

RELIGION AND IMPLICIT VS. EXPLICIT DEATH ANXIETY

The Relationship Between Religiosity and Implicit vs. Explicit Death Anxiety

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Abstract

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While there is ample reason to expect a relationship between religiosity and death anxiety, conflicting results across studies indicate a need to separately measure the unconscious and conscious aspects of death anxiety in order to further the research and refine theory. The current study tests the hypothesis that those who are more religious will demonstrate greater implicit death anxiety (IDA) and lower explicit death anxiety (EDA) than those who are lower in religiosity. Due to a lack of adequate measures for IDA, a self-report measure was created for the purpose of this study in order to assess death anxiety below consciousness. In Study 1, participants responded to self-report questionnaires targeting IDA, EDA, religiosity, and control variables of attachment style and self-esteem. I found that there was no association between EDA and religiosity, but those who were more religious exhibited more IDA. In Study 2, controlling for “pro-life” ideology reversed the results, such that those who were more religious had somewhat lower IDA than those who were not. While the results are not in line with the original hypothesis, this study provides useful directions for future research as well as a potential measure of IDA to use going forward.

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Religion has been pervasive across cultures and throughout the history of human existence. Connecting humans to supernatural beings is a fundamental tendency that all societies, with few exceptions, have adopted in various ways (Jong & Halberstadt, 2016). With an estimated 84 percent of the world's population reporting some religious identification, it seems unlikely that such a ubiquitous phenomenon could be functionless; thus, a number of theories have been devised to explain why religion is such a staple to humanity (Jong & Halberstadt, 2016). One psychological perspective on religion that was advanced by, among others, Ernest Becker (e.g., 1973), posits that religion, at its core, functions to defend against existential anxiety by providing a literal handbook for living life in a meaningful way and achieving immortality. While there is existing evidence supporting this perspective, validating it is challenging due to its somewhat tautological nature. The notion that religion buffers death anxiety could suggest that those who are religious have lower death anxiety because religion is regulating it, but it could also indicate that those who are religious have greater death anxiety, which is why there is a need for religion as a defense. The present research examines this question by measuring death anxiety at both the conscious and unconscious level and relating them to religion independently.

Religion: Functional Theories

Even before the evolution of the modern human, there is archaeological evidence that the hunters and gatherers of the Upper Paleolithic era, otherwise known as the Old Stone Age, showed signs of religious affiliation over 200,000 years ago (Jong & Halberstadt, 2016). Although religion has been established in all groups that show signs of societal structure, the various interpretations of religion are widespread and it can be difficult to encompass all religions with a single definition. The most comprehensive explanation of religion is that it is any

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belief system involving one or more supernatural agent (Jong & Halberstadt, 2016). A supernatural agent is characterized as any human or nonhuman being whose abilities surpass the assumptions of the natural object (e.g., humans walking through walls or trees speaking) and are often elusive in their existence. Additionally, adherence to these supernatural agents tends to involve often unsafe, inconvenient rituals such as fasting (i.e. abstinence from sex or food; Jong & Halberstadt, 2016). It seems peculiar that a human-made institution such as religion would involve seemingly maladaptive components, so it seems likely there is a deeper adaptive function of religion.

Many adaptive theories of religion are based on the notion that religion is a means of social solidarity. These theories posit that religion facilitates group membership and social cohesion, necessary facets of prosocial behavior that increase chances of survival and reproduction. The costly rituals associated with religion can be explained from this perspective as evidence to society that an individual is truly committed to group membership (Gould, 1991). Other theories propose that religion is a necessary adaptation in order to deal with the unwelcome consequences of human consciousness. Freud proposed that the executive functions unique to the human brain exist for reasons other than consciousness, but that consciousness is a burdensome byproduct that requires taming and religion was created in order to cope with the concept of mortality (Gould, 1991).

