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# Prejudice Toward Atheists in the United States as Related to Perceived Prevalence

Wanda D. Brooks  
*Old Dominion University*

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**Prejudice toward Atheists in the United States as  
Related to Perceived Prevalence**

by

Wanda D. Brooks  
A.A.S. 2011, Paul D. Camp Community College  
B.S. 2013, Old Dominion University

A Thesis Submitted to the Faculty of  
Old Dominion University in Partial Fulfillment of the  
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Approved By:

James M. Henson (Director)  
Ivan Ash (Member)  
Valerian Derlega (Member)

## ABSTRACT

### PREJUDICE TOWARD ATHEISTS IN THE UNITED STATES AS RELATED TO PERCEIVED PREVALENCE

Wanda D. Brooks  
Old Dominion University, 2016  
Director: Dr. James M. Henson

By manipulating mortality salience (MS) in place of life-threatening events to stimulate death-related thoughts, the current research contributes to the body of research supporting Terror Management Theory. It was hypothesized that religious participants should exhibit cultural worldview defense by scoring higher in anti-atheist prejudice following the MS manipulation than would those in the control condition. Further, this research extends the current research into Terror Management Theory as a cause for conflict among out-groups and explores its effects on cultural worldviews in the area of prejudice toward atheists. This includes examining how the perception of an increasing prevalence of atheists contributes to greater prejudice, such that those receiving statistics about the prevalence of atheists should score higher on the prejudice toward atheists measure than would those not receiving the prevalence statistics. This effect should be the greatest for those who have experienced the MS manipulation and who are religious. A between-subjects factorial 2(Mortality Salience) X 2(Prevalence Statistics) X 2(Religious Status) ANOVA design using anti-atheist prejudice as the dependent measure was conducted. Results indicated that religious individuals have more prejudice toward atheists than non-religious individuals and that this effect increases following reminders of death. Statistics about the increasing prevalence of atheists in the U.S. did not have an effect on the level of prejudice toward atheists.

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This thesis is dedicated to my father, Paul Richard Brooks, Jr.

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## CHAPTER 1

### INTRODUCTION

Atheism in the United States is becoming more culturally commonplace (Cimino & Smith, 2011; Guenther, Mulligan & Papp, 2013; Jones et al., 1984). In a part of the world where Christian values are the norm (PEW Research Center, 2012) the term ‘atheist’ has a high rate of prejudice attached to it (Gervais & Norenzayan, 2012a; Jones et al., 1984; Norenzayan & Gervais, 2013; Pippa & Inglehart, 2003; Zuckerman, 2009). To many people in the United States, atheists are seen as unprincipled, immoral or unethical, which is a root cause of the prejudicial attitudes toward atheists (D’Andrea & Sprenger 2007; Downey, 2004; Edgell, Gerteis, & Hartmann, 2006; Gervais & Norenzayan, 2012; Gervais, Shariff & Norenzayan, 2011; Harper 2007; Heiner 1992; Koproske 2006; Wright & Nichols, 2014; Zuckerman, 2009). The fact that atheism is becoming more common in the U.S. may be alarming to those who see their Christian values being challenged (Edgell et al., 2006; Jones, 2012), which may lead to higher prejudicial attitudes toward atheists. Terror Management Theory (TMT) has shown that perceived threat toward one’s cultural worldview promotes negative attitudes toward out-groups (Becker, 1975; Greenberg et al., 1986). Previous studies have used Mortality Salience (MS; awareness of the inevitability of one’s own death) as a motivation for defense of one’s own cultural worldview (Greenberg et al., 1986; Greenberg, 2012, Shimel, Hayes, Williams & Jahrig 2007). The current study will demonstrate that atheists act as a threat toward the religious cultural worldview. This will be accomplished by measuring the impact that current atheist prevalence statistics in the United States has on the reporting of prejudice towards atheists. In accordance with TMT, when those with a religious cultural worldview are presented with the increasing numbers of atheists in the U.S. there should be increased levels of prejudice. Further,

this study will examine the interactive effects of MS and Prevalence Statistics on the attitudes of those with a religious worldview.

### **The Nature of Prejudice**

Allport (1954) writes that it is universal in all human societies for a child to be regarded as a member of his or her parents' groups. This would be the case for race, religion, social and socioeconomic status. Allport (1954) states that whichever traditions, loyalties or prejudices the parents have, a child will usually inherit. According to Allport (1954) the two basic ingredients of prejudice are derogation of people and attributes of those that do not belong to your group, as well as over generalizing (stereotyping) those attributes as belonging to everyone who is outside of your group. Some call this the in-group/out-group mentality (Edgell et al., 2006; Jones et al., 1984).

