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The Relationship Between Mortality Salience and the Two Subtypes of Narcissism

An Honors Program Project Presented to

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College of Health and Behavioral Studies

James Madison University

By Rianna Hiu Yan Yung

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Abstract

Terror management theory (TMT) posits that a psychological conflict ("terror") is created when human beings are reminded of their own mortality (Solomon, Greenberg, & Pyszczynski, 1991). This experimental study examines whether the impact of mortality salience on self-esteem is moderated by individual differences in narcissism. There are two subtypes of narcissism, namely grandiose narcissism and vulnerable narcissism. Grandiose narcissism is associated with higher self-esteem, whereas vulnerable narcissism is associated with lower self-esteem. Participants (*N* = 437) completed an online survey that consisted of the Rosenberg Self-esteem Inventory, the Pathological Narcissism Inventory, a mortality salience manipulation or the control task, and two manipulation check measures. Results revealed that there was no significant difference between the mortality salience condition and the control condition in the change in self-esteem (hypothesis 1), and that grandiose narcissism and vulnerable narcissism were highly correlated (hypothesis 2). None of the variables (mortality salience, vulnerable narcissism, grandiose narcissism) are significant predictors for the change in self-esteem (hypothesis 3). Possible explanations for these findings were then discussed.

Introduction

The thought of death is disturbing to most people. Yet, death is inevitable to everyone. Balancing the desire to live and the inevitability of death is an existential dilemma (Pyszczynski, Greenberg, & Solomon, 1997). Thus, the human mind attempts to banish the thoughts of death from the conscious mind by activating two defense mechanisms to alleviate anxiety, namely proximal and distal defenses (Hayes, Schimel, Arndt, & Faucher, 2010). Proximal defenses involve conscious behaviors. For example, people engage in health-related activities like regular health checks, dietary control, and putting on sunscreen in order to prevent health problems that ultimately lead to death (Goldenberg & Arndt, 2008). Nevertheless, most of the time, as the thought of death is too distressing to bear, it is hidden in the unconscious mind so that it will not affect people's everyday activities. Initiating death thoughts in the unconscious mind then triggers off distal (unconscious) defense mechanisms (Hayes, Schimel, Arndt, & Faucher, 2010).

Terror Management Theory (TMT) is a theory that explains how proximal and distal defense mechanisms are employed to defend against the anxiety provoked by thoughts of death (Greenberg, Pyszczynski & Solomon, 1986; Pyszczynski et al., 1997). Findings from TMT research have been applied to change health-related behaviors in the short-term, although no positive outcomes were achieved in long term (Goldenberg & Arndt, 2008).

This study examines whether or not mortality salience affects individuals' self-esteem differently depending on their levels of grandiose and vulnerable narcissism. This study also examines the relationship and differences between the two subtypes of narcissism.

Terror Management Theory

Terror Management Theory (TMT) posits that a psychological conflict ("terror") is created when human beings are reminded of their own mortality (Greenberg, Pyszczynski &

Solomon, 1986; Pyszczynski et al., 1997). It also states that this fear of death is unique in human beings, and that people's goal-directed behaviors will be paralyzed if the fear remains untreated (Greenberg et al., 1986; Pyszczynski et al., 1997). TMT proposes that anxiety about death is reduced by increased self-esteem or an enhancement of one's worldview (Pyszczynski et al., 1997). Worldview defense, according to TMT, is a strategy individuals adapt when mortality is salient (Pyszczynski et al., 1997; Arndt, & Greenberg, 1999).

Various studies have compared the effect of different anxiety-provoking conditions such as dental pain and terrorism with the effect of the thought of one's mortality. The results indicate that the effect of thinking about death on one's self-esteem is more profound than other anxiety-provoking conditions (Pyszczynski et al., 1997; Dechesne et al., 2003; Dewa, Ireland, & Ireland, 2014). These findings suggest a unique effect of death-related concerns.

Terror Management Theory and Self-Esteem

As one of the most popular research topics in the psychology field, self-esteem is considered one of the components that define human existence. The desire for high self-esteem is regarded as the key motivation and reason for numerous human behaviors (Crocker & Wolfe, 2001; Pyszczynski, Greenberg, Solomon, Arndt & Schimel, 2004). TMT further highlights the importance of self-esteem in reaction to mortality salience (MS), which refers to the reminder of death in one's consciousness or unconsciousness, or both (Pyszcynski, Greenberg, & Solomon, 1997). The model suggests that high self-esteem increases one's sense of security and protects the individual from being disturbed by thoughts of death. This high self-esteem can be obtained by living up to the cultural worldview or standards set by one's ingroup members (Harmon-Jones et al., 1997). In this strategy, people who were under the threat of the thought of death either support their ingroup or attack their outgroup in order to gain personal security and affirm their

ingroup identity (McGregor et al., 1998). Studies have found that high self-esteem reduced the worldview defense triggered by mortality salience (Arndt & Greenberg, 1999; Harmon-Jones et al., 1997; Major, Kaiser, O'Brien, & McCoy, 2007; Schmeichel et al., 2009).

The study by Harmon-Jones et al. (1997) is an example of how self-esteem is usually measured and used in mortality salience studies. Harmon-Jones et al. (1997) first randomly assigned participants with high self-esteem and those with moderate self-esteem to either the mortality salience condition or a neutral condition. After filling out questionnaires relating to their self-esteem and their personal perspectives about the United States, participants were given essays written by foreign students on their views about the U.S., which included some opinions opposite to the participants. The participants were then asked to evaluate the essays. Harmon-Jones et al. (1997) found that participants with an initial high self-esteem did not respond to the mortality salience as vigorously as participants with moderate self-esteem.

