereotypicality Interaction on Trait Ratings.

<table>
<thead>
<tr>
<th>Need For Closure</th>
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<tr>
<td></td>
<td>High</td>
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</tr>
<tr>
<td></td>
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<td>$SE$</td>
<td>$M_{adj}$</td>
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<td>Stereotype</td>
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<td>4.95</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>4.80</td>
</tr>
</tbody>
</table>

Note. $n = 178$

Table 6

Multiple Regression Results: Unstandardized Regression Coefficients and Changes in $R^2$ on Trait Favorability Ratings.

<table>
<thead>
<tr>
<th>Step and predictor</th>
<th>Stereotype Consistent</th>
<th>Neutral</th>
<th>Stereotype Inconsistent</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td>NFC</td>
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<td>.02</td>
</tr>
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<td>.01</td>
<td>.02</td>
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<tr>
<td>Adjusted $R^2$</td>
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<td>.00</td>
<td>.01</td>
</tr>
<tr>
<td>Step 2</td>
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<tr>
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<td>.07</td>
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<td>NFC</td>
<td>-.04</td>
<td>.06</td>
<td>.03</td>
</tr>
<tr>
<td>MS X NFC</td>
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<td>-.05</td>
<td>-.02</td>
</tr>
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<td>.00</td>
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<td>$R^2$</td>
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</tr>
<tr>
<td>Adjusted $R^2$</td>
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<td>-.00</td>
<td>.01</td>
</tr>
</tbody>
</table>

Note. $n = 178$
Exploratory Analyses

Self-Reported Avoidance

ANOVA. Three items from the attitude favorability scales were combined ("I would avoid this person," "I would not talk to this person," and "I would not interact with this person") to create a self-reported avoidance index for each target (α > .75). A 2 (condition: death vs. dental pain) X 3 (target: stereotype consistent vs. neutral vs. stereotype inconsistent) X 2 (need for closure: high vs. low, based on a median split) mixed ANCOVA was then conducted utilizing this new avoidance index as the dependent variable. Again, an initial analysis included age, political orientation, family SES, current SES, and sex as covariates. None of the covariates were significant (ps > .39) and the analysis was re-run without any covariates.

As with the behavioral measure, there was a significant main effect of target, $F(2, 348) = 66.63, p < .001, \eta^2 = .28$, in which participants' ratings for avoidance were highest for the stereotype consistent target (see Figure 7). Interestingly, MS and NFC did seem to have marginal effects on these self-reported avoidance ratings. Participants tended to have higher avoidance ratings toward all three targets in the mortality salience condition ($M = 2.19, SE = .07$) compared to the control condition ($M = 2.01, SE = .07$), $F(1, 174) = 2.81, p = .10, \eta^2 = .02$. Correspondingly, those who were categorized as high in NFC tended to have higher avoidance ratings of all three targets ($M = 2.20, SE = .07$) than those categorized as low in NFC ($M = 2.00, SE = .07$), $F(1, 174) = 3.66, p = .06, \eta^2 = .02$. However, none of the ensuing 2- or 3-way interactions were significant (ps > .16)
Regression Analysis. Three hierarchical regressions were used to determine whether NFC moderated the effects of mortality salience on this avoidance index. Need for closure, MS, and their interaction had no significant effect on avoidance ratings toward the neutral and stereotype inconsistent targets, $p$s $>.28$. However, the model significantly predicted avoidance for the stereotype consistent target, $F(3, 174) = 2.90, \rho = .04$, but NFC did not moderate the effects of MS, $B = .30, R^2 = .05, \Delta F(1, 174) = 2.95, p = .05$ (see Table 7).
Table 7

Multiple Regression Results: Unstandardized Regression Coefficients and Changes in $R^2$ on Avoidance Ratings.

<table>
<thead>
<tr>
<th>Step and predictor</th>
<th>Trait ratings</th>
<th></th>
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</thead>
<tbody>
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<td></td>
<td>Stereotype Consistent</td>
<td>Neutral</td>
<td>Stereotype Inconsistent</td>
</tr>
<tr>
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</tr>
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<tr>
<td>NFC</td>
<td>.18</td>
<td>.03</td>
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</tr>
<tr>
<td>$R^2$</td>
<td>.03</td>
<td>.02</td>
<td>.02</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>.02</td>
<td>.01</td>
<td>.00</td>
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<td>MS</td>
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<td>.21</td>
<td>.18</td>
</tr>
<tr>
<td>NFC</td>
<td>.05</td>
<td>.02</td>
<td>-.07</td>
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<td>MS X NFC</td>
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<td>.02</td>
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</tr>
<tr>
<td>$\Delta R^2$</td>
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<td>.03</td>
<td>.01</td>
<td>-.00</td>
</tr>
</tbody>
</table>