These adaptive theories of religion attempt to explain why religion exists, whereas additional theories target the ways in which the supernatural agents that define religion are created in order to achieve its adaptive purpose. Anthropomorphic theories of religion posit that the various manifestations of these figures are a personification of society based on humans projecting their own attributes onto the natural world. These natural personifications are given

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human-like qualities but also maintain a degree of immortality, connecting the mortal existence of humans to something ethereal (Jong & Halberstadt, 2016). The functionalist theories of religion then attempt to explain how this personification occurs by binding the soul, which connects the mind to the body, to these supernatural agents in order to extend human existence beyond the death of the human body. Combined, these perspectives illuminate religion as an attempt at gaining control over the one inevitability of life: death (Jong & Halberstadt, 2016). Terror Management Theory (TMT), developed by Greenberg, Pyszczynski, and Solomon (1986), proposes that religion is a worldview defense that buffers the fear of death by maintaining a sense of personal security and immortality. Humans' existential self-awareness has the capacity to be a nagging anxiety at the forefront of thought, but TMT asserts that religion provides assurances about the immortality of the soul, an achievement that many are desperate for in order to feel that life is meaningful and enduring.

Terror Management Theory

The terror management perspective (Greenberg et al., 1986), largely based on the work of Ernest Becker (1973), posits that human's awareness of the inevitability of death arouses overwhelming anxiety that must be managed by adherence to a particular cultural worldview (i.e., an individual's values and conception of the world). Worldviews buffer death anxiety directly, by conveying a sense of an orderly, meaningful, enduring, benevolent universe, but also by giving the individual a sense of personal self-esteem that comes from adhering to the values of the worldview. When the worldview is validated, it leads to a sense of security rooted in the assurance that one's existence is ultimately significant and permanent. Conversely, if this worldview is compromised, an individual's self-esteem and security may be negatively impacted due to the resulting uncertainty.

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In sum, TMT, suggests that awareness of mortality leads to the adoption and adherence of security- and self-esteem-bolstering worldviews. However, the specific ways that people cope with death awareness depends on how salient mortality is at any given time. The *dual process model* of terror management theory proposes two different routes of defense against death anxiety, depending on whether death concerns are implicit (i.e. unconscious) or explicit (i.e. conscious; Greenberg, Pyszczynski & Solomon, 1999). Implicit death anxiety (IDA) refers to death anxiety that is suppressed and exists below the level of consciousness. Due to the unconscious nature of IDA, distal defenses, such as rejecting groups whose worldviews differ from one's own, buffer IDA by using symbolic ideas about oneself and the world to cope with suppressed death anxiety by channeling anxious energy into the need for control over aspects of life that are seemingly unrelated to death. Distal defenses rely on maintaining a sense of predictability and ultimate meaning in one's life that allows death anxiety to remain below consciousness by maintaining a sense of security within the world. For instance, there is evidence that when mortality is made salient, participants put greater effort into planning future events (Landau, Greenberg & Sullivan, 2009). Defenses such as meticulously planning ahead creates a sense of symbolic immortality because these types of behaviors instill a feeling of control over one's own life. This control functions as a symbol of immortality by allowing people to feel as if life is predictable and that they have a secure place within the world, without actually acknowledging that the death anxiety they hold unconsciously.

Explicit death anxiety (EDA), on the other hand, is defended in ways directly related to death and its outcomes. When conscious death anxiety is experienced, proximal (i.e. literal) defenses directly buffer EDA by removing death thoughts from the focus of one's attention by recognizing it as a problem for future consideration or using rationalization tactics to deny

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vulnerability. Common proximal defenses include putting off contracting a will by rationalizing it as being a consideration to deal with in the future or using logic to justify that one will not have an early death due to family history. These types of proximal defenses use logic to suppress thoughts of death and remove them from one's immediate attention. Unlike the more individualized nature of distal defenses, proximal defenses are often presented in the form of institutions, one of the most common being religion. Religion is a particularly effective proximal defense because it provides a worldview complete with tangible answers to life's most intangible questions. For many people, it functions as a literal guide that explains how to live a meaningful life that, if followed, leads to immortality and ultimate significance (Greenberg, Pyszczynski & Solomon, 1999). However, religion also encompasses elements of distal defenses by instilling order, structure, and guidelines for achieving acceptance from the greater community and, therefore, higher self-esteem. For example, orthodox Jews live by the guidelines of the Torah, which provides an in depth outline for how one should dress, eat, spend the week and weekends, raise their children, etc. This serves as a very powerful distal defense because it gives structure to people's lives and provides the comfort that if one can live by these guidelines they will be accepted in society and by God (Vail et al., 2010).