Other studies on self-esteem and TMT, instead of focusing on how self-esteem buffered the mortality salience effects, serve as evidence of how one's self-esteem was boosted (i.e. self-enhancement) after exposure to mortality salience (Dechesne et al., 2003; Goldenberg, McCoy, Pyszczynski, Greenberg, & Solomon, 2000; Greenberg et al., 2010). Greenberg, Kosloff, Solomon, Cohen and Landau (2010) conducted a series of studies on the relationship between mortality salience and people's preferences towards self-esteem-related concepts like fame and popularity. Participants were first given a personality questionnaire regarding their ways of interacting with people. Researchers then randomly assigned the participants into either the mortality salience or pain salience condition. Subsequently, participants were given a survey asking them three key questions to measure their pursuit of fame. This study showed that in the mortality salience condition, participants displayed most interest in becoming well-known,

indicating a desire for self-esteem enhancement in response to mortality salience. While this outcome was not affected by the personality variables measured at the beginning of the studies, the impact of personality on reactions to mortality salience cannot be ruled out. For example, previous literature has shown that high level of neuroticism correlated with an increase in death-related anxiety (Landau & Sullivan, 2015; Loo, 1984, Abdel-Khalek, 1998). The current study specifically looks at the impact of narcissism on self-esteem in response to mortality salience, since both narcissism and mortality salience have a significant effect on self-esteem.

Narcissism

Narcissism is generally understood as the display of exaggerated self-love. Pathological narcissism is the name for narcissism in clinical settings. Pathological narcissism is made up of its two subtypes, grandiose and vulnerable narcissism (Pincus, 2013; Cain, Pincus & Ansell, 2008; Pincus & Roche, 2011). These two subtypes mark the two poles on the continuum describing narcissistic features (Hibbard, 1992; Dickinson & Pincus, 2003; Shulman, 1986). The Pathological Narcissism Inventory (PNI; Pincus et al., 2009) has seven subscales designed to assess one’s level of pathological narcissism. Scales assessing facets of narcissistic grandiosity include exploitativeness, grandiose fantasy, and self-sacrificing self-enhancement. Scales assessing facets of narcissistic vulnerability include contingent self-esteem, hiding the self, devaluing, and entitlement rage.

Grandiose narcissism (also known as overt narcissism) refers to the personality traits associated with grandiosity, entitlement, arrogance, and dominance (Miller et al., 2011). Grandiose narcissists usually regulate self-esteem through “overt self-enhancement, denial of weaknesses, intimidating demand of entitlement, consistent anger in unmet expectations, and devaluation of people that threaten self-esteem” (Dickinson & Pincus, 2003, p.189). Vulnerable

narcissists are described as "inhibited, shame-ridden, and hypersensitive shy type, whose low tolerance for attention from others and hypervigilant readiness for criticism or failure makes him/her more socially passive" (Ronningstam, 2009, p.112). Nonetheless, vulnerable narcissists just like grandiose narcissists are "equally preoccupied with self-enhancing fantasies and strivings and hyperreactive to oversights or unfulfilled expectations from others" (Ronningstam, 2009, p.113). Since narcissism manifests itself differently in the grandiose and vulnerable subtypes, theoretically, there should be a negative weak correlation between grandiose narcissism and vulnerable narcissism as the two subtypes of narcissism consist of opposite characteristics.

Grandiose Narcissism and Self-Esteem

Raskin, Novacek and Hogan (1991) examined the relationships among narcissism, self-esteem, and defensive self-enhancement in four samples. Narcissism in this study was based on the definition of grandiose narcissism. They found that grandiose narcissism was positively correlated with both self-reported self-esteem and observer-rated self-esteem (Raskin, Novacek & Hogan, 1991). Self-reported self-esteem scores were obtained by asking the participants to fill out a measure on how they perceived themselves. Observer-rated self-esteem scores were obtained by having 5 to 12 researchers observing the participants to determine their self-esteem.

On the other hand, Horvath and Morf (2010) suggested that narcissists and individuals with genuine self-esteem differ in their self-ratings and ability to process information regarding worthlessness and grandiosity. In their first experiment, 59 participants first completed two personality questionnaires relating to participants' level of narcissism and self-esteem. After that, they were asked to fill out a self-rating survey, in which they rate the self-descriptiveness of a list of adjectives. Then, without any previous preparation, participants were asked to write down all

the adjectives they could remember within five minutes. Researchers then examined the correlation between the scores on the two personality questionnaires and the proportion of words relating to worthlessness and grandiosity that were correctly remembered. They found that both narcissism and genuine self-esteem were good predictors for grandiosity. Even though the difference did not reach statistical significance, the result showed narcissism was the primary predictor for grandiosity. Importantly, the study found that narcissism had no correlation with worthlessness whereas genuine self-esteem was also a significant predictor for worthlessness. This study highlighted the difference between narcissists and individuals with genuine self-esteem, showing that individuals with genuine self-esteem tend to be somewhat more moderate when adopting self-enhancement strategies (Horvath & Morf, 2010). As there is a difference between narcissists and individuals with genuine self-esteem, it is possible that the groups will react differently to TMT.

Vulnerable Narcissism and Self-Esteem

Various studies haves suggested that grandiose narcissism is positively associated with self-esteem (Maxwell, Donnellan, Hopwood, & Ackerman, 2011). Yet, only few studies have examined the negative correlation between vulnerable narcissism and self-esteem (Pincus, 2009, 2013; Barnett and Womack, 2015). For instance, a study by Maxwell, Donnellan, Hopwood, and Ackerman (2011) examined the correlation between self-esteem and two personality scales on the degree of narcissism. The first scale, the Narcissism Personality Inventory (NPI, Raskin &Terry, 1988) assessed only narcissistic grandiosity. The second scale, the PNI (Pincus et al., 2009) looked at both narcissistic grandiosity and narcissistic vulnerability, but the traits of narcissistic vulnerability were more emphasized, as four out of the seven subscales in PNI were aimed to capture vulnerable narcissism. The study showed that self-esteem was positively

correlated with the NPI and negatively correlated with the PNI. This finding not only suggested that the two scales were related to self-esteem as expected, but also served as evidence that grandiose narcissists and vulnerable narcissists differ in their level of self-esteem.