Note. $n = 178$

Perceived Percentage of Tosses

Perceived percentage of tosses to each target were rather strongly correlated with actual tosses, average within-cell $r = .53$, $p < .001$. Perceived percentage of ball tosses were analyzed using a 2 (condition: death vs. dental pain) X 2 (target: stereotype consistent vs. stereotype inconsistent) X 2 (need for closure: high vs. low, based on a median split) mixed ANOVA. An initial analysis found that the covariates of age, political orientation, family SES, current SES, and sex had no effects on the results ($ps > .15$), and were removed from further analysis. The main effect of target was not significant, $F(1, 174) = 2.73, p = .10, \eta^2 = .02$. The main effects of condition and NFC were also not significant, $F(1, 174) < .01, p = .99, \eta^2 < .01, F(1, 174) = .01, p = .93, \eta^2 <$
.01, respectively. Similarly, the 2-way interactions of target by condition, and target by NFC were not significant, $F(1, 174) = .10, p = .75, \eta^2 < .01, F(1, 174) = .69, p = .41, \eta^2 < .01$, respectively. The 3-way interaction was also not significant, $F(1, 174) = .17, p = .68, \eta^2 < .01$.

Sex Differences

Interestingly, there was a marginally significant interaction of target by sex on observed percentage of ball tosses when sex was a covariate, $F(1, 162) = 3.53, p = .06, \eta^2 = .02$. Independent samples $t$-tests indicated that there were significant sex differences in percent of tosses to the stereotype consistent target, $t(165) = 2.72, p < .01, d = .43$, in which men tossed the ball more to the stereotype consistent target than women (see Figure 8). However, there were no significant sex differences in percentage of tosses to the stereotype inconsistent target, $t(165) = .06, p = .95, d = .01$.

To determine whether the sex difference was due to men throwing the ball more often to the stereotype consistent target or women throwing the ball less often to that target, I compared men’s and women’s percent of tosses to each target to chance (33%) using one-sample $t$-tests. Men did not differ from chance in tossing behavior toward the stereotype consistent or stereotype inconsistent targets, $p_s > .21$. However, women tossed the ball to the stereotype inconsistent and neutral targets significantly more often than would be expected by chance, $t(117) = 2.42, p = .02, d = .45, t(117) = 2.81, p < .01, d = .52$ respectively. They also tossed the ball to the stereotype consistent target significantly less often than would be expected by chance, $t(117) = 2.95, p < .01, d = .55$. 
Independent samples t-tests also indicated sex differences in attitude favorability toward the stereotypic target, \( t(176) = 2.27, p = .03, d = .34 \). Men tended to have higher attitude favorability ratings for the stereotype consistent target than women (see Figure 9). However, there were no significant sex differences for the neutral or stereotype inconsistent targets \( (p_s > .25) \). Interestingly, there were no sex differences in trait ratings for any of the three targets.

\[\begin{array}{c|c|c}
\text{Stereotype Consistent} & \text{Stereotype Inconsistent} \\
\text{Female} & \text{Male} \\
\text{.35} & \text{.30} \\
\text{.30} & \text{.25} \\
\text{.25} & \text{.20} \\
\end{array}\]

*Note.* Values represent adjusted means. Error bars represent standard error of the mean. \( n = 167 \)

*Figure 8.* Percent of tosses as a function of participants' sex and target stereotypicality.
Note. Values represent adjusted means. Error bars represent standard error of the mean. Scale ranged from 1 (Not at All) to 6 (Extremely). \( n = 178 \)

Figure 9. Attitude favorability as a function of participants' sex and target stereotypicality.

**Similarity Ratings**

Multiple paired samples \( t \)-tests were conducted on participants' similarity ratings toward each target. The stereotype inconsistent (\( M = 3.18, SD = 1.03 \)) target had higher similarity ratings than the stereotype consistent target (\( M = 2.13, SD = 1.03, t(176) = 9.18, p < .001, d = 1.38 \)). The neutral target (\( M = 3.54, SD = 1.04 \)), however, was rated as the most similar, having significantly higher similarity ratings than both the stereotype consistent, \( t(176) = 13.62, p < .001, d = 2.05 \), and the stereotype inconsistent targets, \( t(175) = 3.53, p < .01, d = .53 \).

**Self-Ratings**

A 2 (mortality salience: death vs. dental pain) X 3 (time: pre vs. post) X 2 (need for closure: high vs. low) mixed ANOVA was used to determine whether MS affected
attitudinal self-ratings. There was a significant main effect of time, indicating that participants had higher attitudinal self-ratings at the beginning of the study compared to the end, $F(1, 174) = 49.11, p < .001, \eta^2 = .22$ (see Figure 10). However, MS and NFC seemed to have no effect on these attitude ratings. The main effects of condition and NFC were not significant, $F(1, 174) = .88, p = .35 \eta^2 = .01, F(1,174) = 1.97, p = .16, \eta^2 = .01$, respectively. Similarly, the three-way interaction and both two-way interactions were not significant ($ps > .34$).

