THE EFFECT OF MORTALITY SALINECE ON

WEAPON BIAS

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2010

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
MASTER OF SCIENCE
July, 2010

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ACKNOWLEDGMENTS

I would like to express my appreciation to my advisor, Dr. Shelia Kennison, and the members of my committee, Dr. John Chaney and Dr Jennifer Byrd-Craven, for their support in this project. I would also like to express my appreciation to Dr. Ed Burkley, Dr. Charles Abramson, and Patricia Alexander for their help in obtaining funding for this project.

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CHAPTER I

INTRODUCTION

In the last 20 years, numerous studies have supported Terror Management Theory's prediction that reminding individuals of their own mortality increases negative bias toward members of other ethnic/racial groups (TMT; Greenberg, Schimel, Martens, Solomon, & Pyszcznyski, 2001; Castano, Yzerbyt, Paladino, & Sacchi, 2002; Nelson, Moore, Olivetti, Scott, 1997). According to TMT, culture provides a death anxiety buffer and self-esteem. When people are reminded of their mortality they react by having a stronger preference for their culture and others who share their worldview. Reminders of mortality also cause individuals to show more disdain for people who do not share their worldview (Greenberg, Pyszczynski, & Solomon, 1986; Solomon, Greenberg, & Pyszczynski, 1991; Greenberg, Solomon, & Pyszczynski, 1997; Solomon, Greenberg, & Pyszczynski, 2004). Reminders of mortality lead to individuals being more likely to exhibit several changes in attitudes and behaviors including a stronger intergroup bias. Possibly one of the deadliest consequences of intergroup bias occurs when police officers misidentify a harmless object as something dangerous. Previous research has shown that individuals are more likely to misperceive a picture of a hand tool as a weapon (i.e., weapon bias) if the picture is preceded by a picture of a Black individual (Payne, 2001;

Payne, Lambert, & Jacoby, 2002). The purpose of the present research is to investigate the possibility that individuals will have a stronger weapon bias after being reminded of their mortality.

TMT is based on the writings of cultural anthropologist Ernest Becker (1973). Becker stated that humans are similar to all other animals in that they have a biological predisposition for survival. The core difference between humans and the rest of the animal kingdom is that humans have the cognitive capabilities to realize that they will die and this realization causes a deep anxiety. To alleviate this anxiety, humans invest in a shared cultural conception of reality or a cultural worldview. These worldviews not only answer existential questions, such as where did we come from and what should we do, but they also provide self-esteem, which buffers the anxiety of mortality. Cultural worldviews also provide an avenue to immortality. By meeting or exceeded the demands of the culture (i.e. high self-esteem), humans can achieve a literal immortality as with religion, or a symbolic immortality. Symbolic immortality can be achieved by contributing to a meaningful society in such a way that will continue after the individual has died. In either case, thoughts of death are pushed to the back of the mind.

To test the theory, the first TMT experiment primed judges with thoughts of their mortality (mortal salience, MS; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon 1989). The judges were assigned to either the MS condition or the control condition. Judges in the MS condition responded to two essays regarding their mortality, while judges in the control condition did not respond to any essay questions. All judges then read a case file of an alleged prostitute and were asked to recommend the bond amount. According to the theory, judges that had been reminded of their mortality should set a

higher bond amount because of a stronger need to punish someone that violates cultural norms. The data supported the theory as judges in the MS condition had a mean bond of $455 while judges in the control condition set a mean bond of $50 (Rosenblatt et al., 1989).

The MS condition most typically used in TMT experiments is having participants write two essays about their mortality (Rosenblatt, et al., 1989). The control group is typically asked to write essays regarding something not related to mortality such as taking a difficult exam or dental pain. While writing essays is the usual method to operationalize MS, participating in a survey next to a funeral home (Pyszczynski et al., 1996), watching fatal accident footage (Nelson et al., 1997), and having the word "death" flashed outside of the participants' conscious awareness (Arndt, Allen, & Greenberg, 2001) have also been used.

According to TMT, one of the functions of culture is to keep the reality of death in the peripheral, so when mortality is brought to the forefront of the mind, several varied behaviors have been shown. Participants are more likely to become aggressive, (McGregor et al., 1998), they have larger responses to phobias and compulsive behavior (Strachan et al., 2007), and they are less likely to use of cultural symbols such as flags or crosses to complete a task (Greenberg, Porteus, Simon, Pyszczynski, & Solomon, 1995). They are also more likely to set higher bonds for those that violate cultural values (Rosenblatt et al., 1989), place attributions of blame on severely injured victims (Hirschberger, 2006), and are more desirous for offspring (Wisman & Goldenberg, 2005). After the MS condition, women restricted their eating (Goldenberg, Arndt, Hart, & Brown, 2005), and participants made an exaggerated consensus estimate (Pyszczynski

et al., 1996). TMT research usually shows the negative impacts of the MS condition, but there are some instances where participants showed an increase in positive attitudes. After the MS condition, mildly depressed people thought that the world had more meaning (Simon, Arndt, Greenberg, Pyszczynski, & Solomon, 1998) and people were more likely to support charities (Jonas, Schimel, Greenberg, & Pyszczynski, 2002), although, the charities supported were in-group charities.