A study by Barnett and Womack (2015) provided great insight that vulnerable narcissism was associated with an undesired self-concept. This study aimed to determine whether self-discrepancy theory could be extended to explore self-esteem and narcissism. Self-discrepancy theory is a cognitive theory that highlights the gap between how one's self-image is represented and how the individual feels about himself or herself (Higgins, 1987). According to the theory, the larger the actual-ideal self-discrepancy, the lower the self-esteem would be; the larger the actual-undesired discrepancy, the higher the self-esteem would be. The actual-ideal self-discrepancy referred to the amount of mismatch between who the individuals were in reality (actual self) and who they wanted to be ideally (ideal self). The actual-undesired discrepancy referred to the amount of mismatch between who the individuals were in reality and who they did not want to become (Barnett & Womack, 2015). The study found that both actual-undesired self-discrepancy and self-esteem negatively correlated with narcissistic vulnerability at the alpha level of .001 (Barnett & Womack, 2015).

Terror Management Theory and Narcissism

Terror Management Theory was first proposed in 1986, which appears to be a relatively new paradigm compared to other long-standing theories. Similarly, narcissism was not brought under the spotlight until the early 1970s. While there are many academic publications featuring self-esteem (almost 40,000 articles between 2002 and 2007), research on narcissism started to bloom only in the 1970s (Twenge & Campbell, 2010). Since TMT and narcissism are comparatively new to the field, limited publications can be found to link the two concepts.

In fact, the master's thesis by Heshka (2006) is the only one found which directly studied the relationship between mortality salience and narcissism. Heshka (2006) recruited 143 participants and randomly assigned them to a mortality condition or a control condition. Participants first filled out a series of survey items related to their level of narcissism. Participants in the mortality salience condition were given the "Mortality Attitudes Personality Assessment Survey," whereas control condition participants received a questionnaire regarding their preference for television shows. A 5-minute delayed task was then introduced during which the participants were asked to imagine a scenario and how they would behave in that scenario. Finally, participants were given the Over-Claiming Questionnaire 250, targeting the self-enhancement bias.

Although Heshka (2006) found a strong correlation between the overall level of narcissism and self-enhancement, the study failed to discover significant linkages between mortality salience and narcissism. This could be attributed to a focal concern on grandiose narcissism while overlooking the fact that the inflated self-esteem of grandiose narcissists could have acted as a buffer against mortality salience, as previously suggested by Harmon-Jones et al. (1997). This study, however, was different from the Harmon-Jones et al. study (1997), as vulnerable narcissism, which is related to low self-esteem, was taken into concern.

Current Study

Published studies in the field of TMT point to the possibility of a relationship between mortality salience and the two subtypes of narcissism because of the extremes in self-esteem found in narcissists. As vulnerable narcissists start off with a lower self-esteem than "normal" individuals (those located in the middle range of the continuum of narcissism), it is thereby plausible that when vulnerable narcissists are threatened by the thought of death, a bloated self-

esteem will result. Grandiose narcissists start off with a higher self-esteem than average individuals. That high level of self-esteem will then buffer the anxiety aroused by the thought of death. As a result, grandiose narcissists might not end up with a drastic change in self-esteem after the mortality salience. Therefore, it is possible that vulnerable narcissism will predict the change in self-esteem under mortality salience, whereas grandiose narcissism will be a weak predictor for the change in self-esteem under a mortality salience condition.

Hypotheses

The purpose of this study is to examine the relationship between mortality salience and the two subtypes of narcissism. Hypotheses of the study are listed below.

Hypothesis 1: Mortality salience is a significant predictor for the change in self-esteem, as suggested by previous studies.

Hypothesis 2: There is a weak negative correlation between grandiose and vulnerable narcissism.

Hypothesis 3: Vulnerable narcissism is a good predictor for the change in self-esteem in the MS condition. On the contrary, grandiose narcissism is a weak predictor for the change in self-esteem in the MS condition.

Method

Participants

Five hundred participants were recruited though the Psychology and School of Communication Studies participant pools and received course credit in exchange for their full participation. Twenty-two participants were removed from analysis due to incompletion of the survey, and 41 participants were deleted as they failed the Death Thought Accessibility (Rosenblatt et al., 1989) manipulation check. The final sample of the study that was used for data analysis was 437 participants. Of the 437 participants, 210 received the mortality salience manipulation and 227 received the control task. Participants were randomly assigned into the two conditions through Qualtrics.

The sample ($N = 437$) consisted of 363 female, 69 male, and two transgender participants. There were 371 White/Non-Hispanic, 29 Asian/Pacific Island, 29 Hispanic/Latino, 21 Black/African American, 15 Biracial/Multiracial, five Middle Eastern, and two Native American participants. With regards to religious affiliation, 303 participants identified as Christian, 97 participants identified as nonreligious/atheist/agnostic, 21 participants identified as other religion, and 15 participants identified as Jewish. The mean of the age of the participants was 18.5 years old. There were 316 participants who were first-year students, 74 sophomores, 24 juniors, 15 seniors, and six participants who were part of the 2020 graduating class (expecting to complete five years of undergraduate education).

Measures

Mortality Salience (MS) Manipulation. The Mortality Attitudes Personality Assessment Survey (Solomon, Greenberg, & Psyzczynski, 1991) was used for mortality salience manipulation. Two open-ended questions primed the participants. (Appendix A).

In the MS condition:

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.

In the control condition:

1. Please briefly describe the emotions that the thought of experiencing dental pain arouses in you.
2. Jot down, as specifically as you can, what you think will happen to you if experience dental pain.

Self-Esteem. The Rosenberg Self-esteem Inventory (RSI; Rosenberg, 1965) was used to measure participants' pre- and post- self-esteem. The RSI is a 10-item measure of dispositional self-esteem on a five-point Likert scale, with 1 being strongly disagree and 5 being agree. A total self-esteem score was calculated by summing the responses to each item. Cronbach's alpha coefficients for the Rosenberg Self-esteem Inventory was $\alpha = .87$. Cronbach's alpha coefficients for the Rosenberg Self-esteem Inventory was $\alpha = .90$ in the original article (Rosenberg, 1965). (Appendix B)

Narcissism. The Pathological Narcissism Inventory (PNI; Pincus et al., 2009) was used to determine participants' levels of narcissism. The PNI (see Appendix C) is a 52-item scale capturing the levels of pathological narcissism on a 6-point Likert scale, with 0 being "Not at all like me" and 5 being "Very much like me." There are seven subscales within the PNI that assess the specific characteristics of narcissistic grandiosity and narcissistic vulnerability. As the scorings for grandiose narcissism and vulnerable narcissism are calculated separately, each participant generated a score for grandiose narcissism and a score for vulnerable narcissism.