Self-ratings on trait items also showed a significant main effect of time, which indicated that participants rated themselves lower on trait ratings at the beginning of the study compared to the end, $F(1, 174) = 11.43, p < .01, \eta^2 = .06$ (see Figure 10). Again, MS and NFC had no effect on these ratings as indicated by the lack of significance in their main effects, $F(1, 174) = 1.14, p = .29, \eta^2 = .01, F(1, 174) = 2.15, p = .14, \eta^2 = .01$ respectively, and their interactions ($ps > .78$).
Note. Values represent adjusted means. \( n = 178 \)

*Figure 10.* Attitude and trait self-ratings as a function of time.
CHAPTER 4

DISCUSSION

Overall Findings

Although previous research has demonstrated that Caucasian participants’ preference for stereotype confirming information may be influenced by mortality salience (Schimel et al., 1999), this study demonstrated that the effects of mortality salience may not be as pervasive as once speculated. Mortality salience did not cause participants to avoid a stereotype threatening target as measured by their frequency of tosses, nor did it affect participants’ preferences. In fact, in this study, mortality salience had little to no effects on participants whatsoever.

Participants threw the ball more often to the stereotype inconsistent target than the stereotype consistent target regardless of mortality salience or need for closure (NFC). Participants also preferred the stereotype-inconsistent target in both attitude and trait ratings, demonstrating a similar trend to their tossing preferences. There are several reasons why this might have occurred. Schimel et al. (1999) found that participants had a preference for a stereotype inconsistent target in control conditions, where death was not primed. Terror management theory’s basic postulate is that worldview validation is a distal defense enacted when thoughts of death are not in immediate focal attention, requiring the use of distraction tasks (Arndt, Greenberg, Pyszczynski, et al., 1997). However, thoughts of death do not stay on one’s mind forever. This decay suggests that the effects of mortality salience are limited to a specific duration of time, creating the possibility that the distraction tasks used in this study may have taken too long.
Participants played cyberball approximately 10 after the MS prime, making it possible that behaviors and attitudes were assessed after participants had already dealt with the unconscious awareness of their own mortality. The fact that the results of attitude and trait ratings, assessed even later in the study, mirrored the results of toss percentage data, provide further support for the possibility that thoughts of death were no longer primed when participants were playing cyberball. However, the distraction tasks employed in this study were the exact same as those in previous research (Greenberg et al., 1994; Schimel et al., 1999), suggesting that thoughts of death should have been primed.

**Explicitness of Cyberball**

Assuming thoughts of death were primed, it is also possible that cyberball and the act of playing catch with three other individuals may have been too explicit. Previous research using very similar methodologies to the current study have demonstrated that mortality salience causes participants to derogate or even aggress toward a worldview-threatening target (e.g., McGregor et al., 1998). However, the methodologies used in these studies allowed participants to remain anonymous, assessing derogation through written critiques of essays (Dechesne, Janssen, et al., 2000) or aggression through allocation of hot sauce to a target in another room (McGregor et al.). Research in the aggression literature commonly finds that people are more likely to be aggressive when they are anonymous or in states of deindividuation (Zimbardo, 2004). Perhaps cyberball was too explicit a measure and participants felt identifiable. In the paradigm, participants were led to believe that their picture acted as an identifier for the other students to choose to whom to throw. This lack of anonymity may have caused participants to be influenced
by social desirability, making them more likely to attempt to equally distribute tosses to all targets and therefore negating any measurable effects of mortality salience.

Evidence from self-reported avoidance ratings, however, suggests that the explicitness of cyberball was not an issue. The self-reported avoidance indices computed from attitude favorability measures were congruent with overt behavior. Participants reported higher avoidance ratings toward the stereotype consistent target than the neutral or stereotype inconsistent target, and these ratings were unaffected by mortality salience. Perceived percentage of tosses demonstrated a similar pattern and was not affected by mortality salience. However, these toss percentage estimations were highly correlated with actual percentage of tosses to each target, suggesting that participants may have simply been honestly estimating how often they tossed the ball to each target. Together, the results of these two extra measures suggest that anonymity may not have been a major issue with the study. However, it should be noted that these measures were not intended to be dependent measures and were not placed at times that would be optimally affected by mortality salience, and thus may not be adequate measures of avoidance in relation to thoughts of death.

**Worldview-Threats and TMT**

Another possibility explaining why mortality salience had little to no effect on results deals with how people generally react to worldview-threats after mortality salience. Research in TMT finds that participants will either derogate or aggress toward a worldview-threat, depending on which option comes first (McGregor et al., 1998). This differential usage suggests that derogation or aggression has a cathartic effect in regard to
worldview validation. In regard to the current study, participants may have differentially interacted with targets at the beginning of the game and later changed behavior as negative attitudes toward the worldview-threat decreased. However, the patterns of tosses in the data do not suggest that participants differentially preferred any of the targets at the beginning of the sessions compared to the end. In fact, participants generally tended to toss the ball to targets in a circular pattern throughout sessions.

As stated previously, there is a strong possibility that death may have no longer been primed when participants were given the attitude and trait ratings toward targets due to the duration of time that elapsed after the mortality salience prime. These measures were taken approximately 15-20 minutes after the death prime, whereas previous literature suggests that distraction tasks should take approximately 3-5 minutes (T. Pyszczynski personal communication, October 2, 2008). However, there is evidence that mortality salience did still have an effect even after this extensive time span. According to regression analyses predicting attitude favorability, need for closure moderated the effects of mortality salience on attitude ratings toward the stereotype consistent target, suggesting that death may have still been primed when completing attitude and trait measures. Participants high in need for closure rated the stereotype consistent target less positively, but only in the mortality salience condition. Participants in the control condition were unaffected and demonstrated no preference.