Terror Management Theory and Religion

If the fear of death is really as central to the human experience as TMT theorists have suggested, it makes sense that religion has had such a widespread presence across cultures and throughout history, because the most basic premise of religion is belief in supernatural agents that connect humanity to the immortal world. Religion as a defensive system seems to encompass three main pillars: explaining the abstract concept of death, assigning ultimate significance to followers, and providing a network of validation for the religious worldview

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(Kirkpatrick, 2001). The first two pillars are founded on the pervasive theme across religions that immortality by way of a literal afterlife can be achieved through adherence to concrete guidelines; and the community aspect of religion acts as concrete social validation of this worldview (Vail et al., 2010). The three pillars are further strengthened by the way people anchor themselves to God(s). While exploring the depth of oneself can be a limitless undertaking that elicits death anxiety, followers of God(s) are able to engage in meaningful self-exploration while still being anchored to a secure defense that redirects existential thought before spiraling into unease. Seeing oneself as a reflection of God also asserts that humans are above other animals and that the soul is connected to an immortal being rather than one's own mortal body (Becker, 1973). These proximal defenses provided by religion create an ideal space for self-exploration within a secure and rigidly defined worldview.

The first pillar of religion, which explains the abstract concept of death, reduces death anxiety by making assertions as to what happens when we die. Dechesne and colleagues (2003) found that participants of all levels of religiosity did not demonstrate the use of a worldview defense and their self-esteem increased after reading about the existence of an afterlife. An additional study found that when death was made salient in Christians who believed in an afterlife, they reported higher levels of anxiety after their religion was challenged by misusing a crucifix (Greenberg, Simon, Porteus, Pyszczynski, & Solomon, 1995). When the worldview provided by religion is compromised, it arouses anxiety that is likely due to uncertainty.

The second pillar of religion, assigning ultimate significance to followers, reinforces the comforting idea that humanity's importance on earth exceeds that of other animals because the human soul is not bound to the animalistic body. In one previous study, participants read articles stating that humans are of higher status than other animals. The participants in a mortality

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salience condition reported feeling a heightened separation between the soul and the body, supporting the idea that the importance religion assigns to humans provides a feeling of significance (Goldenberg et al., 2001).

Arguably, the element that insures that religion can be an effective tool for buffering anxiety is its widespread nature, which addresses the third pillar by creating endless mass social validation for the worldview it provides. Any worldview defense is unlikely to work if it is not externally validated. One study found that when mortality was made salient among Christians, they went as far as attempting to bolster their own religious group by rating Jewish people more harshly (Greenberg et al., 1990). So, it was even more important to validate the strength of the religious group than validating the substance behind the worldview. The evidence provided supports the perspective that religion has a central function of buffering death anxiety by providing explanations about death and a social network to enforce it.

The experimental research just reviewed supports a relationship between death anxiety and religion; however, it is also clearly necessary to conduct correlational research to support the notion that religion functions to reduce death anxiety (or, put another way, people experiencing death anxiety are motivated to be religious). In fact, numerous studies have also assessed the correlational relationship between religion and death anxiety, but a survey of research reveals conflicting and inconclusive findings. Due to the abstract nature of both concepts (i.e., death anxiety and religiosity), researchers' have employed various interpretations along with inconsistent methodology and operational definitions of religion. Spilka, Hood, and Gorsuch (1985) reviewed 26 studies assessing this relationship in order to resolve the disarray in existing research and found that nine studies showed no significant relationship, three studies suggest that religiosity is associated with more death anxiety, and the remaining 24 studies suggested that

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religiosity was associated with less death anxiety. While one interpretation of these results suggest a complete contradiction, there is also evidence of a curvilinear relationship in which death anxiety is lowest among atheists and the most religiously conservative, but death anxiety increases as affiliation becomes more moderate on either end. This could suggest that religion is not the only effective defense against death anxiety, but one of many effective belief systems that depend on full, unwavering adherence. The TMT perspective interprets this relationship as a reflection of how solidified a person's worldview is, such that those who are fully devoted to either side of the spectrum are unwavering, whereas those who are more moderate are more likely to question the validity of their religious or non-religious worldview, resulting in greater anxiety (Jong & Halberstadt, 2016).

