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Authors' Note

Abstract

The present study examined the association between intrinsic religiosity and attachment to God following mortality salience (MS). Participants ($N = 158$) consisted of Christian individuals who were asked to complete the Religious Orientation Scale (Allport & Ross, 1967) as a measure of intrinsic religiosity, a word search puzzle to prime either death-related or neutral words, and the Attachment to God Inventory (Beck & McDonald, 2004). A moderated regression found a significant interaction between MS and intrinsic religiosity on avoidant but not anxious attachment to God. Specifically, following reminders of death, low intrinsic individuals were more avoidant toward God compared to high intrinsic individuals. These findings suggest that MS is associated with bolstering religious beliefs in order to cope with existential anxieties.

Keywords: Terror Management Theory, Religion, Mortality Salience, Intrinsic Religiosity, Attachment to God

Attachment to God as a Function of Mortality Salience and Intrinsic Religiosity

Many individuals are fearful about living a meaningless life and being forgotten after death. Moreover, these fears may evoke death anxiety in which individuals fear their inevitable demise and nonexistence. According to terror management theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986), these fears are so powerful that they would result in extreme terror if we were able to fully recognize them. The concept of mortality salience refers to an individual becoming aware that their death is unavoidable, which may result in fear. Fortunately, however, people can deny the threat of mortality through the use of culturally prescribed worldview defenses. When persons instill cultural significance in life, they are able to buffer against mortality-related concerns (Greenberg, Vail, & Pyszczynski, 2014). One particularly powerful way individuals can reduce death anxiety as a threat is by maintaining a strong belief in his/her religious belief. For instance, attaining a sense of personal significance from following a religious doctrine that one believes will make an impact on the world after he/she dies, or having confidence in an afterlife can defend against reminders of death. However, individual differences within religiosity impact the role that religion plays when providing a defense against death (Arrowood, Jong, Vail, & Hood, 2018). As a result, several studies have shown the ineffectiveness of non-internalized beliefs (see e.g., Jonas & Fischer, 2006). The term "intrinsic religiosity" suggests that people with intrinsic religious beliefs do not use their beliefs or religion as a means to an end. Those who are intrinsically religious internalize their beliefs and are therefore committed to upholding these beliefs in their lives and regard them as important. The purpose of the current study was to examine one potential reason that low (vs. high) intrinsically religious are unable to rely on their beliefs to defend against death. Specifically, low intrinsic

individuals should experience a more insecure attachment to God when primed with death, as opposed to high intrinsic individuals.

Terror Management Theory (TMT) and Religion

Terror management theory was built on the idea that although humans are similar to other species in that we have a strong desire to live, we are unique in our awareness of imminent death (Greenberg et al., 1986). In order to avoid any negative effects associated with existential dread (e.g., a potential for anxiety), persons bolster their self-esteem (Solomon, Greenberg, & Pyszczynski, 1991) by adhering to their cultural beliefs (i.e., worldviews). These worldviews provide a system to organize the world in which we base our system of meaning. They provide rules and guidelines that we can follow, as well as groups that we can belong to that will outlive any individual member. Through these means, we can bolster self-esteem so long as we believe that we are living in accordance with our worldviews. If we are a functional member of our culture, we attain symbolic immortality as our beliefs and groups will live on past our death (Greenberg et al., 2014). As such, 30 years of research has demonstrated that following mortality salience (MS) individuals cling to their most cherished beliefs (e.g., religion, nationality) as part of a two-fold process in order to promote self-esteem (Greenberg et al., 2014; Pyszczynski, Greenberg, & Solomon, 2015). First, we explicitly deny our death by pushing it out of conscious awareness or accepting that it will happen in the far future. This is cognitively taxing, however, and eventually fails. Subsequently, worldview defenses begin to form in which we bolster support for our basis of meaning. By increasing meaning, we successfully shield against the awareness of death and avoid debilitating terror (Greenberg et al., 2014). Through worldview defense, we become increasingly hostile toward those who threaten our worldviews and become more positive and supportive toward those who support our beliefs (Greenberg et al., 1990).

Worldviews that compromise the validity of our worldviews allow death thoughts to manifest and reduce self-esteem (Schimel, Hayes, Williams, & Jahrig, 2007; see also Greenberg et al., 2014; Pyszczynski et al., 2015).