Thus far, one of the strongest effects of the MS condition is in intergroup bias. In Greenberg et al. (2001) white participants were more likely to sympathize with a white racist, and they also gave a shorter prison sentence to a white employer guilty of discrimination against a Black man. After the MS manipulation, Christians had a higher evaluation of other Christians than they did of Jews and Anti-American essays were disliked more (Greenberg et al., 1990). Participants were more likely to blame a Japanese car maker than an American car maker for a vehicle crash after the MS condition, and were more likely to blame the company if it was a Japanese company than they were to blame the driver (Nelson et al., 1997). After MS, Italians were more likely to have a negative view of Germans (Castano et al., 2002), men were less receptive to pro-women courses at a university (Fritsche, & Jonas, 2005), younger people were more likely to distance themselves from older people (Martens, Greenberg, Schimel, & Landau, 2004), and participants were more likely to show bias in a minimal group setting (Harmon-Jones, Greenberg, Solomon, & Simon, 1996). The MS condition has also shown that Iranian participants were more supportive of suicide bombers that attack the United States and American participants were more supportive of attacks that could kill

thousands of civilians in foreign countries (Pyszczynski, Abdollahi, Solomon, Greenberg, Cohen, & Weise, 2006).

Typically, TMT studies have relied on explicit measures to investigate intergroup bias. Explicit measurements of bias consist of asking the participant to respond to a direct question. An example of an explicit question from the Old Fashioned Racism Scale reads, "Black people are generally not as smart as whites," (McConahay, 1986). TMT studies usually remind the participant of their mortality and then ask the participant to rate an out-group target. For instance, in Greenberg et al. (1990), Christian participants were reminded of their mortality and asked to read a profile of a Jewish person and then asked to respond to questions about the Jewish person's intelligence and if they would enjoy working with the Jewish person. While these questions are more indirect and subtle than the Old Fashioned Racism Scale, they do give the participant the opportunity to make a controlled, deliberate decision.

Recent evidence has shown that not only does explicit bias increase after MS, but also implicit bias. While there are differences of opinion of what constitutes implicit (Fazio & Olson, 2003), for the purposes of this document, implicit should be understood as automatic or spontaneous responses that do not allow the participant time for introspection. One of the most widely used measures of implicit bias is the Implicit Association Task (IAT; Greenwald, McGhee, & Schwartz, 1998). The IAT measures automatic associations. For example, individuals are able to associate "flower" and "pleasant" quicker than they can associate "insect" and "pleasant." Previous research has shown that White participants can associate a name generally considered to be White with a pleasant word faster than they can associate a Black name with a pleasant word

because there is a stronger associate strength between White and pleasant than there is with Black and pleasant. In a recent study, participants had a larger effect on the Implicit Association Test after being reminded of their mortality. Participants in the MS condition took longer to sort stereotypical Black names and pleasant words together when compared to the control group (Bradley, Kennison, Burke, & Chaney, 2010).

The purpose of the present research is to investigate the hypothesis that individuals will be more likely to make mistakes when race and time are factors. Police officers are often required to make split-second decisions about who is carrying a weapon and who is not. Previous studies have shown that when a person has to make a quick decision on whether or not something is a weapon, the color of the person can influence the judgment. In Payne (2001), participants were first shown a picture of a Black face or a White face and then a picture of a hand tool or a gun. When participants were forced to make quick decisions, they were more likely to misidentify a tool as a gun if it was preceded by a Black face. A similar study showed that if participant's were instructed to racially profile (use the picture of the face as a basis as to whether the second picture was a tool or a gun) weapon bias increased. Weapon bias also increased if they were told to intentionally avoid using race as a determinant which suggests that by reminding participants of race in any capacity, weapon bias increases (Payne et al., 2002). A similar experiment showed pictures of White or Black men holding various objects (Correll, Park, Judd, & Wittenbrink, 2002). In some of the pictures the men were holding innocuous objects (e.g., cell phone, bottles) and in some of the pictures the men were holding guns. Participants were instructed to press the "shoot" button if the man was armed and the "not shoot" if the man was unarmed. As with the previous research,

participants were more likely to incorrectly "shoot" the men if the men were Black. There is also evidence that event related brain potentials are different among participants with a higher rate of weapon bias (Correll, Urland, & Ito, 2006).

