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Putting the Terror in Terror Management Theory: Evidence that the Awareness of Death
Does Cause Anxiety and Undermine Psychological Well-Being

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Abstract

Rooted in the writings of existentialists, terror management theory states that the awareness of death has the potential to create debilitating anxiety and compromise psychological well-being and that psychological buffers (e.g., self-worth) protect against these aversive effects. Hundreds of studies have supported the theory. However, until recently, little work has focused on the central assertion that the awareness of death causes anxiety and undermines well-being. We review a recent program of research that fills this critical void in the literature. This work has demonstrated that experimentally heightening the awareness of death increases anxiety and decreases well-being for individuals who lack appropriate psychological buffers.

Keywords: Terror Management Theory, Anxiety, Well-Being, Death Awareness, Mortality Salience

Putting the Terror in Terror Management Theory: Evidence that the Awareness of Death
Does Cause Anxiety and Undermine Psychological Well-Being

Existential scholars have long asserted that humans' awareness of death poses a psychological dilemma (e.g., Becker, 1973). Based on this literature, psychologists have devised a testable theory called Terror Management Theory (Greenberg, Pyszczynski, & Solomon, 1986). According to the theory, humans' acute awareness of death has the potential to cause terrifying anxiety (hence, the "terror" in terror management theory) and adversely affect psychological well-being because it is at odds with the evolutionary-rooted motive to survive. However, the theory further proposes that people generally do not experience constant death anxiety because they have psychological structures that buffer the aversive effects of death awareness. In particular, people are able to perceive that their life has worth and significance that transcends that of their physical, corporeal self. That is, people believe that their existence has a broader enduring purpose and significance. The theory emphasizes that this sense of meaning and purpose is based in worldviews (i.e., meaningful and culturally-rooted views of reality). Worldviews ground individuals' values and standards, upon which self-worth is based, in a meaningful reality.

Over the past 30 years, hundreds of studies using multiple methods have tested and supported terror management theory (Pyszczynski, Solomon, & Greenberg, 2015). *For example*, experimentally heightening the awareness of death causes individuals to defend their worldviews and strive for self-worth. Additionally, undermining these buffers (e.g., threatening individuals' self-worth or worldviews) increases death thoughts. In all, studies using these and similar paradigms have detailed the characteristics of terror management processes and illustrated the numerous ways in which individuals with varying personalities, from different cultures, and in diverse situations buffer concerns about death.

Despite the high volume of research examining terror management processes, one core component of the theory has not been the central focus of empirical efforts. Specifically, the theory asserts that people need psychological buffers (e.g., self-worth and meaning in life) to circumvent negative psychological consequences (e.g., anxiety) that would otherwise result from the awareness of death. However, little work has focused on whether death awareness does indeed cause anxiety if people are not properly equipped with appropriate psychological buffers. Only one early terror management study (Greenberg et al., 1992, Study 1) provides relatively direct evidence for this claim, demonstrating that experimentally bolstering self-worth eliminates the effect of viewing a graphic video about death on increased anxiety. This void in the literature has not gone unnoticed (e.g., DeWall & Baumeister, 2007) and some have strongly criticized that “There is no evidence for the underlying terror” (Martin & van den Bos, 2014, p. 43). We review a recent line of research that fills this serious empirical gap.

EVIDENCE THAT DEATH AWARENESS CAUSES ANXIETY AND COMPROMISES WELL-BEING

If, as terror management theory states, the awareness of death necessitates psychological buffers to avoid anxiety and maintain well-being, then experimentally heightening death awareness should increase anxiety and undermine well-being for individuals who evidence a deficiency in these psychological buffers. In several studies, we tested this hypothesis by first assessing participants’ trait levels of a psychological buffer (i.e., meaning in life, self-worth, other traits that foster meaning in life and self-transcendence [nostalgia proneness, interdependent self-construal]). Next, we experimentally heightened death awareness (termed mortality salience) and then measured anxiety (i.e., death anxiety or unspecified anxiety) or other facets of well-being (e.g., subjective vitality, satisfaction with life).

We organize this review around the purported psychological buffers. Our objective, however, is *not* to demonstrate the causal role that any particular buffer plays in preventing negative psychological consequences of death awareness. Rather, we aim to illustrate the causal role that death awareness plays in producing anxiety and undermining well-being among individuals who are not properly buffered.