Although many types of worldviews may be utilized to contend with death, few (if any) are as powerful as religion (Vail et al., 2010). Whereas a meaningful definition of religion remains elusive (Pargament, 2013), van Cappellen, Toth-Gauthier, Saroglou, & Fredrickson (2016) discuss religion as belief in a higher power associated with ritual, groups, and organized theology. From this account, prior research suggests that religion provides people with a sense of meaning and purpose that allows people to face existential dilemmas courageously, as well as provides a motive for life (Park, Edmondson, & Hale-Smith, 2013; Routledge, 2018). Further, religious activities and actions can contribute to a sense of significance in life, as it allows people to perceive order and purpose in the midst of death and suffering (Uden & Zondag, 2016). Individuals who perceive that abiding by their religious belief is the ultimate intention of their life may not be concerned about potentially living a meaningless life, as long as they are closely living in accordance with their belief (Vail et al., 2010). Although religions and beliefs provide meaning beyond what is summarized here (e.g., social connectedness), we would argue that a major function of religious belief is to help people cope with mortality awareness. As such, the threat of death may not be very unsettling for individuals who are confident in the belief of eternal life.

A growing body of research has demonstrated that religion serves as a meaningful way to defend against the awareness of mortality. According to Vail and colleagues (2010), along with others (e.g., Arrowood et al., 2018; Jong & Halberstadt, 2016; Norenzayan & Hansen, 2006), there are several reasons why religion is important in managing existential concerns. First,

religiosity can serve as a form of culture to provide rules and regulations for followers to uphold (e.g., "Thou shalt not commit adultery"). These worldviews, in turn, provide ways to bolster self-esteem when followed and punishment for those who do not (Greenberg et al., 1986; Jong & Halberstadt, 2016). Second, many religions include ideologies dealing with immortality and thus provide literal (i.e., an afterlife, reincarnation) and symbolic (e.g., group belonging, self-esteem bolstering) opportunities beyond death (Becker, 1973; Greenberg, Solomon, & Arndt, 2008). Religions, combined with their associated supernatural beliefs and afterlives, help to separate humans from their animal nature (i.e., we bleed, deteriorate) and ultimate demise (Vail et al., 2010). For example, believing in a God that created humans in His own likeness, along with providing them "dominion over" all living creatures, helps to elevate humanity over the rest of the natural world, which can boost self-esteem and a sense of significance.

In support, considerable research has shown that following reminders of death, religious persons are able to use their beliefs as a form of worldview validation without having to rely on secular defenses. Vail and Soenke (2018), for example, primed religious persons and atheists with MS and measured meaning in life. They found that although a death manipulation caused atheists to experience lower meaning in life, religious persons were buffered from this effect. Jackson and colleagues (2018) recently primed religious belief, finding that these worldviews are able to alleviate implicit death concerns in both religious and non-religious persons. Lifshin, Greenberg, Soenke, Darrell, and Pyszczynski (2017) recently demonstrated that MS leads non-religious persons to increase support for indefinite life extension. This finding was not observed among religious individuals given their beliefs in an afterlife. In other words, non-religious people were less likely to believe in life after death, which in turn was associated with a greater endorsement of life extension through the use of medicine. This is interesting as it builds on prior

work demonstrating that atheists, when primed with death, report greater desire for an afterlife,

albeit without explicitly increasing their belief (Heflick & Goldenberg, 2012; see also Greenberg

et al., 2014).

The Present Research

Despite much evidence suggesting individuals use their religious belief to defend against

mortality awareness, there are individual difference variables shown to moderate these effects

(e.g., religious fundamentalism; Altemeyer, 2003; intrinsic/extrinsic religiosity; Allport & Ross,

1967; quest; Batson, 1976). With respect to the current study, Allport and Ross (1967)

established the existence of the intrinsic and extrinsic beliefs. Those who have intrinsic beliefs

internalize their religious belief in which believers' lives are primarily motivated by their belief

in God. From a TMT perspective, Jonas and Fischer (2006) found that following reminders of

death, these individuals are buffered without the need for worldview defense so long as they

have affirmed their belief prior to MS. Low intrinsic persons, who are unable to rely on their

beliefs as a shield, reported greater worldview defense. Similar findings were observed with

extrinsic persons, in which MS caused them to bolster worldview defenses (Fischer, Greitmeyer,

Kastenmuller, Jonas, & Frey, 2006). Extrinsic religiosity is associated with external motivations

for pursuing religion. Without an internalized religious belief, these persons are unable to rely on

their beliefs as a defense against death because terror management requires absolute certainty

(Greenberg et al., 1986).