Weapon bias studies attempt to explain why the tragic deaths of Sean Bell, who was shot at 50 times by police officers because of an incorrect assumption there was a gun in his vehicle (Rashbaum & Baker, 2006), and the killing of Amadou Diallo, who was shot at 41 times after reaching into his pocket for his wallet (Barry & Waldman, 2000), occur. There is at least one difference between the lab setting of weapon bias research and the actual situation that police officers face. Police officers are constantly reminded of death. They are shot at, they witness dead bodies, and they hear auditory cues such as "Officer down." In fact, one of the officers in the Diallo shooting remarked that he was afraid for his life.

In the present experiment, we tested the hypothesis that individuals would perform worse on tasks that involve mortality and race and that require quick responses. The present research aims to replicate previous weapon bias studies with the addition of MS. In the present experiment, participants were randomly assigned to either respond to the MS essays or control essays. Each participant then completed the weapon bias task. It is possible that MS will affect the individual's automatic perceptions of what is a weapon. It was predicted that participants in the MS condition would have an increase in errors on the weapon bias task when compared to participants in the control condition. It was specifically predicted that individuals in the MS condition would be more likely to make an error with the pairing Black and Tool reflecting an increase in weapon bias after MS.

CHAPTER II

METHODOLOGY

Participants. 88 (45 female, 43 male) undergraduates who were enrolled in psychology classes at Oklahoma State University took part in the experiment. All participants were White and born in the United States.

Materials and Procedure. All participants first completed a survey containing questions regarding demographics and self-esteem (Rosenberg, 1965). Participants were then randomly assigned to either the control or the MS condition. Participants in the MS condition responded to the two open ended questions of "Please briefly describe the emotions that the thought of your own death arouses in you" and to "Jot down as specifically as you can, what you think will happen to you as you physically die, and once you are physically dead" (Rosenblatt et al., 1989). Participants in the control condition responded to the two following questions: "Please briefly describe the emotions that the thought of your next exam arouses in you" and to "Jot down as specifically as you can, what you think will happen to you as you physically take your next exam, and once you are physically taking your next exam" which have been used as the control condition in previous TMT research (McGregor et al., 1998).

All participants then completed the weapon bias procedure. Participants were first presented with a picture of a face which is the prime stimuli. A total of 24 pictures were used as primes which included 12 pictures of White individuals and 12 pictures of Black individuals. The prime pictures remained on the screen for 200 ms. Participants were then presented with the target stimuli. A total of 12 pictures were used for the target stimuli which included 8 pictures of hand tools and 8 pictures of guns. The target pictures remained on the screen for 100 ms. The computer screen then displayed a visual mask and the participants made the decision on whether they saw a gun or a tool. The exact instructions given to the participant was as follows:

> The next task measures speed and accuracy in responding under distracting conditions. You will see two pictures flashed quickly on screen, one after the other. The first picture will always be a face. Don't do anything in response to the face. This face signals that the second picture is about to appear. Classify the second picture as either a gun or a tool. Press "P" if it is a gun, press "Q" if it is a tool.

All participants received 4 practice trials during which they had 800 ms to respond. During the first critical block, participants were presented with 64 trials in which they had 700 ms to respond. During the final critical block, participants were presented with 64 trials in which they had 200 ms to respond. If a participant did not respond within the time limit for each trial, a series of red X's appeared on the screen for 1 s and participants were reminded to make their decision within the time limit. There was a 500 ms delay between trials. The use of these response times is congruent with previous weapon bias research.

Experimental Design. A 2 (MS/Control) X 2 (prime type) X 2 (object type) X 2 (Deadline) mixed design was used. The between subjects variable was MS/Control. All other variables were within participants' factors.

CHAPTER III

RESULTS

As predicted, participants in the mortality salience condition exhibited greater weapon bias than participants in the control condition. Mean error rates were computed for each participant for each of the pairings (White/Tool, White/Gun, Black/Tool, Black/Gun). Mean error rates were analyzed using analysis of variance (ANOVAs). The means are displayed in Table 1.

Error rates were collapsed across deadlines for the analysis. A 2 (prime type) x 2 (object type) x 2 (condition) revealed a main effect for MS, $F(1, 86) = 4.57$, $p = .03$, $\eta^2 = .05$, revealing that participants in the MS condition had a higher error rate for all pairings combined on the weapon bias task ($M = .24$) compared to participants in the control condition ($M = .20$). The analysis also revealed an interaction between prime type and object type, $F(1, 86) = 8.78$, $p = .004$, $\eta^2 = .09$. Simple comparisons between each individual pairing only the predicted pairing (Black/Tool) was significantly higher in the MS condition when compared to the control condition, $F(1, 86) = 4.07$, $p = .05$, $\eta^2 = .05$. Participants in the MS condition also significantly misidentified Black/Tool significantly more than White/Tool, $F(1, 41) = 4.95$, $p = .03$, $\eta^2 = .11$. Figure 1 displays mean error rates by condition.