This finding, that MS decreased favorability toward a worldview-validating target, is in direct contradiction with hypotheses and previous findings in the TMT literature that have demonstrated that mortality salience increases preferences for
stereotype confirming information, and that this preference is generally seen only in those high in need for closure. However, this single finding may actually demonstrate that mortality salience did cause participants to prefer a worldview confirming target. Mortality salience may have caused participants to prefer a target that confirmed their moral values (i.e., validated their worldviews of morality). Rosenblatt et al. (1989) demonstrated that people prefer information that is congruent with their moral values after mortality salience and subsequently demonstrated that these values influenced sentencing of an alleged prostitute. Perhaps the descriptions used to manipulate stereotypicality primed moral values in participants, causing them to differentiate targets by their consistency with participants' own moral values instead of consistency with stereotypes.

In support of this moral values possibility, there was a significant sex difference in percentage of ball tosses and attitude favorability in which men seemed to prefer and toss the ball more to a stereotype consistent target than women did. Again, this preference in tossing behavior could be due to the manipulation of stereotypicality. The stereotype consistent target spoke of women as objects and was presented as being more promiscuous than the neutral and stereotype inconsistent targets. Because of the way in which the stereotype consistent target was represented, specifically in regard to attitudes and behaviors toward women, women may have reacted even more harshly toward the stereotype consistent target than men.

An alternative explanation for the observed sex difference in tossing behavior may be related to each sex's general use and need for stereotypes. Men are generally
higher in social dominance orientation, which is characterized by attitudes that endorse inequality in favor of one’s in-group (Sidanius, Pratto, & Bobo, 1994). In fact, Sidanius et al. state that “SDO is conceptually and empirically related to beliefs and attitudes such as racism, nationalism, and political conservatism” (p. 999). One possibility is that men may have preferred and tossed the ball more to the stereotype consistent target than women because of this endorsement of stereotypical beliefs that would coincide with their worldview. However, comparisons showed that women were the only participants to be significantly impacted by the targets’ stereotypicality, throwing to the stereotype consistent target less often and the stereotype inconsistent target more often than expected by chance. This finding further supports the hypothesis that perhaps women were responding to the content of the stereotype consistent description.

Self Ratings

Interestingly, analysis of self ratings found that both attitude and trait self-ratings were significantly different from pre-interaction to post, but not in the same direction. Attitude ratings decreased after playing cyberball, but trait ratings actually increased. These self-ratings were not affected by mortality salience, suggesting that some other variable influenced attitude and trait ratings differentially. It is important to note that participants were instructed to complete these measures as they thought the other fictitious students would rate them. Perhaps being exposed to the three out-group targets influenced self-perceptions out of comparison. Attitude ratings were framed in a more behavioral context (e.g., “I think this person would be interested in socializing with me”). Perhaps after discovering that all three targets were African American, participants felt
like more of an out-group member due to their race thus influencing participants' self judgments negatively.

Participants rated themselves more positively on generally stable trait dimensions after interacting with the three targets, suggesting that they did feel better about themselves after interaction. This increase in trait self-ratings could be the result of participants comparing themselves to the other three targets. However, in the context of the questions asked, this conclusion seems inappropriate. Participants were rating themselves as they thought the other students would rate them. Participants may have thought that the other fictitious students would rate them higher because they were the only White participant in the session, and stereotypes toward Whites are more commonly positive rather than negative (Cuddy, Fiske, & Glick, 2007). Another possibility is that due to being the only out-group member, participants may have had an increased need to bolster self-esteem on these stable trait dimensions that are generally considered dispositional, whereas lower scores on the attitude measures could be explained through situational contexts (e.g., “all the other students were African American or dissimilar from myself”). Due to the nature of the study, it is very difficult to determine why these self ratings were differentially influenced.

Implications

Terror Management Theory

The results of this study demonstrate that the effects of mortality salience may not be as omnipresent as once proposed. Previous literature suggesting that mortality salience influences overt behavior such as derogation and aggression have never explicitly tested
the theory in regard to avoidance of a worldview-threat. To date, there is only one unpublished study that demonstrates that mortality salience causes participants to avoid a worldview-threatening target (Ochsman & Mathy, 1994, as cited in Solomon et al., 2004). Although this study could have very easily demonstrated avoidance of a worldview-threat, it also could have merely demonstrated that mortality salience increased in-group identification, leading participants to sit closer to a fellow in-group member.

The current study incorporated a measure to identify whether results were merely an artifact of increased in-group identification. Although participants rated the stereotype consistent target as the least similar to themselves and consequently tossed the ball less often to this target in comparison to the other targets, the neutral target was rated as being most similar. Participants threw the ball relatively equally to the stereotype inconsistent and neutral target, suggesting that avoidance was not a result of increased in-group identification.

Related to this increased in-group identification hypothesis, it could also be argued that participants may have felt like more of an out-group member if they believed the target was from another school (i.e., the target was not only a different race, but was also from a different school). In the study, participants were told that the targets could be from their school or a different one (Tennessee State University; TSU), and some may have assumed that the African American targets were from Tennessee because of the relatively low prevalence of African Americans at their school. However, chi square analysis showed that only the neutral and stereotype consistent targets were categorized
as being from TSU significantly more often than expected by chance suggesting that behavioral and attitude preferences were not a result of increased in-group (i.e., school) identification.