The present study extends on prior work within TMT and the psychology of religion by

examining intrinsic (i.e., internalized) beliefs and attachment to God following MS. A prominent

aspect of a religious belief is an individual's relationship with his/her spiritual figure, such as

God, who serves as an attachment figure for many individuals (Kirkpatrick, 1999). According to

Bowlby (1969), a person's bond to their attachment figure is characterized by maintaining proximity with him/her, regarding the caregiver as a secure base of explorative behavior, considering the attachment figure as safe haven, and experiencing separation anxiety when removed from the caregiver. These criteria are also manifested in the relationship between a person and their spiritual figure. Specifically, individuals may feel "close" or "distant" from their spiritual figure, they can experience distress when they are "separated" from their deity, they can view their spiritual figure as a secure base, and often seek comfort from their religious figure when needed (Kirkpatrick, & Shaver, 1992). Prior work has found that Christians who view God as a secure base report greater tolerance for religions that are different from their own, and report less distress in exploring other theologies (Beck, 2006). Other research has shown that intrinsic Christians' attachment to God was correlated with viewing Him as loving, which in turn provided symbolic immortality (Rowatt & Kirkpatrick, 2002). In a direct examination of attachment and religious orientation, Miner (2009) found that intrinsic persons report a more secure attachment to God, which further predicts greater spiritual and general well-being.

Based on these findings, we anticipated that MS would lead individuals to reinforce their internal beliefs about God. Given that intrinsic religiosity is linked to viewing Him as a loving, secure base, intrinsic Christians' attachment to God should reflect their beliefs about His nature. Specifically, we hypothesized that low intrinsic individuals would be more avoidant of God following MS, while high intrinsic individuals would report a more secure (e.g., low avoidant) attachment due to their internalized beliefs.

Method

Participants

One hundred fifty-eight participants (67 male, 91 female) recruited from Amazon's Mechanical Turk (MTurk) system participated in this study. Mturk is an online system for participant recruitment, and is considered a reliable method of data collection for psychological research (Casler, Bickel, & Hackett, 2013). The sample included a wide range of ages (20-68 years, M_{age} = 35.33; SD = 10.28). All of the participants identified themselves as Christians. Further, 71.50% of participants reported themselves as White/Caucasian, 12.00% as Black/African American, 7.60% as Asian, 7.00% as Hispanic/Latino, 0.60% as Native American, and 1.30% Other.

Materials and Procedure

First, participants were given a series of prescreen questions regarding demographic information and religious preferences. All ineligible participants (i.e., non-English speakers, non-Christians), were directed to the end of the survey while eligible participants were directed to the informed consent. Following these preliminary measures, participants received a series of items including scales and questionnaires in the order they are presented below.

Intrinsic religiosity and delay. After providing informed consent, participants completed the 20-item Religious Orientation Scale (Allport & Ross, 1967) to measure intrinsic religiosity. This measure is comprised of two subscales, intrinsic (e.g., "I try hard to carry my religion over into all my other dealings in life") and extrinsic (e.g., "The purpose of prayer is to secure a happy and peaceful life") religiosity. All items were scored on a 9-point Likert scale (1 = *Strongly Disagree*, 9 = *Strongly Agree*), and showed sufficient reliability (Intrinsic Cronbach's α = .91; Extrinsic Cronbach's α = .81). To serve as a delay between the Religious Orientation

Scale and the MS induction, participants completed the 10-item personality inventory (Gosling, Rentfrow, & Swann, 2003) and the Rosenberg self-esteem scale (Rosenberg, 1965). The purpose of these two items was to prevent intrinsic affirmation from influencing responding (see Jonas & Fischer, 2006). Neither scales were included in any analysis because they were not apriori hypothesized to influence the outcome, nor interact with the death prime.

MS. In order to manipulate mortality awareness, participants completed either a neutral or death-related word search puzzle. Prior research has demonstrated that subtle presentations of mortality related words successfully elicit death awareness below the conscious threshold of awareness (Landau, Kosloff, & Schmeichel, 2011). As a result, participants may not be actively looking for the death related words in their word search; however, the awareness of death increases simply by their presentation (Cox, Darrell, & Arrowood, 2018) (Participants in the MS condition were given seven death words (i.e., *death, dead, decay, die, funeral, burial, & corpse*) embedded into the 10 x 10 letter matrix, and participants in the control condition received random letter strings in the place of the mortality words. The target search words were neutral in content for both conditions. Prior work has shown this manipulation as capable of subtly increasing death awareness (Cox et al., 2018).