To further explore the results a signal detection analysis was conducted (Green & Swets, 1966; MacMillan & Creelman, 2005). A signal detection analysis produces a value for *d*' and a value for the decision criterion. The value for *d*' represents how accurate an individual is at differentiating between threatening targets and nonthreatening targets. It is computed by taking a *z* transformation of the hit rate, or the correct identification of a gun, minus the *z* transformation of false alarms, or the misidentification of a gun. The equation for *d*' is written $d' = z(\mathrm{H}) - z(\mathrm{F})$. The value for the decision criterion reflects what the threshold is for determining whether or not an object is threatening. For example, if an individual sets a low decision criterion for threatening targets they will be likely to produce more false alarms which would reflect in error rates. The equation for the decision criterion is written $c = -1/2[z(\mathrm{H}) + z(\mathrm{F})]$. Using a signal detection theory analysis it was also found that individuals in the MS condition set a lower threshold for dangerous objects when the object was preceded by a picture of a Black individual.

The signal detection analysis only had significant findings in the first block with the deadline of 700 ms. An ANOVA was conducted on the values for *d*' and revealed a main effect for MS. Participants in the MS condition had significantly smaller values for d' ($M = 2.52$) compared to the control group ($M = 2.91$), $F(1, 86) = 5.22$, $p = .03$, $\eta^2 = .06$, showing that participants in the MS condition were less able to differentiate between threatening and non-threatening objects. Simple comparisons were conducted and revealed that individuals in the MS condition had a significantly lower *d*' for White primes ($M = 2.44$) than control group participants ($M = 2.86$), $F(1, 86) = 5.54$, $p = .02$, $\eta^2 = .06$. Individuals in the MS condition also had a smaller *d*' for Black primes ($M = 2.59$)

than individuals in the control condition (M = 2.96). This difference was marginally significant, $F(1, 86) = 3.54$, $p = .06$, $\eta^2 = .04$. Mean *d*' are displayed in Figure 2 by prime type and condition.

Analysis of the decision criterion revealed a significant interaction between the decision criterion and condition, $F(1,86) = 3.93$, $p = .05$, $\eta^2 = .04$. This interaction is displayed in Figure 3. Simple comparisons revealed a marginally significant difference within the MS condition between the decision criterion for White primes and Black primes, $F(1,41) = 3.73$, $p = .06$, $\eta^2 = .08$. This shows that individuals in the MS condition were more likely to set a lower decision criterion for dangerous objects if the object had been preceded by a picture of a Black individual. Also of note is that decision criterion for both White and Black primes in both conditions is below zero. This shows that participants as a whole were more likely to misidentify non-threatening objects than threatening objects. Put simply, the participants were more "trigger happy" than cautious.

CHAPTER IV

DISCUSSION

Previous weapon bias research has shown that individuals are more likely to misidentify harmless objects as dangerous objects when that object is associated with a picture a Black individual (Payne, 2001; Payne, et al., 2002). Additionally, previous TMT research has shown that intergroup bias increases after individuals are reminded of their mortality (Greenberg, et al., 2001; Castano, et al., 2002; Nelson, et al., 1997). Because of the effects of MS on intergroup bias it was predicted that participants that had been reminded of their mortality would exhibit a stronger weapon bias.

The results revealed several significant findings. Most congruent with the hypothesis was the result that MS did significantly increase error rates on the task compared to the control group. Participants in the MS condition had the highest error rates for the pairing of a tool with a picture of a Black individual reflecting a pattern of weapon bias. A signal detection theory analysis (Green & Swets, 1966; MacMillan & Creelman, 2005) also revealed that participants in the MS condition had a more difficult

time differentiating between threatening objects and non-threatening objects compared to control group participants. This analysis also revealed that participants in the MS condition had a more difficult time differentiating between threatening objects and non-threatening objects compared to control group participants. This analysis also revealed that participants in the MS condition set a lower threshold for threatening objects if the object was preceded by a picture of a Black individual.

These results have the potential to provide insight into real-world misidentifications of non-threatening objects as threatening objects at times when thoughts of mortality are high. Because MS did have an effect on the error rates it may provide insight into why incidents like the tragic death of Sean Bell occur. These results may be among the first to explain why individuals who are placed in dangerous situations may be more likely to exhibit racial prejudice when mortality is salient and time is an issue. By better understanding the underlying processes that lead to this increased bias, future researchers may be able to find ways to help reduce bias in these circumstances. For example, future research may lead to the development of interventions designed to reduce bias that can be delivered to individuals who are placed in dangerous situations such as police officers and soldiers.

The results revealed that MS caused an increase in error rates for both stereotype compatible and incompatible pairings. The increase for stereotype incompatible was more pronounced reflecting a pattern of increased weapon bias. The increase in the compatible pairings was somewhat unexpected but is a phenomenon worth further investigation. It is possible that this increase can provide insight into more than just

weapon bias against out-group members. For example, in areas of the world where thoughts of mortality are high, an increase in the misperception of threatening objects regardless of race could provide insight into phenomenon such as death by friendly fire.