People feel threatened by those who do not belong to their group (Edgell et al., 2006; Jones et al., 1984). The in-group has shared values and preferences that, when not shared by others (out-group), can cause stigmatization or discrimination (Jones et al., 1984; Kursban & Leary, 2001). This behavior occurs "when a shared characteristic of a category of people becomes consensually regarded as a basis for disassociating from (that is, avoiding, excluding, ostracizing, or otherwise minimizing interaction with) individuals who are perceived to be members of that category" (Leary & Schreindorfer, 1998, p.15). This reaction to threat can manifest in many different forms, such as dislike, distrust, fear, and hostility (Gervais et al., 2011; Gervais & Norenzayan, 2012b; Wright & Nichols, 2014). Edgell and colleagues (2006) explain that in the United States religious boundaries form in-groups even within all of the otherwise marginalized groups. That is, Catholics, Protestants, Jews, and even Muslims have

become tolerated by one another as part of a religious in-group, leaving atheists as “other” or as the out-group.

### **Dependent Variable - Prejudice towards atheism**

In the United States, atheists are not usually thought of as a marginalized group, but atheists across the nation report discrimination and prejudice (Brewster et al., 2016; Cragun, Kosmin, Keysar, Hammer & Nielsen, 2012; Hammer, Cragun, Hwang & Smith, 2012; Swan & Heesacker, 2012). Gervais and colleagues (2011) conducted a study in which they measured stereotype bias towards atheists and found that atheist prejudice is caused by distrust and the perceived lack of morality in atheists. Implicit measures in this study showed that the prejudice against atheists had more to do with distrust than with dislike (Gervais et al., 2011). Another stereotypical characteristic of an atheist is immorality (Edgell et al., 2006; Gervais et al., 2011; Wright & Nichols, 2014). In a study by Wright and Nichols (2014) of both religious and non-religious participants, they found that moral actions are judged as being more moral if performed by a religious person and less moral if performed by a non-religious person. Likewise, an immoral action is judged to be more immoral if performed by a non-religious person and is judged as being less immoral if performed by a religious person. Gervais (2014) continued his studies of anti-atheist prejudice and found that U.S. participants believe that terribly immoral acts (e.g. serial murder, bestiality, cannibalism) are more likely to be committed by atheists compared to eleven other people groups in the country (e.g. religious, ethnic).

Many people believe that without God one cannot be moral and therefore are worthy of distrust (Edgell et al., 2006; Gervais, 2014; Jones, 2006). The perceived morality of an individual varies according to their religious status, their actions, and perceived reasons behind their actions. Religious individuals are believed to have a personal morality in their private lives and

this makes them ‘good Americans’ even if they’re of a different religion (Edgell et al., 2006; Farkas, Johnson, & Foleno, 2001; Jones, 2006). This promotes the belief that atheists, whose personal morality does not come from religion, are not ‘good Americans’. Thus, in effect, religion becomes a “moral basis for cultural membership” (Edgell et al., 2006) and puts atheists as ‘Other’ or outside of the worldview of those who put religion at the center of U.S. culture.

### **Terror Management Theory (TMT) as a Framework for Prejudice**

Terror Management Theory provides a framework to explain the prejudice towards those outside of one’s worldview. TMT was developed from the works of Ernest Becker (1962/71, 1973,1975) primarily to explain why perpetrators of hateful acts toward the out-group behave as they do and to explain how cultural world-view defense leads to prejudice toward the out-group (Greenberg et al., 1986, 2008; Solomon, Greenberg & Pyszczynski, 1991).

Humans have the unique ability to communicate about themselves in terms of goals, preferences, and ways to make changes in their own futures (Becker, 1971; Greenberg, 2008). In addition to the ability to perceive a future, humanity realizes the inevitability of death for every animal, including themselves (Becker, 1971; Solomon et al., 1991). This awareness brings a sense of self-preservation (Greenberg, 1986; Solomon et al. 1991) to protect oneself from the psychological terror of life being extinguished.

TMT posits that humans have built cultural worldviews, including religion, to provide meaning and stability for continued existence (Solomon et al., 1991). These worldviews have values, social standards and, in most worldviews, the promise of immortality if one lives according to these standards. This immortality can be either some kind of existence after death or symbolic immortality through meaningful achievement (e.g., art, books, children) that one leaves behind after death (Becker, 1971; Greenberg, 2008; Mikulincer, 2002; Shimel, Hayes, Williams

& Jahrig 2007; Solomon et al., 1991). Although in later studies, researchers have found that symbolic immortality is a poor substitute for a belief in life after death in easing fear of death (Greenberg, 2012; Heflick & Goldenberg, 2011).