Meaning in Life

In our initial investigation, we examined the effects of mortality salience on death anxiety among individuals who varied in trait levels of meaning in life (Routledge & Juhl, 2010). Congruent with terror management theory, we hypothesized that mortality salience would increase death anxiety, but only for those with low, not high, levels of meaning in life. In this study, we first measured meaning in life (Ryff, 1989). Next, we randomly assigned participants to a mortality salience condition or a control condition extensively used in previous research (Greenberg, Solomon, & Arndt, 2008). Those in the mortality salience condition answered two open-ended questions about death. Those in the control condition answered two parallel questions about failing an important exam. Finally, we measured death anxiety (Revised Collett-Lester Fear of Death Scale, death of self subscale; Lester, 1990). Results revealed that mortality salience increased death anxiety among participants with low, but not high, perceptions of meaning in life. This demonstrated that the awareness of death can lead to anxiety for those lacking meaning in life.

Nostalgia Proneness

Next, we similarly tested the effects of mortality salience on death anxiety for individuals with varying levels of nostalgia proneness (Juhl, Routledge, Arndt, Sedikides, & Wildschut, 2010). We were concurrently conducting research demonstrating that nostalgia (a sentimental longing for the past) fosters meaning in life and that nostalgia prone individuals have greater perceptions of meaning in life (Routledge et al., 2011). Moreover, prior research

had suggested that nostalgia can buffer death concerns (Routledge, Arndt, Sedikides, & Wildschut, 2008). This led us to hypothesize that heightened death awareness should increase death anxiety, but not for highly nostalgic individuals. To test this, we first administered the Southampton Nostalgia Proneness Scale (Routledge et al., 2008). Next, we randomly assigned participants to a mortality salience or control condition and then measured death anxiety. As expected, mortality salience increased death anxiety for individuals with low, but not high, levels of nostalgia proneness.

Interdependent Self-Construal

Although the above studies illustrated that the awareness of death does cause anxiety about death for those who are not adequately buffered, we conducted additional studies examining the effects of mortality salience on anxiety at varying levels of interdependent self-construal (Juhl & Routledge, 2014a). Interdependent self-construal refers to defining the self in terms of broader social groups (Markus & Kitayama, 1991). Researchers have theorized that social groups aid terror management efforts because groups are bigger, more enduring, and more impactful than individuals (Castano, Yzerbyt, & Paladino, 2004). Thus, if individuals define themselves in terms of social groups, they gain the sense of endurance and significance of their groups. Indeed, previous research has shown that mortality salience bolsters individuals' identification with social groups (Castano et al., 2004).

We thus reasoned that heightening the awareness of death should increase anxiety for those who are not protected with a broader social self-definition (Juhl & Routledge, 2014a). In two studies, we first measured trait levels of interdependent self-construal (Singelis, 1994), induced mortality salience (vs. control), and then measured anxiety. In the first study, we measured death anxiety; and in the second, we measured unspecified anxiety using the State Anxiety Scale (Spielberger, Gorsuch, & Lushene, 1970). In both studies, mortality salience increased anxiety, but only for those with low, not high, interdependent self-construal. These

studies further confirm that the awareness of death does cause anxiety for those not adequately buffered.

In an additional study, we investigated if death awareness adversely affects psychological well-being, beyond elevating anxiety (Juhl & Routledge, 2015). Specifically, we assessed subjective vitality instead of anxiety. Subjective vitality refers to feelings of “aliveness and energy” (Ryan & Frederick, 1997, p. 529) and is an important aspect of overall psychological well-being (Ryan & Deci, 2001; Ryff, 1989). Mortality salience decreased subjective vitality for those with low, but not high, levels of interdependent self-construal. This suggests that death awareness undermines psychological well-being for those not secured with an enduring social self.

Self-Worth

Finally, we also examined the effects of death awareness on well-being at varying levels of self-worth (Routledge et al., 2010). We hypothesized that heightening death awareness would adversely affect well-being for those with low self-worth. In one study, after measuring self-worth (Rosenberg, 1965) and making mortality salient (vs. control), we measured subjective vitality. Mortality salience decreased subjective vitality for those with low, but not high, levels of self-worth. In another study, we measured satisfaction with life instead of subjective vitality as satisfaction with life is a central component of overall well-being (Diener, Suh, Lucas, & Smith, 1999). Mortality salience decreased satisfaction with life, but only for those with low self-worth.

TIMING OF THE TERROR: PROXIMAL AND DISTAL EFFECTS

Thus far, the data paint a very clear picture: heightening death awareness has aversive psychological consequences for those who evidence deficits in psychological buffers. However, all of the above studies have one important feature that deserves careful attention. In all of these studies there was a filler task (e.g., word find) between the mortality salience

induction and the measurement of anxiety or well-being. The reason for this is because previous research has shown that there are two types of mortality salience effects: proximal and distal (Arndt, Cook, & Routledge, 2004). Distal effects are the most highly investigated. They occur when there is a filler task after the mortality salience induction (or when death thoughts are subtly primed) and death thoughts are no longer in the center of conscious attention, but are still accessible to conscious thought. Distal effects reflect efforts to defend worldview beliefs and acquire self-worth. Proximal effects occur immediately after mortality salience inductions when death thoughts are still conscious. They reflect more direct strategies to deal with death (e.g., increased healthy behavioral intentions to prevent early death).