The analysis of the decision criterion also showed an interesting effect. After MS participants lowered their threshold for dangerous objects if that object was preceded by a picture of a Black individual. Participants in both conditions regardless of racial prime showed a preference to misidentify tools more than guns. The present research and previous weapon bias research has been conducted in areas of the country that are considered southern states. A possible reason for a preference to misidentify nonthreatening objects is that the participants in this area of the country may be more "trigger happy" than in other parts of the country. This effect could be related to the research into culture of honor that states that individuals from southern states have a stronger disposition towards violence (Nisbett & Cohen, 1996). Future research could be conducted that investigates if participants in this area of the country do have significantly higher false alarm rates compared to other areas of the country. Additionally it could be investigated if individuals from southern states are more likely to respond to thoughts of mortality with violence. An interesting example of the underlying cultural influence of violence for participants in the present research is that their mascot is a gunslinger.

Future research may also further investigate ways to minimize the intergroup bias effects of MS especially for people that are in situations that call for quick decisions when threats of mortality are high. Studies have shown that the negative effects of MS can be decreased in an experimental setting by priming tolerance (for review see Niesta, Fritsche, & Jonas, 2008). Also weapon bias has been reduced through training in an

experimental setting. Participants that completed the weapon bias task on several occasions saw a reduction in bias towards Black individuals (Correll, Park, Judd, Wittenbrink, Sadler, & Keesee, 2007). Although it has not been investigated if this type of training would reflect in real world settings. Previous research has also shown that implicit racism can be reduced by having individuals imagine a counter-stereotypical person (Blair, Ma, & Lenton, 2001). Unfortunately after reminders of mortality individuals prefer a stereotype confirming image of an outgroup member (Schimel et al., 1999). So for future research to be effective in real world settings, such as the life or death situations experienced by police officers and soldiers, not only will it be necessary to lessen stereotypical responses, the future research must also include effective ways of dealing with thoughts of mortality.

REFERENCES

Altemeyer, B. (1981). *Right-wing authoritarianism*. University of Manitoba Press.

Arndt, J., Allen, J., & Greenberg, J. (2001). Traces of terror: Subliminal death primes and facial electromyographic indices of affect. *Motivation and Emotion*, *25*, 253-277.

Barry, D. & Waldman, A. (2000, February, 22). Erecting blue wall of solidarity at the Diallo trial. *The New York Times.*

Becker, E. (1973). *The denial of death.* New York: The Free Press.

Brigham, J. C. (1993). College students' racial attitudes. *Journal of Applied Social Psychology*, *23*, 1933–1967.

Bradley, K. I., Kennison, S. M., Burke, A., & Chaney, J. M. (under revision). *Do reminders of mortality increase implicit bias?*

Castano, E., Yzerbyt, V., Paladino, M., & Sacchi, S. (2002). I belong, therefore, I exist: Ingroup identification, ingroup entitativity and ingroup bias. *Personality and Social Psychology Bulletin*, *28,* 135-143.

Correll, J., Park, B., Judd, C., & Wittenbrink, B. (2002). The police officer's dilemma: Using ethnicity to disambiguate potentially threatening individuals. *Journal of Personality and Social Psychology, 83*, 1314-1329.

Correll, J., Park, B., Judd, C. M., Wittenbrink, B., Sadler, M. S., & Keesee, T. (2007). Across the thin blue line: Police officers and racial bias in the decision to shoot. *Journal of Personality and Social Psychology, 92*, 1006-1023.

Correll, J., Urland, G., & Ito, T. (2006). Event-related potentials and the decision to shoot: The role of threat perception and cognitive control. *Journal of Experimental Social Psychology, 42,* 120-128.

Fazio, R. H. & Olson, M. A. (2003) Implicit measures in social cognition research: Their meaning and use. *Annual Review of Psychology, 54*, 297-327.

Fritsche, I., & Jonas, E. (2005). Gender conflict and worldview defence. *British Journal of Social Psychology, 44*, 571-581.

Goldenberg, J.L., Arndt, J., Hart, J., & Brown, M. (2005). Dying to be thin: The effects of mortality salience and body mass index on restricted eating among women. *Personality and Social Psychology Bulletin, 31*, 1400-1412.

Green, D.M. & Swets, J. A. (1966). *Signal detection theory and psychophysics*. New York: Wiley.

Greenberg, J., Porteus, J., Simon, L., Pyszczynski, T., & Solomon, S. (1995). Evidence of a terror management function of cultural icons: The effects of mortality salience

on the inappropriate use of cherished cultural symbols. *Personality and Social Psychology Bulletin, 21,* 1221-1228.

Greenberg, J., Pyszczynski, T., & Solomon, S. (1986). The causes and consequences of a need for self-esteem: A terror management theory. In R. F. Baumeister (Ed.), *Public self and private self* (pp. 189–212). New York: Springer-Verlag.