One final possibility concerning the relation between religiosity and death anxiety is that religiosity buffers death anxiety at explicit (conscious) levels, but that the elevated death anxiety that motivates religiosity persists at implicit (nonconscious) levels. Some studies hint at this possibility by teasing apart different elements of the conscious manifestation of death anxiety. Feldman, Gressis, and Fischer (2016) conducted a correlational study in which participants completed a self-report questionnaire measuring death anxiety, death acceptance, whether or not they had a religious belief, attachment to God, and belief in the afterlife. They found that belief in an afterlife predicted lower (explicit) death anxiety, but that just having a religious belief system was associated with greater death acceptance but not with death anxiety. Harding, Flennelly, Weaver, and Costa (2005) conducted a similar study in which participants completed self-reports measuring death anxiety, death acceptance and four aspects of religion. They found that only those who reported greater belief in God had lower death anxiety and greater death acceptance in relation to those who did not report any belief in God. These studies provide

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evidence that religion may be useful in buffering EDA by way of increasing death acceptance through the teachings of religion.

The Present Study

The previous research provides evidence that religion may function as a proximal defense that buffers EDA, but it does not address the question of how religion is, or is not, related to implicit death anxiety (IDA). The concept of IDA is fairly new to the field of TMT research and has been explored very little. In fact, there has only been one attempt at studying the relationship between IDA and religion, and the research was not published in a peer reviewed psychological journal. Jong and Halberstadt (2013) had participants complete an Implicit Association Test (IAT) about death anxiety, along with the Death Anxiety Questionnaire, which measured EDA, and the Supernatural Belief Scale. The IAT measured unconscious attitudes about death by assessing the amount of time it took participants to associate positive or negative words with stimuli that were related to death or neutral. They found that high religiosity was associated with lower EDA and even lower IDA than those who were not religious. Thus, they found that those who are religious have lower EDA and IDA than those who are not religious, but there is an even wider gap between religious and non-religious people in their experience of IDA than EDA. However, this finding was reported without statistical information about the size or reliability of the correlations. Additionally, the Supernatural Belief Scale created by Jong and Halberstadt used to measure religion has not been validated. While the results of this study do contradict the hypothesis of the current study, the relationship between IDA and religion requires further investigation.

In this vein, the current research aims to examine the relation between religiosity and both IDA and EDA. The conflicting nature of previous research exploring the relationship

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between EDA and religion as well as TMT's dual-process theory suggests that the relationship between religiosity and death anxiety may depend on the level at which death anxiety is measured. Previous research has suggested that religiosity buffers EDA through the proximal defenses provided by religion (e.g., belief in an afterlife), but what about IDA? First, the dual-process theory suggests that proximal defenses suppress death anxiety, but do not eliminate it. Second, TMT and Becker's (1973) assertions imply that religion might be particularly appealing to individuals who are especially prone to death anxiety. If religion buffers EDA, then, religious people (compared to less religious people) might be expected to display lower EDA at the same time as they exhibit higher IDA.

The current study aims to test this possibility, while also introducing a new method for measuring IDA. I predict that those who are more religious use the proximal, literal defenses of religion to lessen their explicit death anxiety, thus suppressing conscious manifestations of death anxiety but leaving the unconscious manifestations largely untouched. The literal defenses provided by religion may only function to suppress explicit death anxiety below consciousness, maintaining the implicit death anxiety that less religious people have the symbolic defenses to cope with. Thus, I hypothesize that those who are high in religiosity will have higher IDA than those who are low in religiosity and lower EDA than those who are low in religiosity.

Study 1

Method

Participants

180 participants were recruited through Amazon's Mechanical Turk to participate in this study. Three participants' data were excluded prior to analysis due to nonsensical responses to the question "In your own words, please describe what you think this study was about. Please be

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specific!” The data from 177 participants between the ages of 20 and 75 ($M = 36.49$) was used. There were 81 female participants, 95 male participants, and 1 participant who identified as “other.” Additionally, 10 participants were Asian American/Pacific Islanders, 19 were Black/African American, 8 were Hispanic/Latino, 137 were White/Caucasian, and 3 people identified as more than one ethnicity. There were no demographic exclusions.