### **Potential explanatory mediating variable – Death-thought accessibility (DTA)**

Weakening or threatening worldview beliefs can create or increase death-related thoughts, which has been called death-thought accessibility (DTA). DTA increases negative attitudes toward that which weakens the worldview belief (Arndt, Cook & Rutledge, 2004; Greenberg & Kosloff, 2008; Rosenblatt et al., 1989).

Many cultures use religious concepts to mitigate the fear related to the inevitability of death (Rosenblatt et al., 1989) in the form of literal immortality and contributions to society (e.g., family, art, science) as symbolic immortality. Being religious and having a belief in some kind of life after death reduces DTA and worldview defense through the use of proximal methods such as denial and suppression (Cook et al., 2014, 2015; Rosenblatt et al., 1989). Inversely, threats toward one's religion can increase DTA and worldview defense, resulting in greater prejudice toward the threat (Arndt et al., 1997; Cook et al., 2014; Greenberg, 2012; Greenberg, Arndt, Simon, Pyszczynski, & Solomon, 2000; Shimel et al., 2007).

### **Independent variable – Religious Status**

The cultural worldview has two roles in TMT: the first is to provide meaning and a framework for living one's life and the second is to succeed at excelling within that framework, creating a sense of personal value (Greenberg, 2008; Solomon et al., 1991). Solomon and colleagues (1991) posit that the primary reason for building our cultural worldview is to “buffer against anxiety” about an inevitable death (Becker, 1973; Greenberg et al., 1986). These studies have shown that mortality salience (MS), or awareness of inevitable death, increases

stereotypical behavior toward out-groups (Greenberg, 2012). Becker (1975) points out that this need for alignment with their cultural worldview results in prejudice and derogation of out-groups. Therefore, based on previous literature, I expect to find:

Hypothesis 1: Controlling for prevalence statistics and MS condition, religious participants will have significantly higher prejudice toward atheists when compared with non-religious participants.

### **Independent variable – Mortality Salience (MS)**

There have been over 400 studies done in 15 countries with different cultures, age groups, and variables that have all shown support for TMT (Greenberg, 2012; Shimmel et al., 2007). Terror management theory has most often been studied using reminders of death, which is called mortality salience (MS). Comparison conditions for MS have been many adverse topics (e.g., dental pain, intense pain, paralysis, upcoming exam, failure, public speaking, meaninglessness, social exclusion), but MS has shown significantly different effects than these alternate conditions in most studies (Greenberg, 2012; Shimmel et al., 2007). In response to reminders of death, participants showed greater worldview defense (Cook, Cottrell, & Webster, 2014; Cook et al., 2014; Cook, Cohen & Solomon, 2015; Greenberg, 1992; Shimmel et al., 2007). These studies have shown that mortality salience (MS), or awareness of inevitable death, increases stereotypical behavior toward out-groups (Greenberg, 2012). Becker (1975) points out that this need for alignment with their cultural worldview results in prejudice and derogation of out-groups. Therefore, based on previous research I expect to find:

Hypothesis 2: Controlling for prevalence statistics and religious status, those participants in the MS condition will have significantly higher prejudice toward atheists when compared with those in the TV show condition (control).



## **Independent Variable - Prevalence of atheists in the United States as a mechanism to effect prejudice**

In 2007 there was estimated to be between 500,000,000 and 750,000,000 atheists worldwide (Zuckerman, 2007). Although not all of them live in the United States, it is estimated that there are now over 57.5 million religious “Nones” living in this country (PEW Research Center, 2014). The term “Nones” refers to those who choose “No religion” or “None” when asked which religion they adhere to or affiliate with. Although this amounts to about 23.5% of the U.S. adult population (Edgell et al., 2006; Kosmin, Keysar, Cragun & Navarro-Rivera, 2008; PEW Research Center, 2015), up from 8.1% in 1990 and 15% in 2007, these numbers are far greater than the combined total of all other non-Christian religions in the U.S., which was 8,796,000 in 2008 (Kosmin et al., 2008). However, only about 6% (almost 15 million) of the U.S. population would acknowledge being atheist or agnostic (Hout & Fischer, 2001; Kosmin & Keysar, 2013; PEW, 2012). This number is up from only 2% (almost 5 million) in 2008 (Kosmin & Keysar, 2008).

In the 2008 American Religious Identification Survey (ARIS) it was found that 53% of “Nones” in the sample came from some type of Christian denomination. The ARIS reported that 66% of the Nones are those who have left religion, with only 32% having families that were already non-religious. Whereas atheists only make up about 13% of those classified as Nones (add that to agnostic and you get 32%), it can be understood that a great many of them are underusing the terms atheist and agnostic because of the stigma that accompany them (Jones, 1984; Gervais et al., 1992).