Greenberg, J., Schimel, J., Martens, A., Solomon, S., & Pyszcznyski, T. (2001). Sympathy for the devil: Evidence that reminding whites of their morality promotes more favorable reactions to white racists. *Motivation and Emotion, 25,* 113-133.

Greenberg, J., Solomon, S., & Pyszczynski, T. (1997). Terror management theory of self-esteem and cultural worldviews: Empirical assessments and conceptual refinements. In M. P. Zanna (ed.), *Advances in Experimental Social Psychology, Vol. 29,* (pp. 61-139). New York: Academic Press.

Greenberg, J., Solomon, S., Veeder, M., Pyszczynski, T., Rosenblatt, A., Kirkland, S., & Lyon, D. (1990). Evidence for terror management theory II: The effects of mortality salience on reactions to those who threaten or bolster the cultural worldview. *Journal of Personality and Social Psychology, 58,* 308-318.

Greenwald, A.G., McGhee, D.E., & Schwartz, J.L.K. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology, 74,* 1464-1480.

Harmon-Jones, E., Greenberg, J., Solomon, S., & Simon, L. (1996). The effects of mortality salience on intergroup bias between minimal groups. *European Journal of Social Psychology, 26*, 667-681.

Hirschberger, G. (2006). Terror management and attributions of blame to innocent victims: Reconciling compassionate and defensive responses. *Journal of Personality and Social Psychology, 91*, 832-844.

Jonas, E., Schimel, J., Greenberg, J., & Pyszczynski, T. (2002). The scrooge effect: Evidence that mortality salience increases prosocial attitudes and behavior. *Personality and Social Psychology Bulletin, 28*, 1342-1353.

Martens, A., Greenberg, J., Schimel, J., & Landau, M.J. (2004). Ageism and death: Effects of mortality salience and perceived similarity to elders on reactions to elderly people. *Personality and Social Psychology Bulletin, 30*, 1524-1536.

McConahay, J. (1986). Modern racism, ambivalence, and the Modern Racism Scale. *Prejudice, discrimination, and racism* (pp. 91-125). San Diego, CA, US: Academic Press.

McGregor, H.A., Lieberman, J.D., Greenberg, J., Solomon, S., Arndt, J., Simon, L., & Pyszczynski, T. (1998). Terror management and aggression: Evidence that mortality salience motivates aggression against worldview-threatening others. *Journal of Personality and Social Psychology, 74*, 590-605.

Macmillan, N., & Creelman, C. (2005). *Detection theory: A user's guide (2nd ed.)*. Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.

Nelson, L.J., Moore, D.L., Olivetti, J., Scott, T. (1997). General and personal mortality salience and nationalistic bias. *Personality and Social Psychology Bulletin, 23,* 884-892.

Niesta, D., Fritsche, I., Jonas, E. (2008). Mortality salience and its effects on peace processes: A review. *Social Psychology 39,* 48-58.

Nisbett, R., & Cohen, D. (1996). *Culture of honor: The psychology of violence in the South*. Boulder, CO US: Westview Press.

Payne, B. K. (2001). Prejudice and perception: The role of automatic and controlled processes in misperceiving a weapon. *Journal of Personality and Social Psychology, 81,* 181-192.

Payne, B., Lambert, A., & Jacoby, L. (2002). Best laid plans: Effects of goals on accessibility bias and cognitive control in race-based misperceptions of weapons. *Journal of Experimental Social Psychology, 38,* 384-396.

Sidanius, J., & Pratto, F. (1999). *Social dominance: An intergroup theory of social hierarchy and oppression*. New York, NY US: Cambridge University Press.

Pyszczynski, T., Abdollahi, A., Solomon, S., Greenberg, J., Cohen, F., & Weise, D. (2006). Mortality Salience, Martyrdom, and Military Might: The Great Satan Versus the Axis of Evil. *Personality and Social Psychology Bulletin, 32,* 525-537.

Pyszczynski, T., Wicklund, R.A., Floresku, S., Kock, H., Gauch, G., Solomon, S., & Greenberg, J. (1996). Exaggerated consensus estimates in response to incidental reminders of mortality. *Psychological Science, 7,* 332-336.

Rashbaum, W.K. & Baker, A. (2006, December 11). 50 bullets, one dead, and many questions. *The New York Times.*

Rosenberg, M. (1965). *Society and the Adolescent Self-Image*. Princeton, NJ: Princeton University Press.

Rosenblatt, A., Greenberg, J., Solomon, S., Pyszczynski, T., & Lyon, D. (1989). Evidence for terror management theory: I. The effects of mortality salience on reactions to those who violate or uphold cultural values. *Journal of Personality and Social Psychology*, *57*, 681-690.

Schimel, J., Simon, L., Greenberg, J., Pyszczynski, T., Solomon, S., Waxmonsky, J., et al. (1999). Stereotypes and terror management: Evidence that mortality salience enhances stereotypic thinking and preferences. *Journal of Personality and Social Psychology, 77*, 905-926.