Cronbach's alpha coefficients for the PNI was α = .96. Cronbach's alpha coefficients for the PNI was α = .95 in the original article (Pincus et al., 2009).

Three of the seven subscales assessing facets of narcissistic grandiosity include Exploitativeness (EXP, five items), Grandiose Fantasy (GF, seven items), and Self-Sacrificing Self-Enhancement (SSSE, six items). EXP refers to the need to be manipulative and controlling in interpersonal relationships. GF refers to the engagement of preoccupying thoughts of being empowered and receiving admiration and recognition from people around. SSSE refers to the act of committing intentional altruistic behaviors to reflect their own uniqueness and high moral standard, which contribute to an inflated sense of self. Four of the seven subscales assessing facets of narcissistic vulnerability include Contingent Self-Esteem (CSE, 12 items), Hiding the Self (HS, seven items), Devaluing (DEV, seven items), and Entitlement Rage (ER, eight items). CSE refers to the fluctuation of self-esteem due to the lack of admiration and recognition from others. HS refers to feeling anxious and shameful when disclosing their imperfections to others. DEV refers to the focus of their own weakness and shamefulness over the recognition from others (devaluing of self) or avoiding people who are not providing the needed admiration. ER refers to the rage and anger when their entitled expectation of self is not met.

Manipulation Check. TMT proposes that when mortality salience is induced, individuals attempt to suppress the disturbing thoughts of death through various cognitive strategies, such as religious thoughts and belief in afterlife (McGregor et al., 1998). If they engage in a delay task for several minutes, conscious cognitive strategies fade and the death thought is then readily accessible in his or her unconscious, which ultimately activates other distal defense mechanisms (Arndt, Greenberg, Solomon, Pyszczynski, & Simon, 1997; Simon et al., 1997). The Death Thought Accessibility Measure (Rosenblatt et al., 1989) and the Revised

Death Anxiety Scale (RDAS; Thorson & Powell, 1992) were used as manipulation check to assess the accessibility of the death thoughts in the unconscious mind of participants. The Death Thought Accessibility Measure (Rosenblatt et al., 1989; see Appendix D) consists of 25 word stems, where participants fill letters in the blanks to create words. Examples of the word stems include “BUR_ _D” and “DE_ _”. Six of the 25 word stems are death-related words. They are “BURIED”, “DEAD”, “GRAVE”, “KILLED”, “SKULL”, and “COFFIN”. The number of death-related words each participant filled out was counted.

The RDAS (see Appendix E) is a 25-item scale regarding participants’ feelings and thoughts about death and things associated with death. Each item is rated on a six-point Likert scale, ranging from 1 (Strongly Disagree) to 6 (Strongly Agree). Examples of items include “I am not at all anxious about what happens to the body after burial” and “I hate to think about losing control over my affairs after I am gone”. The RDAS score was generated by calculating the mean response to the 25 items in the scale. The Cronbach’s alpha coefficient for the RDAS was $\alpha = .89$ in the present sample and $\alpha = .80$ in the original article (Thorson & Powell, 1992).

Demographics. Personal information regarding participants’ gender identity, race/ethnicity, religious affiliation(s), major(s), age (in whole years), anticipated graduation year, and their status as a student were collected.

Procedure

Questionnaires were completed online through a secure website hosted at JMU called Qualtrics. The survey started off by asking the participants to consent to participating in the study. Next, participants in both conditions were asked to respond to a series of survey items that include measures on the independent variables (i.e. grandiose narcissism, vulnerable narcissism, self-esteem). Then, participants were randomly assigned to 2 conditions – mortality and neutral

salience respectively. After that, participants received a 10-minute delay task, in which they were asked to complete a word scramble. The purpose of the delay task was to maximize the effect of mortality salience by diverting the thoughts of death from their focal attention (Hayes et al., 2010). Tasks related to vocabularies and words, such as word search puzzles, have been used in previous studies as a neutral filler item (Landau et al., 2004; Pyszczynski et al., 2006). After the delay task, participants were given the Death Thought Accessibility Measure (Rosenblatt et al., 1989), followed by the RDAS (Thorson & Powell, 1992). Then, participants completed the self-esteem measure again in order to measure change in self-esteem. At the end of the survey, participants were asked to provide the demographic information and were debriefed.

Results

The current study aimed to examine the relationship between mortality salience and the two subtypes of narcissism. Data analysis included four parts. The first part looked at the difference between the experimental condition (MS) and the control condition (CC) in the two manipulation check measures in order to determine whether or not death thoughts had been successfully triggered into the participants' unconscious mind. In response to Hypothesis 1, the second part compared the experimental condition to the control condition in their change in self-esteem. The third part of the study evaluated the correlations among the predictor variables, as well as the seven subscales on the PNI. In the fourth part, hierarchical regressions were used to investigate whether the independent variables were predictors for the change in self-esteem.

Manipulation Check

Two independent samples t-tests were run to check the effectiveness of the mortality salience manipulation. Results showed that there was a significant difference between MS group ($M = 2.00$, $SD = .85$) and CC group ($M = 1.65$, $SD = .90$) on the Death Thought Accessibility Measure, $t(428) = 4.25$, $p < .05$, 95% CI [.19, .52] (see Table 1), supporting the effectiveness of the manipulation. Nevertheless, scorings of the Death Anxiety Scale pointed toward an opposite result. No significant difference were found between MS group ($M = 3.52$, $SD = .82$) and CC group ($M = 3.51$, $SD = .87$), $t(435) = .19$, $p = .85$, 95% CI [.-.14, .17]. This brought the effectiveness of the manipulation into question (see Table 1).