Materials and Procedure

Participants were first brought to an introductory page in which they were told that their identity would be kept anonymous and the basic purpose of the study was described without revealing specific information that would impact the participants’ responding. After giving their informed consent, participants began the survey, which consisted of five sections, each consisting of a different measure. Each section began with the prompt: “Below you will find a number of statements that people have used to describe themselves. Please read each statement and then select the number that best corresponds to your general attitude towards the statement. Please do not spend too much time on any one statement and answer to the best of your ability.”

Implicit Death Anxiety Scale. The first section of the survey was the 13-item IDA measure. IDA measurement is a relatively unexplored area. While previous studies have used measures such as IATs and word completion tasks to measure IDA, these have been judged to be unreliable (Hart, 2014). For the purposes of this study, a new self-report measure was created including 13 items that aim to target death anxiety below the conscious level in order to assess IDA. These items aim to measure participants’ level of discomfort with death-related scenarios without asking about death anxiety outright. Participants responded to these thirteen items on a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). One purpose of Study 1 was to select the best items to use as the measure of IDA. In order to do this, the original 13

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items created to tap into indirect anxiety about death were submitted to a principle component analysis with promax rotation, resulting in a 5-item measure.

The first factor from the analysis included 1) “When a young child’s pet dies, I think it is a good idea for parents to replace it as if it were the same pet rather than telling the child about death,” 2) “I think our society wastes too much money on finding treatments that prolong the lives of people with incurable terminal illnesses for relatively short periods of time,” and 3) “A bit of danger and thrill in my life is exciting to me and keeps me on my toes” as the highest-loading items. Although these items loaded as the first factor, they seem to target different, unrelated aspects of death anxiety.

The second factor, however, was more promising (see Table 1). It included 1) “When describing someone who has died, I prefer to use nicer terms such as “he/she passed away” over the literal phrase ‘he/she died,’” 2) “If I was the only person to survive on earth due to an apocalyptic event, I would nevertheless try to continue surviving rather than end my life,” 3) “If I had a terminal illness, I would take every step to prolong my life as long as possible, even if I were no longer comfortable and had a poor quality of life,” 4) “When I pass a car accident on the highway, I can’t help but stare,” and 5) “I think our society wastes too much money on finding treatments that prolong the lives of people with incurable terminal illnesses for relatively short periods of time.” These five items seemed to reflect a vague discomfort with death combined with a motivation to preserve one’s life at all costs. These five items showed acceptable internal consistency ($\alpha = .53$), and, importantly, when they were averaged into a composite “implicit death anxiety” scale, did not correlate significantly with mean EDA, $r = .02$ $p = .77$, confirming

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that this set of items is targeting something apart from EDA.

Table 1

Factor Loadings for Items in the Second Factor of IDA Items

Item	Factor Loading
1. When describing someone who has died, I prefer to use nicer terms such as “he/she passed away” over the literal phrase “he/she died.”	.587
2. If I was the only person to survive on earth due to an apocalyptic event, I would nevertheless try to continue surviving rather than end my life.	.711
3. If I had a terminal illness, I would take every step to prolong my life as long as possible, even if I were no longer comfortable and had a poor quality of life.	.744
4. When I pass a car accident on the highway, I can’t help but stare.	.323
5. *I think our society wastes too much money on finding treatments that prolong the lives of people with incurable terminal illnesses for relatively short periods of time.	.363

Note: items marked with a “*” are reverse scored.

Experiences in Close Relationship Scale-Short Form (ECR-S). This scale, created by Russell, Mallinckrodt, & Vogel (2007), comprises 12 items that assess attachment anxiety and avoidance in romantic relationships on a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The aspect of this measure that assesses avoidant attachment include items such as “I want to get close to my partner, but I keep pulling back” and an example of an item assessing anxious attachment is “I need a lot of reassurance that I am loved by my partner.” The ECR-S was included in order to account for the possibility that attachment style may influence participants’ responses on the IDA scale based on the finding that those who are avoidant and anxious within romantic relationships experience unconscious death anxiety more than those who are securely attached (Mikulincer, Florian, & Tolmacz, 1990). The ECR-S has been found to be both valid and reliable as a measure of one’s attitudes within romantic relationships.