It could also be argued that if results were due to group identification, women would be most affected because all targets were men, making women a double or even triple out-group member (i.e., the targets were not only African American and from another school, but they were all a member of the other sex as well). However, as discussed earlier, women were more discriminatory toward the targets based on their perceived consistency with African American stereotypes, which further suggests that participants' avoidant behavior was not related to group identification, but was in fact directly influenced by the stereotypicality of the targets.

The results of this study also imply that attitudes (vs. behaviors) may be more strongly influenced by mortality salience. Effect sizes are far greater in studies using attitude measures (e.g., Schimel et al., 1999) than those using behavioral measures (e.g., McGregor et al., 1998). Although the current study failed to find significant effects of mortality salience, effect sizes related to preferences and behavior toward each target demonstrated a similar trend to that of previous research. The effect sizes were far greater for attitude and self-report measures than for behavioral measures. This attitude-behavior disparity further suggests that although mortality salience does influence attitudes and behavior, the ramifications may be less pronounced than TMT would suggest (i.e., Solomon et al., 2004).
Stereotypes and Prejudice

Interestingly, the results of this study demonstrate that people will attempt to avoid interaction with, and report general dislike for, an African American who confirms their stereotypes in comparison to an individual that discredits these stereotypes. This differential avoidance results in two very different implications. First, this demonstrates that people will interact more with African Americans who are inconsistent with their stereotypes, suggesting that prejudiced attitudes may not be strictly associated with an African American's race, but to the extent he or she confirms those stereotypes. Research on Dovidio and Gaertner's (1998) Integrated Model of Racism suggests that political conservatives, in particular, may use stereotypes to justify prejudice and report less prejudice toward those targets who are less stereotypical (Harton & Nail, in press; Harton, Wadian, Nguyen, & Nail, 2009; Nail, Harton, & Decker, 2003; also see Sniderman, Piazza, Tetlock, & Kendrick, 1991).

The second, and more pessimistic, implication of this study suggests that avoiding stereotypical African Americans will only perpetuate the problem. This avoidance may result in actual social exclusion or feelings of social exclusion, which has its own negative effects on the person being excluded. Social exclusion often evokes feelings of distress in the person being ostracized and has been found to activate parts of the brain associated with actual exposure to physical pain (Eisenberger, Lieberman, & Williams, 2003). Being excluded can increase hostility (Downey & Feldman, 1996; Downey, Frietas, Michaelis, & Khouri, 1998; Feldman & Downey, 1994), reduce self-esteem (Williams et al., 2000; Zadro et al., 2004), create social loafing (Williams & Sommer,
1997), increase avoidance of social interactions that could result in further exclusion (Downey & Feldman, 1996), and even impair cognitive performance on complex cognitive tasks (Baumeister et al., 2002). Interestingly, research has found that these and other effects of being socially excluded are unaffected by closeness to the group or by the situation (Eisenberger et al., 2003; Gonsalkorale & Williams, 2007). For example, people are just as distressed from being ostracized by a KKK member as an in-group or rival out-group member (Gonsalkorale & Williams). The culmination of this research suggests that being excluded or avoided can in fact make an individual act more “hostile,” “lazy,” and “unintelligent,” possibly causing African Americans to demonstrate characteristics that are consistent with the very stereotypes that are causing them to be avoided.

Limitations and Future Research

There are several limitations to this study that urge caution in interpreting the effects (or lack of, in this case) of mortality salience on behavior. This study was originally intended to incorporate a death thought accessibility measure (Greenberg, Arndt, Schimel, Pyszczynski, & Solomon, 2001; Schimel et al., 2007) as a manipulation check to determine whether mortality salience was actually primed. The measure consists of 20 word fragments, 6 of which can be completed with either a word associated or unassociated with death. However, by writing words associated with death, death would again be primed and another distraction task would be needed whereupon it would be unclear whether death was primed at this second time. A follow up study, using this death thought accessibility measure in place of the stereotypic descriptions, is necessary to
determine whether thoughts of death were actually primed when participants read the three targets' summer descriptions and is currently in progress (Wadian, 2009).

As mentioned earlier, cyberball may have itself been a limitation to the current study. It may have not been sensitive enough of a measure to indicate avoidant behavior. Although it has been demonstrated to be a realistic simulation of catch (Eisenberger et al., 2003; Williams & Jarvis, 2006), it has yet to be used as a dependent measure in published research. Similarly, people naturally do not want to ostracize others (Williams, 2007), which suggests that hypothesizing that participants would ostracize or socially exclude a worldview-threatening target may have been unrealistic and counter to people's natural behavior.

The descriptions themselves may also have been a limitation to the study. As suggested earlier, they may have primed moral values or unduly influenced differential preferences between the sexes, specifically in regard to the stereotype consistent description. Schimel et al. (1999) had similar concerns, suggesting that participants were reacting to the specific content of descriptions versus the overall stereotypicality. Further studies, however, found converging evidence that their results were not dependent on attitudes toward the stereotypic description (Schimel et al.). The current study, on the other hand, did not find the same results as Schimel et al., again suggesting the need for further study on explicit behaviors toward a worldview-threat.