Attachment to God. Finally, participants completed the 28-item Attachment to God Inventory (Beck & McDonald, 2004). This measure consists of two subscales, avoidant attachment (e.g., "My prayers to God are often matter-of-fact and not very personal") and anxious attachment (e.g., "I am uncomfortable allowing God to control every aspect of my life"), and was scored on a 7-point Likert scale (1 = *Strongly Disagree*; 7 = *Strongly Agree*). The scale showed high reliability for both the anxious (Cronbach's α =.83) and avoidant (Cronbach's α

=.91) subscales. Cronbach's Alpha was used to test the scales' reliability. Following this final

measure, participants were debriefed.

Results

In order to examine the effects of MS (dummy coded) and intrinsic religiosity (mean

centered) on attachment to God, a two-way moderated regression analysis (Aiken & West, 1991)

was conducted on both avoidant and anxious attachment subscales. Whereas no significant effect

or interaction emerged for anxious attachment, b's $\leq .18$ *(SE*'s $\leq .20)$, t's ≤ 1.228, *p*'s $\geq .22$, R^2's

$\leq .005$, a marginally significant interaction between MS and intrinsic religiosity was found for

avoidant attachment, $b = -.11$ *(SE* $= .06)$, $t = -1.73$, $p = .09$, $R^2 = .01$ (see Figure 1). Given that

we had specific, apriori predictions, we further probed this interaction to examine differences at

high and low levels of intrinsic religiosity both within and between conditions. Specifically, in

the control condition, intrinsic religiosity and avoidant attachment to God had a significant

negative relationship, $b = -.31$ *(SE* $= .05)$, $t = -6.91$, $p < .001$, $R^2 = .17$. In the MS condition,

higher intrinsic individuals exhibited a lower avoidant attachment than their less intrinsic

counterparts, $b = -.42$ *(SE* $= .05)$, $t = -9.12$, $p = .10$, $R^2 =.30$. Looked at differently, at high levels

of intrinsic religiosity, there was a marginally significant effect of MS on avoidant attachment, b

$= -.31$ *(SE* $= .05)$, $t = -6.91$, $p = .09$, $R^2 = .02$. In other words, MS caused high intrinsic

individuals to experience lower avoidant attachment to God than the control prime. No

significant differences were observed at low levels of intrinsic religiosity, $b = .12$ *(SE* $= .17)$, $t =$

.72, $p = .47$, $R^2 = .002$.

Discussion

The present work examined how individual differences in intrinsic religiosity interact

with death awareness to influence people's attachment to God. As predicted, we found that

persons with higher levels of intrinsic religiosity reported lower levels of avoidant attachment (i.e., greater security) to God following reminders of death. Furthermore, intrinsic beliefs were associated with a more secure attachment regardless of the condition. The results are consistent with prior work within TMT, and the broader psychology of religion, in a number of ways. First, we replicated work by Miner (2009) in which intrinsic persons reported a more secure attachment to God. Specifically, we found that regardless of condition, high intrinsic persons had a less avoidant attachment than low intrinsic persons. Thus, it appears that a fundamental part of the intrinsic orientation is less avoidant attachment. This makes sense as intrinsic religiosity focuses of internalizing spiritual beliefs and seeking out opportunities to live their beliefs (Allport & Ross, 1967). An avoidant attachment to God would be paradoxical to these motivations, as intrinsic persons should seek God at all times (Miner, 2009; Hills et al., 2005).

These findings would suggest that a more secure attachment to God is an integral part of intrinsic Christians' worldviews. From the perspective of TMT, this would explain the observed difference between MS and control conditions. Specifically, TMT predicts that reminders of death cause persons to bolster their most cherished worldviews (Greenberg et al., 2014). That is, these beliefs should manifest strongly as a way to buffer against mortality awareness. We found that following MS, intrinsic persons had a more secure attachment. Thus, MS caused high intrinsic persons to bolster their intrinsic beliefs and, as a result, lowered their insecurity in their attachment to God. This is consistent with other work within TMT suggesting that secure attachments serve a death-defying role (Mikulincer & Florian, 2000). Stated differently, when individuals who score high on intrinsic religiosity are under MS, they turn to their secure attachment with God to manage terror. Non-intrinsic Christians, however, likely do not have this same secure attachment with God (Miner, 2009). Therefore, they are unable to use these

defenses when confronted with death. The present results support this interpretation in which MS did not cause low intrinsic Christians to differ from the control condition.