Along with this actual increase of atheists in the U.S., the upsurge in visibility in recent years certainly contributes to the threat to the religious cultural worldview. Jones and colleagues

(1984) explained that the more visible the characteristics in question are, the greater the likelihood of prejudice toward an out-group. Guenther and colleagues (2013) put forth the hypothesis that by making themselves more visible in many different arenas, that atheism is benefiting by a type of collective identity that is increasing their numbers. Silverman (2015) gives American Atheists Inc. credit for the large increase of those calling themselves atheists in the polls because of the work they do in making atheists more visible.

According to TMT, the very existence of alternate worldviews that contrast with one's own sense of value and social framework threaten the personal value built up by sharing and contributing to a view with others in their own cultural worldview (Becker, 1973, 1975; Greenberg et al., 1986). Therefore, based on previous research, I expect to find:

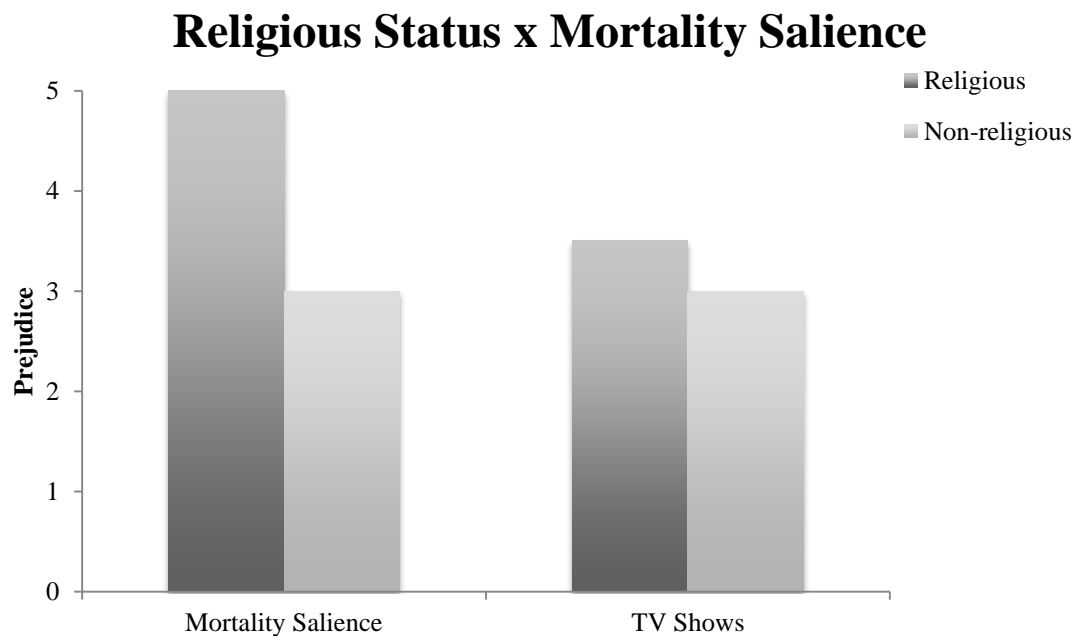
Hypothesis 3: Controlling for MS condition and religious status, participants reading prevalence statistics about atheists in the U.S. will have significantly higher prejudice toward atheists when compared with those reading about courtroom procedures (control condition).

In studies performed by researchers Cook et al. (2014, 2015) and Greenberg (2012) atheists were identified as a threat toward religious cultural worldviews, and therefore produce or increase DTA, which leads to worldview defense. In the Cook and colleagues (2015) study, participants were first either given an MS or control measure and then used a Feeling Thermometer measure (0=very cool, 100=very warm) to indicate their feelings toward atheists or Quakers. Next participants were asked to complete a Social Distancing scale (1= strongly disagree, 6 = strongly agree) on a number of questions, such as "I would like a member of this group to marry into my family" and "They are people I find trustworthy." Those in the MS condition rated atheists with significantly more negativity.

In the current study, the MS condition should trigger participants to defend their worldview. Those with a religious cultural worldview should report more prejudice in the Negative Attitudes toward Atheists scale. Therefore, based on previous literature, I expect to find:

Hypothesis 4: I hypothesize that participant's religious status will moderate the effect of mortality salience, such that the difference between the MS condition and the TV show condition (control) will be significantly greater among religious individuals as opposed to non-religious individuals, (see *Figure 1*).