Hypothesis 1: Impact of mortality salience on self-esteem

Despite frequent evidence from the literature suggesting that morality salience leads to a rise in self-esteem by activating one's distal defense mechanism, this study did not find a significant relationship between mortality salience and change in self-esteem. An examination of

the mean change in self-esteem showed a slight increase in the MS group (*M* = .14, *SD* = 3.35) and a slight decrease in the CC group (*M* = -.36, *SD* = .87) but the difference was not significant. A two-way mixed ANOVA was performed to determine the effect and the interaction of time (pretest and posttest) and the condition (MS group and CC group) on self-esteem. The main effect of the within-subjects factor time was not statistically significant, $F(1,434) = .653$, $p = .419$, partial $\eta^2 = .002$. The main effect of the between factor condition was not statistically significant either, $F(1,434) = .120$, $p = .730$, partial $\eta^2 = .00$. Yet, a marginally significant interaction between the condition and the time was found, $F(1,434) = 3.25$, $p = .072$, partial $\eta^2 = .007$. The self-esteem of the participants in the MS condition remained unchanged (Pre-test *M* = 20.8, *SD* = 4.39; Post-test *M* = 20.9, *SD* = 5.09) and the self-esteem of those in the CC condition decreased after the control (dental pain) manipulation (Pre-test *M* =21.2, *SD* = 4.79; Post-test *M* = 20.8, *SD* = 5.05), which was contrary to the original prediction.

Hypotheses 2: Relationship between vulnerable and grandiose narcissism

It was hypothesized that there would be a weak correlation between grandiose and vulnerable narcissism (Hypothesis 2). Correlations among the change in self-esteem, grandiose narcissism, vulnerable narcissism, and the seven subscales of the PNI were calculated. Contrary to hypothesis 2, there was a moderate significant correlation between grandiose narcissism and vulnerable narcissism, $r(435) = .68$. Furthermore, the seven subscales were all significantly correlated. Vulnerable narcissism was positively correlated to the change in self-esteem, $r(435) = .03$, and grandiose narcissism was negatively correlated to the change in self-esteem, $r(435) = -.02$. These correlations were not significant. Despite their weak correlation with self-esteem, the direction of the two correlations supported the literatures that grandiose narcissism is positively

correlated with self-esteem, and vulnerable narcissism is negatively correlated with self-esteem (see Table 2).

Hypothesis 3: Relationship between narcissism, mortality salience and change in self-esteem

It was hypothesized that vulnerable narcissism would be a good predictor for the change in self-esteem under the mortality salience condition, whereas grandiose narcissism is a weak predictor for the change in self-esteem (Hypothesis 3). As no difference was found between the MS group and CC group on the change in self-esteem, a hierarchical multiple regression analyses were performed to determine how well MS, vulnerable narcissism, and grandiose narcissism might predict the change in self-esteem across both conditions. The results showed that none of the three variables were significantly predictive of the change in self-esteem. In the first step, MS was used as the dominant predictor, as it has been strongly suggested in the literature that MS is related to changes in self-esteem. In the second step, vulnerable narcissism was added as a predictor. Grandiose narcissism was added in the third step. Theoretically, vulnerable narcissism would be a stronger predictor than grandiose narcissism as vulnerable narcissism indicates lower self-esteem before the manipulation and would therefore end with a more drastic change in self-esteem after the manipulation. Results found that none of the three variables were predictive of the change in self-esteem. Among the three models of the first hierarchical regression, MS was the stronger predictor for the change in self-esteem, $\beta = .09$, $t(435) = 1.78$, $p = .08$. Vulnerable and grandiose narcissism did not differ in their significance as a predictor in this model (see Table 3).

As vulnerable and grandiose narcissism were not found to be predictors of the change in self-esteem in the first hierarchical regression and given that vulnerable and grandiose narcissism

were correlated, a second regression was performed. Similar to the first hierarchical regression, MS was used in the first step as the strongest predictor. Instead of adding vulnerable and grandiose narcissism as individual variable, the mean of the two narcissisms were calculated to form a score for pathological narcissism. Pathological narcissism was added in the second step. Result of the third hierarchical regression pointed toward similar results as found in the first hierarchical regression. MS was a stronger predictor for the change in self-esteem ($\beta = .09$, $p = .08$) than pathological narcissism ($\beta = .002$, $p = .96$) (see Table 4).

Table 1

Comparison of Means and Standard Deviations Between Mortality Salience Condition and Control Condition on Two Measures

	Mortality Salience		Control Condition		
Measures	M	SD	M	SD	*p*
Death Thought Accessibility Measure	2.00	.85	1.65	.90	.00**
Death Anxiety Scale	3.52	.82	3.51	.87	8.46

Note. $^{**}p < .01$

Table 2

Pearson's Correlations Among Grandiose Narcissism, Vulnerable Narcissism, and Seven Subscales under PNI

Variable	GN	VN	SE Change	Contingent Self-esteem	Exploitative -ness	Self-sacrificing Self-enhancement	Hiding the self	Grandiose Fantasy	Devaluing	Entitlement-Range
GN	1.00	.68**	-.02	.57**	.71**	.80**	.53**	.85**	.55**	.59**
VN	.68**	1.00	.03	.89**	.38**	.57**	.76**	.65**	.86**	.81**
SE Change	-.02	.03	1	.01	-.03	.03	.00	-.03	.06	.04
Contingent Self-esteem	.57**	.89**	.01	1.00	.23**	.52**	.61**	.61**	.66**	.65**
Exploitativeness	.71**	.38**	-.03	.23**	1.00	.31**	.24**	.37**	.38**	.44**
Self-sacrificing Self-enhancement	.80**	.57**	.03	.52**	.31**	1.00	.45**	.63**	.45**	.46**
Hiding the self	.53**	.76**	.00	.61**	.24**	.45**	1.00	.56**	.54**	.40**
Grandiose Fantasy	.85**	.65**	-.03	.61**	.37**	.63**	.56**	1.00	.49**	.50**
Devaluing	.55**	.86**	.06	.66**	.38**	.45**	.54**	.49**	1.00	.66**
Entitlement-Range	.59**	.81**	.04	.65**	.44**	.46**	.40**	.50**	.66**	1.00

Note. GN = grandiose narcissism; VN = vulnerable narcissism; SE = self-esteem. ** $p < .01$

Table 3

Hierarchical Regression Predicting Change in Self-esteem

Variable	*β*	SE(*β*)	*t*	*p*	R^2 change
Step 1					
MS	.50	.09	1.80	.07	.01
Step 2					
MS	.49	.08	1.75	.08	.00
VN	.09	.03	.54	.59	
Step 3					
MS	.50	.09	1.78	.08	
VN	.27	.09	1.20	.23	.00
GN	-.30	-.08	-1.18	.24	

Note. MS = mortality salience; GN = grandiose narcissism; VN = vulnerable narcissism.