Simon, L., Arndt, J., Greenberg, J., Pyszczynski, T., & Solomon, S. (1998). Terror management and meaning: Evidence that the opportunity to defend the worldview in response to mortality salience increases the meaningfulness of life in the mildly depressed. *Journal of Personality*, *66*, 359-382.

Solomon, S., Greenberg, J., & Pyszczynski, T. (1991). A terror management theory of social behavior: The psychological functions of self-esteem and cultural worldviews. *Advances in Experimental Social Psychology*, *24*, 93-159.

Solomon, S., Greenberg, J., & Pyszczynski, T. (2004). The cultural animal: Twenty years of terror management theory and research. *Handbook of Experimental Existential Psychology* (pp. 13-34). New York: The Guilford Press.

Strachan, E., Schimel, J., Arndt, J., Williams, T., Solomon, S., Pyszczynski, T., & Greenberg, J. (2007). Terror mismanagement: Evidence that mortality salience exacerbates phobic and compulsive behaviors. *Personality and Social Psychology Bulletin, 33*, 1137-1151.

Wisman, A., & Goldenberg, J.L. (2005). From the grave to the cradle: Evidence that mortality salience engenders a desire for offspring. *Journal of Personality and Social Psychology, 89*, 46–61.

TABLE 1

Mean Error Rates by Prime, Target, Condition, and Deadline

Deadlines Combined

	Black		White	
	Tool	Gun	Tool	Gun
MS	.29 (.02)	.20 (.02)	.25 (.02)	.23 (.02)
Control	.23 (.02)	.16 (.02)	.23 (.02)	.18 (.02)

Deadline 200ms

	Black		White	
	Tool	Gun	Tool	Gun
MS	.41 (.03)	.30 (.02)	.36 (.03)	.32 (.03)
Control	.38 (.03)	.26 (.02)	.35 (.03)	.30 (.02)

Deadline 700ms

	Black		White	
	Tool	Gun	Tool	Gun
MS	.16 (.02)	.10 (.02)	.14 (.02)	.13 (.02)
Control	.09 (.02)	.06 (.02)	.10 (.02)	.07 (.02)