*Figure 1: Religious Status x Mortality Salience*

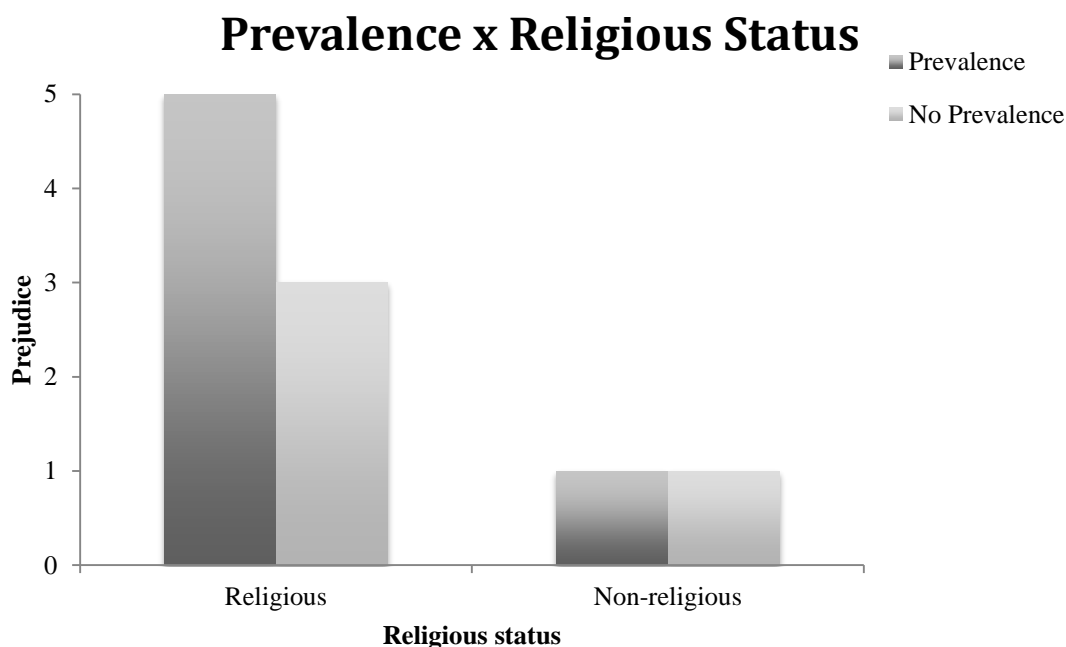


In a second study by Cook and his colleagues (2015) thoughts toward atheism were used as a separate condition in conjunction with an MS condition and a control condition (i.e., intense pain). The results demonstrated that both atheism and the MS condition produced significantly higher DTA than those in the control condition. This experiment strongly suggests that thoughts

about atheism increase death anxiety (DTA), just as MS does, and is an existential threat toward the religious worldview. Based on previous research, the information about the increasing prevalence of atheists in the United States should trigger worldview defense for those with a religious cultural worldview, which would result in more reported prejudice on the Negative Attitudes toward Atheists scale.

Hypothesis 5: I hypothesize that participant's religious status will moderate the effect of the prevalence statistics, such that for religious individuals the level of prejudice will be significantly higher for those reading the prevalence of atheist statistics than for those not reading the prevalence statistics; however, I do not expect an effect of the prevalence statistics among non-religious individuals, (see *Figure 2*).