Future research should attempt to determine the true duration of mortality salience. It is well documented that mortality salience influences attitudes, but if mortality salience only influences attitudes or behaviors for a limited amount of time
under certain circumstance, how important is it in real life? Much research is needed on explicit behaviors, along with in-depth meta-analyses including null research to better understand the effects of mortality salience, when it occurs, and how much it actually affects behavior.

Future research should also utilize other measures of avoidance, both explicit and implicit, that can allow participants anonymously to demonstrate avoidant behavior. As an example, future research could use a methodology similar to Ochsman and Mathy’s (1994, as cited in Solomon et al., 2004), in which avoidance is measured by how close participants sit to targets, as long as all targets are out-group members to determine whether results were a product of avoidance of a worldview-threatening target or increased in-group identification. Further research should also compare the use of explicit behavioral measures in comparison to anonymous behavioral measures in regards to TMT to determine if the results of the current study were due to the identifiability of participants’ actions.

Conclusions

In conclusion, the current study demonstrates that although previous research has found that mortality salience can influence attitudes and anonymous behaviors, it does not seem to influence overt behavior toward a worldview-threatening out-group member. This finding suggests that death may not influence behavior and social interaction as much as once assumed. On the other hand, stereotypes and target stereotypicality definitely did affect attitudes and behaviors, which led to avoidance of a stereotypical African American male target regardless of mortality salience. The overall findings
suggest that it is not thoughts of death that seem to truly influence whom we avoid or even prefer, but the degree to which they match our stereotypes.
FOOTNOTES

1 An additional analysis tested similarity (e.g., how similar participants felt the target was to themselves) as a covariate. Similarity ratings did not have an effect on percent of ball tosses, *p*s > .18. Similarity toward the stereotype consistent target had a significant effect on favorability ratings, \( F(1, 122) = 29.98, p < .001 \), trait ratings, \( F(1, 122) = 12.37, p = .001 \), and avoidance ratings \( F(1, 122) = 22.29, p < .001 \). However, analyses conducted with and without this similarity rating toward the stereotype consistent target demonstrated similar trends, and it was therefore left out of all analyses to conserve power.

2 A chi-square analysis was conducted on participants’ school affiliation categorization of targets. Analyses suggests that only the stereotype consistent and neutral targets were identified as being from TSU significantly more than chance, \( \chi^2 (1, N = 178) = 6.49, p = .01 \), \( \chi^2 (1, N = 178) = 69.61, p < .001 \), respectively.
REFERENCES


APPENDIX A

SUMMER DESCRIPTION QUESTIONNAIRE

Please write a paragraph describing what you did last summer.
APPENDIX B

MORTALITY ATTITUDES PERSONALITY SURVEY

On the following page are two open-ended questions. Please respond to them with your first, natural response.

We are looking for peoples' gut-level reactions to these questions.
The Projective Life Attitudes Assessment

This assessment is a recently developed, innovative personality assessment. Recent research suggests that feelings and attitudes about significant aspects of life tell us a considerable amount about the individual's personality. Your responses to this survey will be content-analyzed in order to assess certain dimensions of your personality. Your honest responses to the following questions will be appreciated.

1. Please briefly describe the emotions that the thought of your own death arouses in you.

2. Jot down, as specifically as you can, what you think will happen to you as you physically die and once you are physically dead.
The Projective Life Attitudes Assessment

This assessment is a recently developed, innovative personality assessment. Recent research suggests that feelings and attitudes about significant aspects of life tell us a considerable amount about the individual’s personality. Your responses to this survey will be content-analyzed in order to assess certain dimensions of your personality. Your honest responses to the following questions will be appreciated.

1. Please briefly describe the emotions that the thought of dental pain arouses in you.

2. Jot down, as specifically as you can, what you think will happen to you as you experience dental pain and once you have physically experienced dental pain.
APPENDIX C
SUMMER DESCRIPTIONS

Stereotype inconsistent

“I spent the summer on campus, taking a summer engineering class for 9 credit hours. I also worked at a software company around 20 hours a week to help furnish my expenses. I spent my free time playing chess with my roommate and reading. I actually re-read the Lord of the Rings series. I also spent a week with my family touring Europe. The Eiffel tower is amazing! All in all, I had a very productive and exciting summer.”

Stereotype consistent

“All I did dis summer was sit around, watchin BET. that station is tight. If it aint to hot outside me and my boyz kick it by ballin at the courts. When the weekend comes its time to get my party on, its time to hit da clubs lookin for fine lookin honies. Somedays me and my boyz get crunked, holla at some shorties and do our thang. I just be keepin it real.”

Neutral

“I spent the summer stuck in Nashville working as a lifeguard for TSU. I also took a class, since I was stuck here, so I don’t have to stress this semester. I pretty much spent most of my free time hanging out with friends, watching movies, playing my X-box and even went out a couple nights. I also went home a couple times to visit family members and high school friends. Basically, it was a normal summer.”
APPENDIX D

PICTURES
# APPENDIX F

## NEED FOR CLOSURE

Please indicate your level of agreement to the following statements from 1 (strongly disagree) to 6 (strongly agree).