Table 4

Hierarchical Regression Predicting Change in Self-esteem

Variable	β	SE(β)	t	p	R^2 change
Step 1					
MS	.50	.09	1.80	.07	.01
Step 2					
MS	.50	.09	1.75	.07	.00
PN	.01	.00	.05	.96	

Note. MS = mortality salience; PN = pathological narcissism

Discussion

Hypothesis 1 stated that mortality salience is a significant predictor for the change in self-esteem. This hypothesis was suggested by previous studies. However, this mortality salience effect was not observed in this study and so the hypothesis was not supported. The difference in change in self-esteem between the mortality salience and control condition was marginally significant. The two groups reacted differently to mortality salience even though the direction of the change in self-esteem was different from most of the other studies. A possible explanation for the failure of finding the mortality salience effect is that the mortality salience induction was not strong enough and the thought of death had not been successfully brought into the unconscious mind after the delay task and that the passing of time might have diminished the effect of mortality salience. This however seems not to be the case for this study as the Death Thought Accessibility Measure found a significant difference between the MS and CC groups in their number of death-related words mentioned. This finding indicates that the thought of death had been successfully induced into participants' unconscious minds.

It is important to note that the Revised Death Anxiety Scale (RDAS), the second manipulation check measure, yielded no difference between the two groups in their awareness of death. In previous studies, only the Death Thought Accessibility Measure was used as manipulation (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994; Greenberg, Arndt, Simon, Pyszczynski, & Solomon, 2000; Arndt, Greenberg, Pyszczynski, & Solomon, 1997; Arndt, Greenber, Solomon, Pyszczynski, & Simon, 1997). RDAS was used in this study only as a backup, in case the Death Thought Accessibility Measure did not identify differences between the two groups. RDAS has mostly been used in some other studies outside the TMT field, so there is not much information on whether the statements on RDAS might unintentionally bring

the thought of death back into the participants' conscious mind, activating their proximal defense rather than their distal defense mechanism. Examples of the items include "I fear dying a painful death" and "I am not afraid of a long, slow dying." The direct mentioning of the words "death" and "dying" might put the thought of death into the consciousness for participants not only in the MS group but also in the CC group, narrowing the difference between the two groups in their change in self-esteem, which was measured right after this scale. In addition, some items on the RDAS might have triggered participants' religious affiliations and beliefs. For instance, "not knowing what the next world is like troubles me" and "the subject of life after death troubles me greatly" might encourage participants to think about afterlife, which is an idea that is often related to religions. According to the demographics collected, 77.5% of the final sample (N = 437) identified a religious affiliation. It is supported by other TMT studies that religions/belief in afterlife can be a buffer in response to the anxiety raised by the thought of death (Dechesne et al., 2003; Jonas & Fischer, 2006). Thus, the effect of increase in self-esteem is minimized by the activation of another defense mechanism, i.e., religious beliefs. For future improvement, this possible error could be avoided simply by eliminating the RDAS from the survey.

Hypothesis 2 stated that regardless of the condition, there is a weak correlation between grandiose and vulnerable narcissism. This hypothesis was overruled because a moderate correlation was observed between the two narcissisms. This correlation is not consistent with the theoretical literature on the concepts of grandiose and vulnerable narcissism. In this literature the two types of narcissism are described as conceptually distinct with different features. Grandiose narcissism is described with personality traits associated with grandiosity and entitlement, whereas vulnerable narcissism is described with personality traits associated with hypersensitiveness and inhibited (Dickinson & Pincus, 2003; Ronningstam, 2009). Moreover,

grandiose narcissism is related to a high self-esteem whereas vulnerable narcissism is related to a low self-esteem, and the two narcissisms contain traits that are opposite from one another.

One possible explanation accounted for this finding was the presence of the Barnum effect, also known as the Forer effect. Barnum effect stated that individuals have a tendency to endorse generalized personality descriptions (Todd & Bohart, 2005). Some items on the PNI do seem somehow vague and could be applied on most individuals. For instance, the item "It's hard to show others the weakness I feel inside" is a general statement that might be true to most people, especially when the item did not clarify if "others" means someone that the participants were close with or a random stranger. Thus, despite that the PNI displayed high validity, the Barnum effect might have played a role in the findings.

Moreover, it is possible that the 52 items of the seven subscales on the Pathological Narcissism Inventory are somehow overlapping. In other words, even though one statement aims to measure the Hiding the Self, facet of vulnerable narcissism, it can also be treated as an item for measuring Grandiose Fantasy, facet of grandiose narcissism, depending on how the participants interpret the statement. For instance, the item "I hate asking for help" is originally designed as an item measuring vulnerable narcissism as the individual might refuse to ask for help due to their low self-esteem and fear to be looked down on. Yet, it is possible that an individual may view this same item in a grandiose narcissistic way by thinking that he or she is too good and does not need help from anyone. So this can be counted as an item for measuring grandiose narcissism in this way. The ambiguity of some items on the PNI might account for the moderate correlation between the two narcissisms. For future improvement, a few other measures, such as the Narcissistic Personality Inventory (Raskin &Terry, 1988) targeting at narcissist grandiosity and the Hypersensitive Narcissism Scale (HSNS; Hendin & Cheek, 1997)

targeting at narcissist vulnerability, can also be included along with the PNI in order to get a more fuller assessment of levels of grandiose/vulnerable narcissism, and to create a stronger distinction between the items for grandiose narcissism and those for vulnerable narcissism.

Hypothesis 3 stated that vulnerable narcissism would be a good predictor for the change in self-esteem in the MS condition, whereas grandiose narcissism is a weak predictor for the change in self-esteem. This hypothesis was also rejected as either of the narcissisms were predictors for the change in self-esteem, and grandiose narcissism is more predictive for the change in self-esteem than vulnerable narcissism. One possible explanation for this finding is that the potential impact of narcissism on reaction to mortality salience was difficult to ascertain given that the mortality manipulation on the change in self-esteem did not reach the expected result. Vulnerable and grandiose narcissism will certainly not be able to predict the change in self-esteem as no significant change was present in the data.