Figure 2: Prevalence x Religious Status

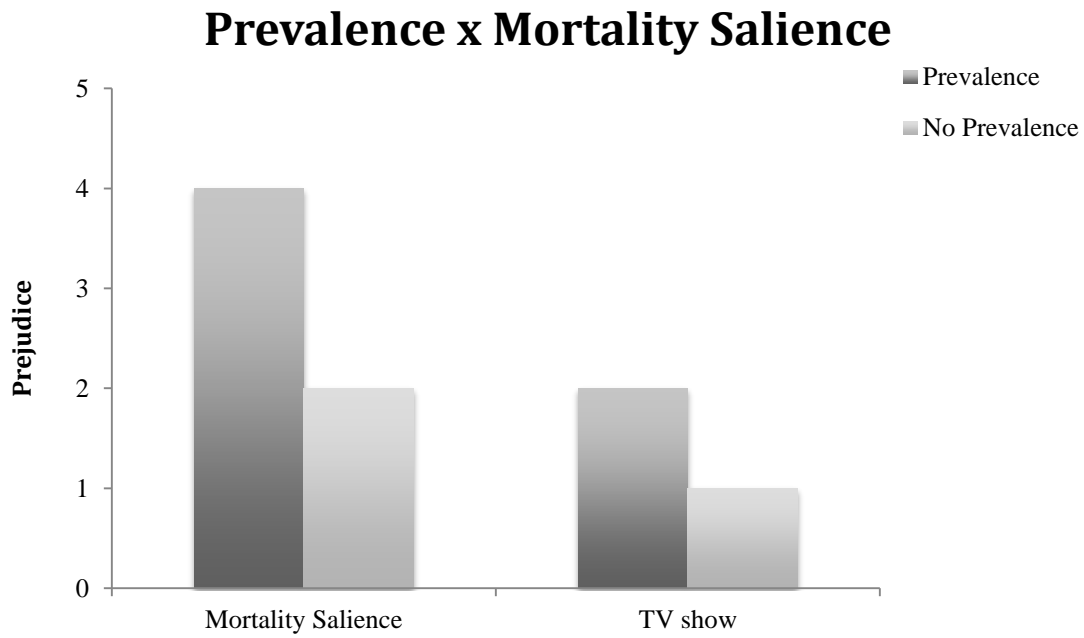


In the same study (Cook et al., 2015), when atheism and MS were used as levels of the same condition along with a control (intense pain), the effects of both MS and atheism were significant. These two variables were not significantly different from each other. However, the atheist and MS conditions were separate levels of the same condition, and not separate conditions, so interaction effects were not examined. In the 1<sup>st</sup> experiment just thinking about atheism increased DTA; therefore, it is reasonable to predict that being presented with both conditions would increase DTA and worldview defense at a higher rate, resulting in more reported prejudice in the Negative Attitudes toward Atheists Scale. Therefore, based on previous literature:

Hypothesis 6: I hypothesize that mortality salience will moderate the effect of the prevalence statistics, such that the effect of the prevalence statistics on the level of

prejudice will be significantly greater for those in the MS condition as compared to those in the TV show condition (control), (see *Figure 3*).

*Figure 3: Prevalence x Mortality Salience*



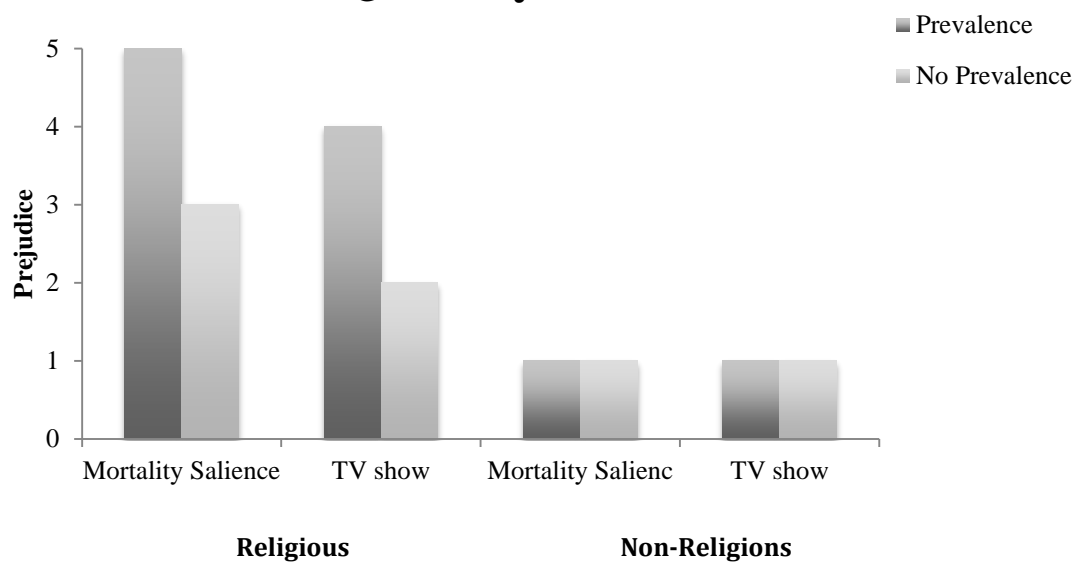
Because the United States is predominantly a Christian nation (PEW Research Center, 2012) and most religious people see atheists as not being ‘good Americans’ (Edgall et al., 2006), coupled with the previous hypothesis of mortality salience moderating the effect of prevalence statistics, it is reasonable to believe that the religious status of the individual will also moderate the effects of prevalence statistics and mortality salience on prejudice. Therefore, based on previous literature:

*Research Question:* Compared to individuals in the courtroom procedures condition and who are non-religious, will individuals in the MS condition who received the prevalence statistic and who are religious exhibit an effect of the prevalence statistics greater than those in the TV condition (see *Figure 4*)?

In other words, the MS condition should increase the reaction to the Prevalence Statistics, resulting in a report of greater prejudice from the Religious participants; all other effects will be minimal.