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Intrinsic/Extrinsic Religiosity Scale: Revised. The following section included Gorsuch and McPherson's (1989) Revised Intrinsic/Extrinsic Religiosity Scale and was used to measure participants' levels of religiosity. For the purposes of this study, only the eight items measuring intrinsic religiosity were used because they best target the more internalized aspects of religion that are thought to have the greatest influence in buffering death anxiety (Feldman, Gressis, & Fischer, 2016). These items were scored on a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) and included items such as "It is important for me to spend time in private thought and prayer" and "I often have a strong sense of God's presence." This measure targets religion in general, rather than a specific faith, which is why it was used for the purposes of this study.

Rosenberg Self-Esteem Scale (RSE). Similar to the reasoning for including the ECR-S, this section included Rosenberg's (1965) measure of self-esteem in order to explore the possibility that it would correlate with IDA due to the TMT perspective that higher self-esteem should correspond to lower death anxiety (Greenberg, Pyszczynski & Solomon, 1986). The 10 items that make up this scale target both positive attitudes about oneself (e.g. "I feel that I am a person of worth, at least on an equal basis with others and negative attitudes towards") and negative attitudes about oneself (e.g. "All in all, I am inclined to feel that I am a failure") on a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). This scale is widely used to measure self-esteem because it has been found to be both valid and reliable.

Death Anxiety Scale. Templer's (1970) 15-item Death Anxiety Scale (DAS) was administered to participants in order to assess their explicit death anxiety. These items were scored on a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The DAS includes statements such as "I am very much afraid to die" and "The thought of death seldom

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enters my mind” (one of six reverse-scored items). This measure has been widely used to assess death anxiety at the explicit level and has been found to be valid, and to have high test-retest reliability and internal consistency (Templer, 1970).

After completing the final section of the survey, participants were asked to give demographic information such as age, gender, and ethnicity. Participants were also asked to identify what they thought the study was about. On the next page, participants were debriefed with a more in depth description of the purpose of the study. On final page, participants were thanked for their participation and given the contact information required to inquire about any questions pertaining to the survey.

Results and Discussion

I first computed Pearson’s correlations between IDA and EDA. There was no correlation between IDA and EDA, $r = .02$ $p = .77$. Next, I conducted a multiple regression analysis predicting religiosity from EDA and IDA and found no main effect of EDA on religiosity, $\beta = -.08$ $p = .29$. I did find a main effect of IDA on religiosity, $\beta = .15$ $p = .05$, such that people higher in IDA also tended to be more religious. I entered the 2-way interaction term in the second step and found no interaction between IDA and EDA, $\beta = -.39$ $p = .43$.

I also computed Pearson’s correlations between each of the three control variables (self-esteem, attachment anxiety, and attachment avoidance) and IDA, EDA, and religiosity. The results are displayed in the correlation matrix in Table 2. There was a positive correlation between self-esteem and IDA, a negative correlation between attachment avoidance and IDA, and a marginally negative correlation between attachment anxiety and IDA. The finding that all three control measures do, at least somewhat, correlate with the IDA measure indicates that self-esteem, attachment avoidance, and attachment anxiety are involved in responding to items

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assessing IDA. Although, according to the TMT perspective, I would have expected all three confounds to have the opposite correlational direction as was found because of the ways in which attachment style can function as a defense against unconscious death anxiety and the notion that unconscious death anxiety tends to be related with lower self-esteem. Next, I ran a multiple regression analysis to assess the effect of IDA on religiosity while controlling for self-esteem, attachment anxiety, and attachment avoidance, and found that IDA still predicts religiosity at a marginally significant level when controlling for these three variables, $\beta = .15$ $p = .058$.

Table 2

Correlation Matrix for Study 1 Variables (N = 177)

Variables	1	2	3	4	5	6
1. Religiosity	.					
2. IDA	.15	.				
3. EDA	-.08	.02	.			
4. Attachment Anxiety	-.02	-.145	.49**	.		
5. Attachment Avoidance	-.03	-.27**	.40**	.38**	.	
6. Self-Esteem	.051	.32**	-.39**	-.49**	-.59**	.