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Prefer not to respond</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I think that having clear rules and order at work is essential for success.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>2. Even after I've made up my mind about something, I am always eager to consider a different opinion</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>3. I don't like situations that are uncertain.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>4. I dislike questions which could be answered in many different ways.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>5. I like to have friends who are unpredictable.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>6. I find that a well ordered life with regular hours suits my temperament.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>7. When dining out, I like to go to places where I have been before so that I know what to expect.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>8. I feel uncomfortable when I don't understand the reason why an event occurred in my life.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>9. I feel irritated when one person disagrees with what everyone else in a group believes.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>10. I hate to change my plans at the last minute.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>11. I don't like to go into a situation without knowing what I can expect from it.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>Prefer not to respond</td>
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</tr>
<tr>
<td>12. When I go shopping, I have difficulty deciding exactly what it is that I want.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>13. When faced with a problem I usually see the one best solution very quickly.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>14. When I am confused about an important issue, I feel very upset.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
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<tr>
<td>15. I tend to put off making important decisions until the last possible moment.</td>
<td>O</td>
<td>O</td>
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<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>16. I usually make important decisions quickly and confidently.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>17. I would describe myself as indecisive.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>18. I think it is fun to change my plans at the last moment.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>19. I enjoy the uncertainty of going into a new situation without knowing what might happen.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>20. My personal space is usually messy and disorganized.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>21. In most social conflicts, I can easily see which side is right and which is wrong.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>22. I tend to struggle with most decisions.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>23. I believe that orderliness and organization are among the most important characteristics of a good student.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>24. When considering most conflict situations, I can usually see how both sides could be right.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>25. I don't like to be with people who are capable of unexpected actions.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>26. I prefer to socialize with familiar friends because I know what to expect from them.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
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<tr>
<td>27.</td>
<td>I think that I would learn best in a class that lacks clearly stated objectives and requirements.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>When thinking about a problem, I consider as many different opinions on the issue as possible.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>I like to know what people are thinking all the time.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>I dislike it when a person's statement could mean many different things.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>31.</td>
<td>It's annoying to listen to someone who cannot seem to make up his or her mind.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>32.</td>
<td>I find that establishing a consistent routine enables me to enjoy life more.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>33.</td>
<td>I enjoy having a clear and structured mode of life.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td>I prefer interacting with people whose opinions are very different from my own.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>35.</td>
<td>I like to have a place for everything and everything in its place.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
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<tr>
<td>36.</td>
<td>I feel uncomfortable when someone's meaning or intention is unclear to me.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>When trying to solve a problem I often see so many possible options that it's confusing.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td>I always see many possible solutions to problems I face.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>39.</td>
<td>I'd rather know bad news than stay in a state of uncertainty.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>40.</td>
<td>I do not usually consult many different opinions before forming my own view.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>41.</td>
<td>I dislike unpredictable situations.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>42.</td>
<td>I dislike the routine aspects of my work (studies).</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>Prefer not to respond</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Agree</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
APPENDIX G

PANAS-X

Please indicate below how descriptive the following traits are of you.

<table>
<thead>
<tr>
<th>Trait</th>
<th>very slightly</th>
<th>a little</th>
<th>moderately</th>
<th>quite a bit</th>
<th>extremely</th>
<th>prefer not to respond</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. cheerful</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
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<tr>
<td>Item</td>
<td>very slightly</td>
<td>a little</td>
<td>moderately</td>
<td>quite a bit</td>
<td>extremely</td>
<td>prefer not to respond</td>
</tr>
<tr>
<td>--------------</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<td>0</td>
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</tr>
<tr>
<td>56. loathing</td>
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<td>57. confident</td>
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<td>58. energetic</td>
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<td>0</td>
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<td>0</td>
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<tr>
<td>59. concentrating</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>60. dissatisfied with self</td>
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</tbody>
</table>
APPENDIX H

GROWING STONE

Research suggests that attitudes and perceptions about even very common everyday items may be related to basic personality characteristics. To further examine this idea, we would like you to complete the opinion questionnaire on the following page with your most natural response.
The automobile swung clumsily around the curve in the red sandstone trail, now a mass of mud. The headlights suddenly picked out in the night—first on one side of the road, then on the other—two wooden huts with sheet metal roofs. On the right near the second one, a tower of course beams could be made out in the light fog. From the top of the tower a metal cable, invisible at its starting-point, shone as it sloped down into the light from the car before disappearing behind the embankment that blocked the road. The car slowed down and stopped a few yards from the huts.

The man who emerged from the seat to the right of the driver labored to extricate himself from the car. As he stood up, his huge, broad frame lurched a little. In the shadow beside the car, solidly planted on the ground and weighed down by fatigue, he seemed to be listening to the idling motor. Then he walked in the direction of the embankment and entered the cone of light from the headlights. He stopped at the top of the slope, his broad back outlined against the darkness. After a moment he turned around. In the light from the dashboard he could see the chauffeur’s black face, smiling. The man signaled and the chauffeur turned off the motor. At once a vast cool silence fell over the trail and the forest. Then the sound of the water could be heard.