Some degree of error may have been introduced in this study because it was conducted online. The researchers had no control on the surrounding of the participants when they were taking the survey. Thus the participants might have been distracted when taking the survey. This affects the accuracy of the data. Also, knowing that during the delayed task, the survey would automatically jump to the next page after 10 minutes, the participants might have spent the 10 minutes in other activities instead of making an effort in completing the delayed task. If this is the case, they would have failed to take the thought of death out of their focal control, and thus hindering the effectiveness of the manipulation. On top of that, participants might have randomly answered the survey questions instead of paying attention to every single item of the survey. The quality of the responses may have been undermined.

Moreover, there might be other more salient factors than the thought of death in the surrounding. For instance, for one of the death-related words from the Death Thought Accessibility Measure, most of the participants, regardless of the conditions they were in, put in "COFFEE". The word "COFFEE" might be a more salient thought that outweighs the thought of death. Another problem of conducting the survey online is that participants did not have the chance to ask for clarification on certain ambiguous items as mentioned previously. Thus, misunderstanding of the questions might lead to inaccuracy in responses. For future improvement, instead of distributing the survey online, researchers could minimize the environmental confounds by asking participants to come and complete the survey in paper.

Research Implications and Future Research Directions

This experimental research contributes to an understanding of the scholarly nature of TMT and the possibility of expanding the theory into the field of personality. As TMT has been previously applied in practice to change behaviors, even though no significant results have been found, this study throws light on how individual differences, such as narcissism, might affect people's responses to mortality salience. This study also raises questions on the use of RDAS as a manipulation check and the possibility of measuring personality traits. Moreover, this study clarifies the natures of grandiose and vulnerable narcissism, pointing out that one might possess some facets of grandiose narcissism and vulnerable narcissism at the same time. The study also provides insight on the relationship between the two subtypes of narcissism and self-esteem, confirming that grandiose narcissism is positively correlated with self-esteem whereas vulnerable narcissism is negatively correlated with self-esteem.

If this study had worked according to the hypotheses, the findings of the study would contribute to the application of TMT in reality to change people's short-term behaviors, especially in the college population. Twenge (2013) compared the trend in narcissistic characteristic between the present generation and the previous generations. Results of Twenge's study suggested a generational increase in narcissism and self-esteem with the greatest increase in college and child populations. As the college samples were found to have a great connection with self-esteem, findings of studies assessing relationship between TMT and narcissism would help to change behaviors of college students in short-term, such as a one-time campaign aimed to change the drinking behaviors in college students.

Overall, the major reason that might have led to the insignificant findings in this study was the overreliance on one personality scale in capturing the two subtypes of narcissism. Due to the uncertainty of the nature of the two subtypes of narcissism, it would be wise to adopt multiple scales of narcissism in order to qualify the findings. To improve on current study, more than one measures capturing vulnerable and/or grandiose narcissism could be included to get a fuller assessment of levels of grandiose/vulnerable narcissism. Moreover, as mentioned previously, the RDAS manipulation check measure could be taken out to eliminate the possibility of letting the thought of death reentering the participants' conscious mind. Future research could investigate the possible impact of RDAS in priming participants with death thoughts. Also, having participants coming and completing the survey on paper would help eliminate the errors given by the use of online survey. On top of that, preliminary screening of participants' religious affiliations could reduce the effect of easy access to religions as cognitive strategies when countering the thought of death. Further replications of the current study are warranted, given that the impact of measurement factors and of religious affiliation is still

unknown and that a greater understanding of the relationship between mortality salience, narcissism and self-esteem could enhance the practical application of Terror Management Theory.

APPENDIX A

Mortality Attitudes Personality Assessment Survey

Instructions: Please respond to the following two questions in the space provided.

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.

APPENDIX B

Rosenberg Self-Esteem Inventory

Instructions: Below is a list of statements dealing with your general feelings about yourself. Please be honest - there are no right or wrong answers.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

1. On the whole, I am satisfied with myself.
2. At times, I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I certainly feel useless at times.
7. I feel that I'm a person of worth, at least on an equal plane with others.
8. I wish I could have more respect for myself.
9. All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude toward myself.

APPENDIX C

PNI-52

Instructions: Below you will find 52 descriptive statements. Please consider each one and indicate how well that statement describes you. There are no right or wrong answers. Please select only one answer. Simply indicate how well each statement describes you as a person on the following **6-point scale**:

1	2	3	4	5	6
Not at all like me	Moderately unlike me	A little unlike me	A little like me	Moderately like me	Very much like me

Please respond to the following statements using the number that **best describes you**. Please be honest - there are no right or wrong answers.

1. I often fantasize about being admired and respected.
2. My self-esteem fluctuates a lot.
3. I sometimes feel ashamed about my expectations of others when they disappoint me.
4. I can usually talk my way out of anything.
5. It's hard for me to feel good about myself when I'm alone.
6. I can make myself feel good by caring for others.
7. I hate asking for help.
8. When people don't notice me, I start to feel bad about myself.
9. I often hide my needs for fear that others will see me as needy and dependent.
10. I can make anyone believe anything I want them to.
11. I get mad when people don't notice all that I do for them.
12. I get annoyed by people who are not interested in what I say or do.
13. I wouldn't disclose all my intimate thoughts and feelings to someone I didn't admire.
14. I often fantasize about having a huge impact on the world around me.
15. I find it easy to manipulate people.
16. When others don't notice me, I start to feel worthless.
17. Sometimes I avoid people because I'm concerned that they'll disappoint me.
18. I typically get very angry when I'm unable to get what I want from others.
19. I sometimes need important others in my life to reassure me of my self-worth.
20. When I do things for other people, I expect them to do things for me.
21. When others don't meet my expectations, I often feel ashamed about what I wanted.
22. I feel important when others rely on me.
23. I can read people like a book.
24. When others disappoint me, I often get angry at myself.
25. Sacrificing for others makes me the better person.
26. I often fantasize about accomplishing things that are probably beyond my means.
27. Sometimes I avoid people because I'm afraid they won't do what I want them to do.
28. It's hard to show others the weaknesses I feel inside.
29. I get angry when criticized.
30. It's hard to feel good about myself unless I know other people admire me.
31. I often fantasize about being rewarded for my efforts.
32. I am preoccupied with thoughts and concerns that most people are not interested in me.
33. I like to have friends who rely on me because it makes me feel important.