** $p \leq .01$

The results of Study 1 provide the basis for further assessing the relationships between EDA and IDA with religiosity. The results suggest a need for further exploration in order to account for additional possible confounds and to collect data from a larger sample in order to further validate the results. Study 1 also provides evidence for discriminant validity of the new

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measure of IDA in that IDA and EDA were not correlated. However, IDA was correlated with attachment anxiety, attachment avoidance, and self-esteem in the opposite way from which I expected, suggesting the possibility that the IDA measure is not tapping into what I expected it to (despite the positive correlation with religiosity). Study 2 explores one possibility, namely, that the IDA scale might be measuring an ideology that holds life sacred, such as “pro-life” attitudes. Such a “culture of life” ideology is embedded in some religious traditions, such as the Fundamentalist and Catholic branches of Christianity. Items on the IDA scale dealing with subjects such as life support may target this ideology due to the emphasis on life-sustaining practices. Therefore, in Study 2, I added three items assessing culture-of-life ideology in order to be able to control for any variance due to that construct.

Study 2

Methods

Participants

200 participants were recruited through Amazon’s Mechanical Turk to participate in this study. Four participants’ data were excluded due to nonsensical responses to the question “In your own words, please describe what you think this study was about. Please be specific!” and 13 participants’ data were excluded because they had participated in Study 1. The data from 183 participants between the ages of 18 and 72 ($M = 35.41$) was analyzed. There were 73 female participants, 109 male participants, and 1 participant who identified as “other.” Additionally, 14 participants were Asian American/Pacific Islanders, 12 were Black/African American, 16 were Hispanic/Latino, 2 were Middle Eastern American, 1 was Native American/Alaskan Native, 134

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were White/Caucasian, and 4 people identified as more than one ethnicity. As with Study 1, there were no demographic exclusions.

Materials and Procedure

All aspects of the procedure and materials remained the same as in Study 1, except that I removed the ECR-S and the RSE, in order to keep the study brief, and added a measure of pro-life attitudes.

Implicit death anxiety scale. The first section of the Study 2 survey comprised the revised IDA scale that included the 5 items from the second factor of the factor analysis from Study 1, measured on a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). This scale had an alpha of .51, suggesting moderate internal consistency between the IDA items.

Pro-life attitudes. In order to control for ideological and/or political views that might influence responses to the IDA measure, participants were asked to respond to three items assessing attitudes towards “life” on a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The three items were 1) “I consider myself to be “pro-life,”” 2) “I support the pro-life movement and all that it stands for,” and 3) “I believe that human life at all stages, from conception through natural death, is sacred.” This scale had an alpha of .94 and, therefore, has high reliability.

Results

I first computed a Pearson’s correlation between IDA and EDA with religiosity. EDA was not significantly related to religiosity, $r = .05$ $p = .47$, and neither was IDA and religiosity, $p = .05$ $r = .52$. Although this relationship is not highly significant, it does indicate a marginal positive relationship between IDA and religiosity. I then conducted a multiple regression analysis in order to assess how IDA and EDA each predict religiosity. As in Study 1, I found no

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main effect of EDA on religiosity, $\beta = .05$ $p = .56$, and, contrary to Study 1, no main effect of IDA on religiosity, $\beta = .04$ $p = .62$. Additionally, I entered the 2-way interaction term in the second step and found no interaction between IDA and EDA, $\beta = .30$ $p = .51$. I then conducted a regression analysis to assess IDA as a predictor of religiosity when controlling for “pro-life” ideology and found a slight *negative* association between IDA and religiosity, $\beta = -.11$ $p = .12$. While this does not indicate an effect at the level of significance, it does suggest the possibility that those who are more religious actually have lower IDA than those who are less religious. (It also suggests the importance of controlling for pro-life attitudes when using the new measure of IDA.) It is possible that those who are religious are better equipped with the defenses against death anxiety below the conscious level than are those who are lower in religiosity and presumably use other defenses. Based on the results, these data do not speak to the question of whether people who become religious are initially higher in (implicit or explicit) death anxiety, but they are consistent with the notion that religion is a powerful defense against death anxiety, perhaps to the point that it lowers death anxiety even at unconscious levels among religious people.