The man looked at the river below him, visible solely as a broad dark motion flecked with occasional shimmers. A denser motionless darkness, far beyond, must be the other bank. By looking fixedly, however, one could see on that still bank a yellowish light like an oil lamp in the distance. The big man turned back toward the car and nodded. The chauffeur switched off the lights, turned them on again, then blinked them regularly. On the embankment the man appeared and disappeared, taller and more massive each time he came back to life. Suddenly, on the other bank of the river, a lantern held up by an invisible arm back and forth several times. At a final signal from the lookout, the man disappeared into the night. With the lights out, the river was shining intermittently. On each side of the road, the dark masses of forest foliage stood out against the sky and seemed very near. The fine rain that had soaked the trail an hour earlier was still hovering in the warm air, intensifying the silence and immobility of this broad clearing in the virgin forest. In the black sky misty stars flickered.

How do you feel about the overall descriptive qualities of the story?

not at all  somewhat  very
descriptive  descriptive  descriptive

Do you think the author of this story is male or female?

_______ male  _______ female
APPENDIX I

ATTITUDE AND TRAIT MEASURES

Trait- Self Instructions
Please rate yourself on the following scale as you think the other participants will perceive you from only your picture and the description of your summer by indicating your agreement with the character traits listed below.

Trait-Other Instructions

Please rate the person shown above on the following scale by indicating your agreement with the character traits listed below.

<table>
<thead>
<tr>
<th>Trait</th>
<th>not at all</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>prefer not to respond</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intelligent</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>2. Conceited</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>3. Nice</td>
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<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>4. Arrogant</td>
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<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>5. Antisocial</td>
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<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>6. Trustworthy</td>
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<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
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<tr>
<td>7. Hostile</td>
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<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
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<td>8. Hardworking</td>
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<td>o</td>
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<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
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<tr>
<td>9. Athletic</td>
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<td>o</td>
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<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>10. Friendly</td>
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<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>11. Freeloader</td>
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<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
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<tr>
<td>12. Productive</td>
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<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
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</table>
Attitude rating- Self: Instructions and Measures

Please indicate your level of agreement with the statements below using the following scale. Remember; please rate these statements as you think others will perceive you from your picture and summer description.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>prefer not to respond</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I think people will say that I'm a nice person.</td>
<td>c</td>
<td></td>
<td></td>
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<tr>
<td>2. I think people will say they would be interested in getting to know me.</td>
<td>c</td>
<td></td>
<td></td>
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<tr>
<td>3. I think people will say they would be interested in socializing with me.</td>
<td>c</td>
<td></td>
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<tr>
<td>4. I think people will say they would want to avoid me.</td>
<td>c</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>5. I think people will say that I'm the kind of person they would associate themselves with.</td>
<td>c</td>
<td></td>
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<tr>
<td>6. I think people will say they'd like to talk to me.</td>
<td>c</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>7. I think people will say that they would like to work on a school project with me.</td>
<td>c</td>
<td></td>
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</table>
Please indicate your level of agreement with the following statements about the person above using the following scale.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th>prefer not to respond</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I think I would like this person.</td>
<td>1</td>
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<td>3</td>
<td>4</td>
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<td>6</td>
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</tr>
<tr>
<td>2. I am interested in getting to know this person.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3. I am interested in socializing with this person.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>4. I would avoid this person.</td>
<td></td>
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<tr>
<td>5. This person is not someone I would associate with.</td>
<td></td>
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<tr>
<td>6. I would not want to talk to this person.</td>
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<tr>
<td>7. I would want to work with this person on a school project.</td>
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</tbody>
</table>
APPENDIX J

PERCEIVED FREQUENCY OF BALL TOSSES

1. How often did you toss the ball to each of the other participants on a scale from 0-100% (should add up to 100%).

[Images of participants]
2. How often did the following participants toss you the ball on a scale from 0-100% (should add up to 100%).
APPENDIX K

MANIPULATIONS CHECKS AND FILLERS

Please respond to the following questions about the person shown above

1. Which school do you think this person is from?
   UNI
   TSU

2. How old do you think this person is?

3. What race is this person?

4. How similar is this person to you?
   Not at all
   Very similar

   Prefer not to respond

   Similar

   Not at all

   Very similar

   Prefer not to respond

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   Very similar

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   Similar
5. Do you think this person is religious?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Very Religious</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
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<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
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6. If this person needed help, how likely would you be to help?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Very Likely</th>
</tr>
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<tbody>
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<td>6</td>
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</table>

7. Have you ever met or interacted with this person before?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Don't know</th>
<th>Prefer not to respond</th>
</tr>
</thead>
<tbody>
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8. Do you know this person?

<table>
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<tr>
<th>Yes</th>
<th>No</th>
<th>Don't know</th>
<th>Prefer not to respond</th>
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</table>

9. Please rate on the following scale how stereotypical this person seems for his/her race?

| Not at all | Very Stereotypical |
|------------|                   |
|            |                    |
| 1          | 2                  |
| 3          | 4                  |
| 5          | 6                  |