Furthermore, the findings associated with avoidant attachment, but not anxious attachment, suggest several important extensions. Christians with higher intrinsic religiosity are more readily able to turn to God, and not just general religion, in order to buffer existential anxieties. These results reflect the findings of Norenzayan and Hansen (2006) in that death reminders increase faith in supernatural agents. Likewise, MS increased the impact of evidence for the efficacy of prayer to God or another deity among those who believed in God, but not among non-believers. Vail, Arndt, and Abdollah (2012) found similar results in which Christians, Muslims, and agnostics became more certain in the existence of their personal spiritual figure and used their certainty to combat existential terror. In our work, MS caused a lower avoidant attachment to God suggesting that high intrinsic persons were seeking Him more and desired to be closer to Him. Building on this, our results suggest that high intrinsic persons seek their spiritual figure instead of just general religiosity, as a way to manage mortality awareness.

Finally, these results highlight the importance of examining individual difference with respect to the terror management function of religion. Arrowood and colleagues (2018) recently highlighted the distinction in terror management processes based on subtle differences in religious motivation. They argued that the existential defenses believers use will only manifest in accordance with their worldviews even within the same religious belief or denomination. Although looking at religion generally would suggest that all religious people should be more seeking of their spiritual figure following MS, our findings and those by others (see e.g., Fischer et al., 2006; Friedman & Rholes, 2008; Jonas & Fischer, 2006; Rothschild et al., 2009; Vail et

al., 2010) suggest that individual differences in religious orientation nuance these effects. Specifically, the motivations that religious persons rely on when approaching their religious belief appear to be an important part of worldview manifestation in response to MS.

Although the results of the present study supported the hypothesis, there are some limitations that need to be discussed. For one, the present work is solely based upon participants who identified as Christian due to the nature of the dependent variable. Future studies would benefit from looking at other religions in order to determine whether a similar trend occurs. Given the nuanced differences in terror management within religion (Arrowood et al., 2018), it is likely that differences may occur between religions with respect to attachment to different spiritual figures. In addition to other religions, it would be beneficial to investigate the differences among other Christian denominations. Participants in this study did not identify as a certain Christian denomination, therefore their viewpoints on Christianity or stance on specific matters of theology remain unknown. Participants identifying as a certain denomination or writing a brief statement regarding what they believe about Christianity could have removed this limitation. Another limitation is that participants may have responded in ways they believed they should be expected to respond, rather than how they actually felt. Prior research has found that social desirability answering can be incredibly high among religious persons as there are often rules and expectations about firmly believing, or at least appearing that way (Jones & Elliott, 2017). Thus, future work should control for the effects of social desirability when examining religious orientation. Additionally, the marginal effects observed should warrant some caution and suggest the need for replication using larger, and more diverse samples. This would also allow the research to extend to additional religious orientations in which extrinsic, quest, and fundamentalist persons should bolster their religious defenses differently than intrinsic persons.

To conclude, the present study found that intrinsic Christians bolster their secure attachment to God when primed with death. Additionally, they use their relationship with God as a comfort and a defiant means to transcend death, while also avoiding the terror of their mortality. The results affirm that strong religious beliefs serve as a powerful terror management function. With the inevitable loom of death remaining ever present in our society given the large number of reminders of our mortality (e.g., mass shootings, war, cemeteries; Pyszczynski et al., 2015), our worldview defenses stand at the ready to manifest in order to shield us from the debilitating terror associated with the awareness of death.

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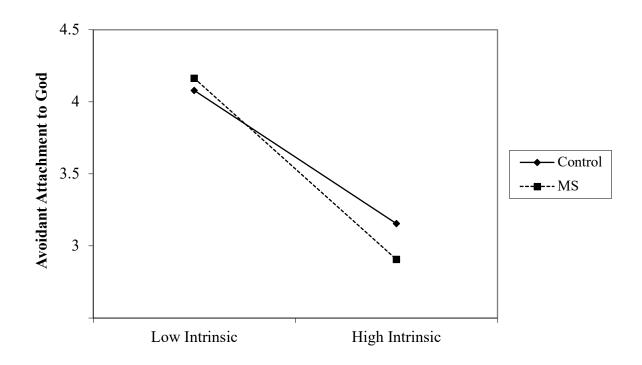
Figure 1. Attachment to God as a function of mortality salience and intrinsic religiosity