FIGURE 1

Mean Error Rates by Prime, Target, and Condition Collapsed over both Deadlines

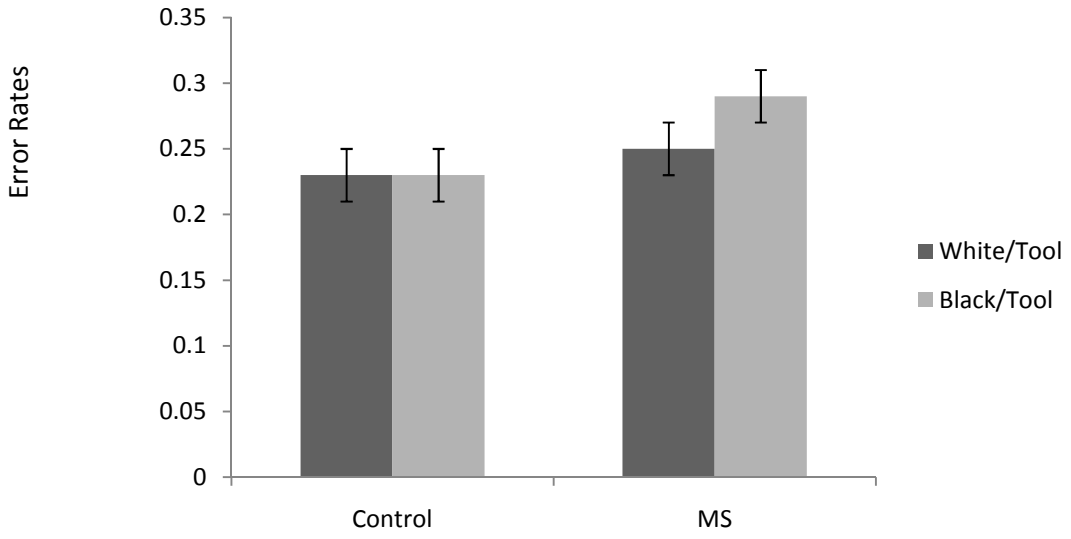


FIGURE 2

Mean *d*’ by Prime and Condition

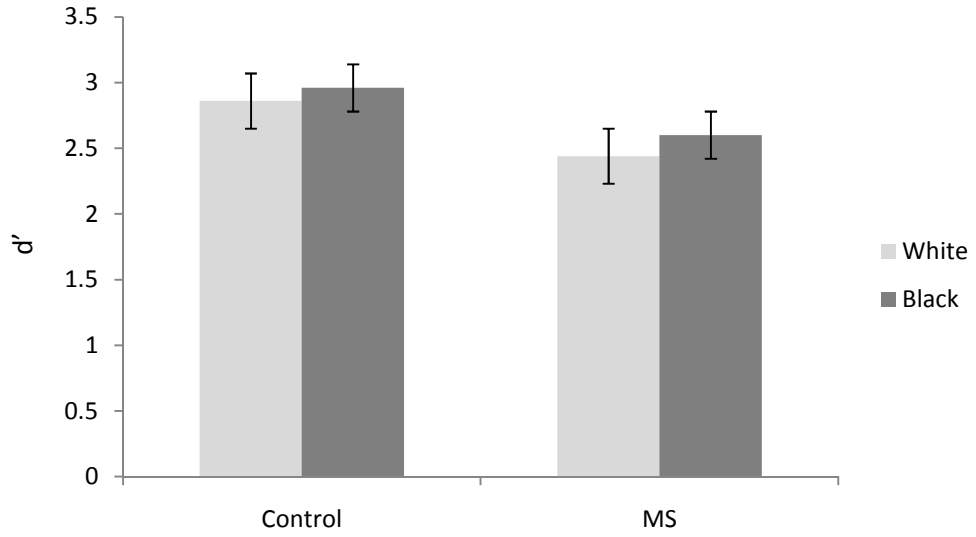
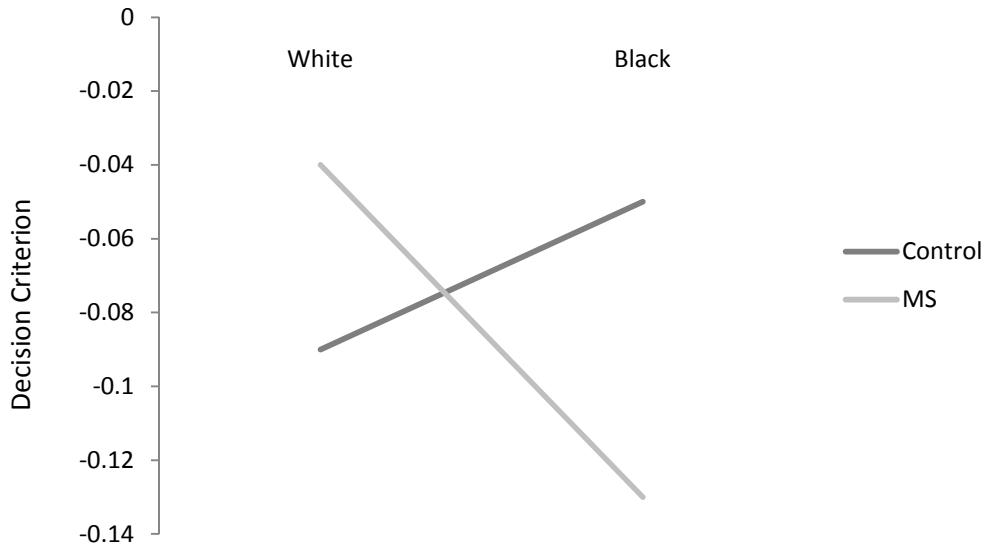


FIGURE 3

Mean Decision Criterion by Prime and Condition



VITA

Kristopher Bradley

Candidate for the Degree of

Master of Science

Thesis: THE EFFECT OF MORTALITY SALIENCE ON WEAPON BIAS

Major Field: Psychology

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Name: Kristopher Bradley Date of Degree: July, 2010

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: THE EFFECT OF MORTALITY SALIENCE ON WEAPON BIAS

Pages in Study: 29 Candidate for the Degree of Master of Science

Major Field: Psychology

Scope and Method of Study: The research tested the hypothesis that reminding individuals of their mortality would increase weapon bias as predicted by terror management theory (TMT, Greenberg, Pyszczynski, & Solomon, 1986). Prior research has shown that mortality salience increases both explicit prejudice (i.e. self-report questionnaires) and implicit bias (Bradley & Kennison, 2009). In this experiment, participants were randomly assigned to either describe the emotions that the thought of their own death aroused in them (mortality salience, MS) or to describe their feelings toward an upcoming exam (control). All participants then completed a computer task where a picture of a White individual or a picture of a Black individual was flashed. This picture was followed by a picture of a hand tool or of a weapon. This task is referred to as the weapon bias task. Previous research has shown that individuals are more likely to misidentify a hand tool as a weapon when it is preceded by a picture of a Black (versus White) individual.

Findings and Conclusions: Participants that had been reminded of their mortality had higher error rates on the weapon bias task than participants in the control condition. An interaction was also found between the Primes (White/Black) and Targets (Tool/Gun). Exploring this interaction revealed that participants were more likely to misidentify a tool as a gun if that target had been preceded by a picture of a Black individual. Further exploration of the results revealed that this difference was significant for the MS condition. Participants that had been reminded of their mortality had an increase in weapon bias when compared to the control group.

ADVISER'S APPROVAL: Dr Shelia Kennison