*Figure 4:* Prevalence x Religious Status x Mortality Salience

### RQ: 3-Way Interaction





## CHAPTER 2

### METHOD

#### Participants

Participants (Female=126; Male=103; Other=4) were recruited through the reddit.com social media site in various sub-reddits (e.g., psychology, social\_psychology, mathpsych) via survey link generated by Qualtrics. Using the statistical software G\*power, I determined a sample size of  $N=237$  would be sufficient to detect a moderate effect size ( $f = .25$ ) in a  $2 \times 2 \times 2$  between-subjects factorial ANOVA with an alpha = .05 and power of .80 (Faul, Erdfelder, Lang & Buchner, 2007). To be eligible for this research, participants had to have been U.S. citizens over the age of 18. All participants were anonymous ( $N=233$ ), and participants volunteered to complete the survey with no added incentive.

#### Materials

**Prejudice (DV)** Participants completed the 7-item ( $\alpha = .90$ ) Negative Attitudes toward Atheists Scale (Gervais 2011). Participants indicated on a 5-point Likert scale (1=Strongly Disagree and 5=Strongly Agree) how strongly they agreed with statements such as “I would be uncomfortable with an atheist teaching my child”. Two of the answers were reverse coded (as indicated in the scale, Appendix A). Each answer was scored on a range of 1-5, and the total was averaged. This measure will be tested at the .05 alpha level.

**Death-thought Accessibility** (potential mediator) was measured by a fill-in-the-blank word fragment list (Arndt et al., 1997). The results of the DTA measure should change at roughly the same rate as prejudice in religious participants. There were 2 blank spaces per word that participants filled in. Possible death-related words (e.g., coffin, grave, buried) were summed.

This test is 25 word fragments with 6 containing possible death-related words, for a score ranging from 0-6, (Appendix B).

**Independent Variable – Religious Status** was assessed by asking participants what best describes their religious affiliation. Participants chose which fit most closely (e.g., Catholic, Muslim, Other Christian, Atheist). Those participants indicating identification with a religious were coded as religious. Those indicating atheist, agnostic, or nothing in particular were coded as non-religious. This question was included in the demographics measure (Appendix C). Other information about participants' age, citizenship, gender, and education level were also collected (see Table 1). The questionnaire was administered at the end of the survey to reduce any potential bias.

**Independent Variable – Mortality Salience (MS)** was primed by first asking the participants to write about what they think will happen to them when they die as specifically as they can (Appendix D). Second, they wrote down what emotions arise by thinking about this. This measure has been used in other studies of TMT and anti-atheist prejudice research (Cook et al. 2014, 2015; Greenberg et al. 2012; Kosloff et al. 2011). The control group was asked to write about their favorite TV show (Appendix E).

**Independent Variable – Prevalence of atheist salience** was primed by giving statistics about the growing number of non-religious/atheists in the U.S. from roughly 2007-2015 (Appendix F). One such statistic for example is: In 2014, 35% of the millennial generation (age 18-30) fell into the category of no religion. This figure is up from only 25% in 2007. The control group was given statistics on courtroom jury selection procedures (Appendix G).

**Delay measure.** After the initial MS condition and the presentation of atheist prevalence statistics, we included a delay before assessing the prejudice measure, during which we collected

an implicit measure of DTA, which should trigger the distal worldview defenses. This delay task ‘Reason for reading’ was created by the researcher and was not scored (Appendix H). The participants were asked 1.If they read mostly for school, work or pleasure; 2. Which genre they read most (if for pleasure); and 3. What was the last book that they had read.

Table 1:

*Demographics*

Gender	n (%)
Female	126 (54.1)
Male	103(44.2)
Other	4 (1.7)
Education	n (%)
Some high school	1(.4)
High school graduate	15 (6.4)
Some college	63 (27.0)
College graduate	83 (35.6)
Graduate degree	71 (30.5)
Religious Affiliation	n (%)
Evangelical Protestant (Christian)	20(8.5)
Mainline Protestant (Christian)	16(6.8)
Catholic (Christian)	16 (6.8)
Mormon	1 (0.4)
Orthodox Christian	3 (1.3)
Other Christian	27 (11.5)
Jewish	4 (1.7)
Muslim	1 (0.4)
Buddhist	4 (1.7)
Hindu	2 (0.9)
Other world religion	9 (3.8)
Atheist	80 (34.2)
Agnostic	28 (12)
Nothing in particular	17 (7.3)
Missing	5 (2)

## Procedure

The study was conducted online using a response link generated by Qualtrics software. Clicking the survey link brought participants to a notification statement. To provide consent after reading the document, the participant had to choose to continue with the survey. After giving consent, participants moved through a series of measures (see *Figure 5*) that were used after approval by the institutional review board at Old Dominion University.