34. Sometimes I avoid people because I'm concerned they won't acknowledge what I do for them.
35. Everybody likes to hear my stories.
36. It's hard for me to feel good about myself unless I know other people like me.
37. It irritates me when people don't notice how good a person I am.
38. I will never be satisfied until I get all that I deserved.
39. I try to show what a good person I am through my sacrifices.
40. I am disappointed when people don't notice me.
41. I often find myself envying others' accomplishments.
42. I often fantasize about performing heroic deeds.
43. I help others in order to prove I'm a good person.
44. It's important to show people I can do it on my own even if I have some doubts inside.
45. I often fantasize about being recognized for my accomplishments.
46. I can't stand relying on other people because it makes me feel weak.
47. When others don't respond to me the way that I would like them to, it is hard for me to still feel ok with myself.
48. I need others to acknowledge me.
49. I want to amount to something in the eyes of the world.
50. When others get a glimpse of my needs, I feel anxious and ashamed.
51. Sometimes it's easier to be alone than to face not getting everything I want from other people.
52. I can get pretty angry when others disagree with me.

APPENDIX D

Death Thought Accessibility Measure

Instructions: We are interested in seeing how well you can complete word stems. Please complete the following by filling letters in the blanks to create words. Please fill in the blanks with the first word that comes to mind. Please type the **ENTIRE WORD**, not just the missing letters. Some words may be plural. Thank you.

- BUR _ _ D
- PLA _ _
- _ _ OK
- WAT _ _
- DE _ _
- MU _ _
- _ _ NG
- B _ T _ LE
- M _ J _ R
- P _ _ TURE
- FL _ W _ R
- GRA _ _
- K _ _ GS
- CHA _ _
- KI _ _ ED
- CL _ _ K
- TAB _ _
- W _ _ DOW
- SK _ _ L
- TR_ _
- P _ P _ R
- COFF _ _
- _ O _ SE
- POST _ _
- R _ DI _

APPENDIX E

Revised Death Anxiety Scale

Instructions: We are interested in your feelings and thoughts about death and things associated with death. Please respond to the following statements using the number that **best describes** you. Please be honest - there are no right or wrong answers.

1. I fear dying a painful death.
2. Not knowing what the next world is like troubles me.
3. The idea of never thinking again after I die frightens me.
4. I am not at all anxious about what happens to the body after burial.
5. Coffins make me anxious.
6. I hate to think about losing control over my affairs after I am gone.
7. Being totally immobile after death bothers me.
8. I dread to think about having an operation.
9. The subject of life after death troubles me greatly.
10. I am not afraid of a long, slow dying.
11. I do not mind the idea of being shut into a coffin when I die.
12. I hate the idea that I will be helpless after I die.
13. I am not at all concerned over whether or not there is an afterlife.
14. Never feeling anything again after I die upsets me.
15. The pain involved in dying frightens me.
16. I am looking forward to new life after I die.
17. I am not worried about ever being helpless.
18. I am not troubled by the thought that my body will decompose in the grave.
19. The feeling that I will be missing out on so much after I die disturbs me.
20. I am worried about what happens to us after we die.
21. I am not at all concerned with being in control of things.
22. The total isolation of death is frightening to me.
23. I am not particularly afraid of getting cancer.
24. I will leave careful instructions about how things should be done after I am gone.
25. What happens to my body after I die does not bother me.

APPENDIX F

Delayed Task - Word Scramble

Instructions: We would like to know how many words you can unscramble within 10 minutes. Don't worry if you can't unscramble all the words but please TRY YOUR BEST. Please unscramble the following words:

- IGB
- HTO
- TFSA
- EWN
- AHCPE
- LAET
- LDO
- MLLAS
- IHHG
- WLSO
- DKAR
- WLO
- RSEOSUI
- SAEF
- RYTEPT
- DLCO
- PENEXSVE
- RFEREITDN
- RLAEY
- GLITH
- WREJELY
- CFOMRATOLEB
- GSINDE
- ARYRFBEU
- LEITVIENOS
- CNONOCLISU
- VLLYAE
- MERAD
- TERMOPCU
- THARE
- ARRO
- FFIRAGE
- NAJOURL
- DORA
- ALAKO
- SLDIATE
- NAADP
- CCROSE
- UMLLREAB
- GHWITE
- TREAW
- OOFLR
- LEDOMY
- HGTIHE
- DITRAONIT
- FVROLA
- NUEM
- MUUEMS
- CLYUOD
- DIRCETP

APPENDIX G

Debriefing

Thank you very much for your participation.

The primary purpose of this study is to examine whether the impact of mortality salience on self-esteem is moderated by individual differences in narcissism. Terror management theory (TMT) posits that a psychological conflict ("terror") is created when human beings are reminded of their own mortality, i.e., mortality is salient, and that this anxiety about death is reduced by increased self-esteem or an enhancement of one's worldview. There are two subtypes of narcissism, namely grandiose narcissism and vulnerable narcissism, which mark the two poles on the continuum describing narcissistic features. Grandiose narcissism is associated with higher self-esteem, whereas vulnerable narcissism is associated with lower self-esteem. Consequently, it is hypothesized that vulnerable narcissism will be a significant predictor of increases in self-esteem in the mortality salience condition, while grandiose narcissism will not.

We appreciate your participation in this study. For further questions, contact the primary investigator of the study, Rianna Yung by email at yunghx@dukes.jmu.edu, or Dr. David Cockley, chair of the JMU Institutional Review Board, by phone at (540) 568-2834 or email at cocklede@jmu.edu for specific questions about the general rights of research subjects.

If you have experienced distress as a result of your participation in this study, you may contact:

JMU Counseling Center
Student Success Center – 3rd Floor
MSC 0801
Harrisonburg, Virginia 22807
Phone: (540) 568-6552
Fax: (540) 568-8096
https://www.jmu.edu/counselingctr/

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