In the research reviewed above, we measured our outcomes distally (i.e., after a filler task) because previous research has used similar affective measures as the filler tasks after mortality salience and this work largely showed that there is no proximal effect on positive or negative affect. Nevertheless, we conducted two studies in which we manipulated whether or not there was a filler task after the mortality salience induction to test whether the effect of mortality salience on anxiety also occurs proximally (i.e., immediately after mortality salience). In one study (Routledge et al., 2010), after assessing self-worth and inducing mortality salience (vs. control), we randomly assigned participants to complete the State Anxiety Scale directly after the mortality salience induction or after completing a word find. As before, mortality salience increased anxiety for individuals with low self-worth; however, this effect only occurred distally, not proximally. In a similar study, we measured death anxiety instead of unspecified anxiety (Abeyta, Juhl, & Routledge, 2014) and we observed the same results. Thus, the effect of mortality salience on increased anxiety for those who lack self-worth only occurs distally.

Although we observed no proximal effects of mortality salience, Lambert and colleagues (2014) recently found that mortality salience increases the experience of fear proximally. As mentioned, when we initiated our work, research had established that mortality salience does not have proximal effects on positive or negative affect. Lambert and colleagues challenged this, stating that the affect scales used in prior studies lack the sensitivity to detect the effect that mortality salience may have on specific emotional states. They were correct, finding that mortality salience did not increase general negative affect, but did increase fear.

Lambert and colleagues' (2014) research generally corroborates our conclusion that the awareness of death can have aversive psychological consequences. However, unlike our research, they (1) only measured affective states proximally and (2) did not assess how psychological buffers may influence the effect. These differences raise a few methodological questions that future work should address. Might the proximal effects of mortality salience on fear be more prominent among those who do not have secure psychological buffers? Might mortality salience also increase fear distally? Additionally, Lambert and colleagues' research suggests that the reason we did not find any proximal effects in our research is that our measures may lack sensitivity.

AFFECT AND WORLDVIEW DEFENSE

Our research, along with Lambert and colleagues' (2014), raises an important conceptual question. That is, does the well-established effect of mortality salience on increased defense of one's worldview beliefs occur because mortality salience increases fear and anxiety? Lambert and colleagues empirically addressed this, showing that the effect of mortality salience on worldview defense was not due to the experience of fear evoked by mortality salience. However, it is possible that fear did not play a role in the effect of mortality salience on worldview defense because fear was measured proximally while

worldview defense (a typical distal effect) was measured distally. We think it is more likely that typical proximal effects, not distal effects, are due to the experience of fear aroused by mortality salience. Specifically, when people experience fear because of conscious death thoughts, it makes sense that this feeling may motivate healthy behavioral intentions, for example.

We, however, did find a distal effect of mortality salience on anxiety among individuals who are not appropriately buffered. We did not assess worldview defense alongside anxiety and thus have no evidence whether the distal effect on anxiety plays a role in the distal effect on worldview defense. However, we do not suspect this is the case because it appears that the individuals who are most likely to respond defensively to mortality salience are not the same individuals who experience anxiety after mortality salience. Specifically, in separate research, we have found that it is individuals with high self-worth (Juhl & Routledge, 2014b; see also Burke, Martens, & Faucher, 2010) and high interdependent self-construal (Routledge et al., 2013) that display heightened defensiveness in response to mortality salience. In contrast, the research reviewed above illustrates that it is individuals with low self-worth and low interdependent self-construal who experience anxiety after mortality salience. Thus, it seems unlikely that the distal effects of mortality salience on increased anxiety observed among those lacking adequate psychological buffers can account for the distal effect of mortality salience on increased worldview defense observed among those who are adequately buffered. The overall pattern of results, however, conversely suggests that the worldview defense observed among buffered individuals may account for the lack of anxiety experienced by these individuals after mortality salience. Stated differently, among buffered individuals, defending one's worldview in response to mortality salience may prevent anxiety that otherwise results from mortality salience.

Conclusion

Critics of terror management theory have underscored the lack of evidence that the awareness of death can produce anxiety and undermine well-being (e.g., Martin & van den Bos, 2014). This criticism was true for many years. However, our research fills this hole in the literature, illustrating that death awareness causes anxiety and undermines well-being for those who lack appropriate psychological buffers.

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