Discussion

Due to the universal presence of religion throughout human history, it seems highly likely that it confers an intrinsic, adaptive function. Religion grants its followers social solidarity, structure by way of specific guidelines for how to navigate both the trivial and consequential aspects of one’s life, and, perhaps most importantly, immortality of the soul for those who adhere to its guidelines. This makes religion especially valuable for those who need structure and the promise of an afterlife in order to feel secure to operate within the world. Along these lines, TMT theorists have posited that religion acts as a defense against death anxiety. There is already

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evidence, for example, that just reading about an afterlife increases self-esteem and decreases the use of other anxiety-buffering worldview defenses (Dechesne et al., 2003), and that when one's religion and the existence of an afterlife is doubted, higher levels of anxiety are reported (Greenberg et al., 1995). This is likely the reason that it is common for religious ideologies to promote life-preserving practices, such as limitations on birth control.

Due to the elements of religion that provide an extremely literal, proximal defense against the fear of death, I initially expected that more religious people would report greater IDA, but less EDA, than those who are not religious. The results of Study 1 indicated that religiosity was not related to EDA at all, but IDA did, as hypothesized, predict religiosity (i.e., those who were more religious exhibited more IDA than those who were less religious). However, in Study 2, neither EDA nor IDA significantly predicted religiosity, though both correlations were in the positive direction. However, when controlling for "pro-life" ideology, IDA became somewhat negatively correlated with religiosity. These results suggest that there is no difference in EDA between more- and less-religious people, but those who are more religious exhibit less IDA than those who are less religious. Seeing as there was no correlation between EDA and religiosity in either study, perhaps further studies should focus specifically on IDA and how religion functions to buffer unconscious death anxiety in a way that other defenses cannot, and why the effect does not seem to extend to EDA. The measure constructed for the purpose of this study may, for the time being, be the best one to use for such purposes; however, future research will be needed to validate and perhaps refine the measure. Importantly, it appears to be a good idea to control for "pro-life" ideology when using this new measure.

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These results clearly diverge from the original hypothesis, while still being consistent with the theory of religion as a death-anxiety buffer. My hypothesis was based on the perspective that the level of death anxiety one experiences, either consciously or unconsciously, makes one more likely to embrace religion. Perhaps those who experience greater IDA initially are more likely to choose a defense like religion, but subsequently, the religion serves as an effective buffer, and thus they exhibit less IDA than those who are not religious due to religion buffering their unconscious death anxiety.

Limitations and Future Directions

The subject of implicit death anxiety and how it relates to religion as a defense is fairly new, with the current research being among the first efforts to assess this relationship. One of the greatest limitations of the current study is that there is no widely accepted way to measure implicit death anxiety. Because implicit death anxiety is below the conscious level, it is difficult to be sure that this is what the items are truly targeting. Thus, the scale I created for the purpose of this study needs to be developed further in order to increase the internal consistency and validity of the scale.

The relative lack of research on implicit death anxiety using a self-report measure poses additional limitations for the current study. My hypothesis is based on the assumption that one's level of IDA and EDA predicts his or her religiosity. However, there is a need for further assessing the ways in which religion interacts with death anxiety at the conscious and unconscious level in order to establish a more comprehensive conclusion. In further exploration of this topic, it may be beneficial to conduct a longitudinal study in which participants respond to the self-report questionnaires utilized in study 2 multiple times over set time intervals. This would illuminate the way in which religiosity changes along with IDA and EDA and give a more

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comprehensive outlook on the directionality of the relationship. For example, if someone's IDA declines followed by a decline in religiosity, it could be assumed that when one's unconscious death anxiety is lowered they do not need the defenses provided by religion to the same extent anymore. An additional way to assess this relationship in future research would be to manipulate religiosity and assess participants' IDA and EDA. This could be done using similar methodology as Vail and colleagues (2010) study wherein Christian participants reported their level of death anxiety after witnessing a crucifix being used in a disrespectful way. If participants in a condition in which religiosity is compromised report greater IDA but equivalent EDA to those in a control condition, it would support the notion that religiosity is causally related to IDA.

The question of how death anxiety below the level of consciousness relates to religion and the ways in which religion functions to mitigate death anxiety is a novel research topic. However, due to the inconclusive evidence for the relationship between general death anxiety and religion, it is imperative to further explore this area. While the results of the current study do not support the original hypothesis, the conclusions to be made from this research provide important insight into how to explore this topic further and, hopefully, more concrete evidence for the relationship between religion and IDA in the future.

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