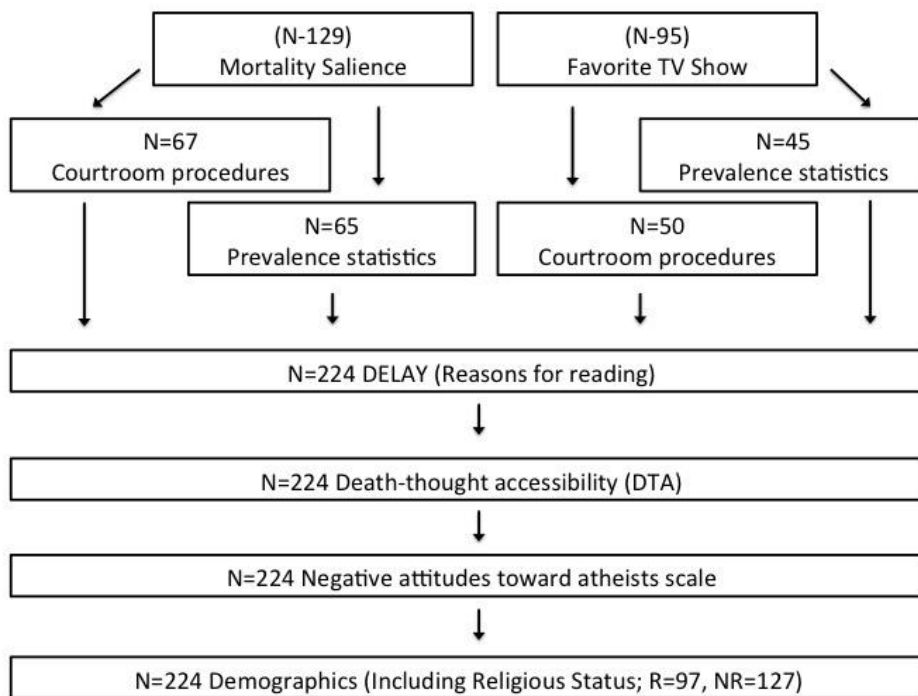
The participants were randomly placed into either the Mortality Salience or TV show conditions. Next, each condition's participants were again randomly placed in either the Prevalence Statistics or Courtroom Procedures groups. All participants were given the Delay measure, followed by the DTA measure and the Negative Attitudes Scale. After completing this portion of the study participants were asked to complete a short demographic questionnaire, debriefed, thanked, and prompted to exit the online questionnaire. The complete questionnaire required approximately ten minutes to complete

## Data Analysis

All analyses were conducted in SPSS Version 21.0. For significant interactions, simple slope analyses were conducted using SPSS. A 2x2x2 between-subjects factorial ANOVA was performed in which religious status (religious vs. non-religious), information condition (prevalence statistics vs. courtroom procedures) and mortality salience (mortality salience vs. favorite TV show) and their interactions were entered as predictors of prejudice toward atheists. I expected significant main effects to arise in Hypotheses 1-3 between the predictors and prejudice. I also expected significant two-way interactions based on Hypotheses 4-6. I had an

added Research Question as to whether mortality salience acts on prevalence statistics by increasing the Negative Attitudes toward atheists. To test this question I looked for a significant three-way interaction between the prevalence statistics group, the religious status group, and the mortality salience group. An identical 2x2x2 factorial ANOVA was conducted to determine if DTA was similarly affected.

Figure 5: Procedure: N=224



### Summary of Hypotheses and Research Question

**Hypothesis 1: Religious Status.** There will be a main effect of religious status, such that the prejudice marginal mean for religious individuals will be higher than the prejudice marginal mean for non-religious individuals. To test Hypothesis 1, I examined the main effect of religiosity on prejudice within the ANOVA.

***Hypothesis 2: Mortality Salience.*** There will be a main effect of mortality salience, such that the prejudice marginal mean for participants writing about their death will be higher than the prejudice marginal mean for participants writing about their favorite TV show. To test Hypothesis 2, I examined the main effect of mortality salience on prejudice within the ANOVA.

***Hypothesis 3: Prevalence Statistics.*** There will be a main effect of prevalence statistics, such that the prejudice marginal mean for participants reading prevalence statistics will be higher than the prejudice marginal mean for participants not reading prevalence statistics. To test Hypothesis 3, I examined the main effect of prevalence statistics on prejudice within the ANOVA.

***Hypothesis 4: Religious Status and Mortality Salience.*** To test Hypothesis 4, I examined the interaction between religious status and mortality salience on prejudice within the ANOVA. I hypothesized that the level of prejudice towards atheists would be significantly higher for those in the MS condition than in the TV Show condition, specifically among religious individuals (as compared to non-religious individuals). To test this hypothesis, I conducted the simple slope analyses (see *Figure 1*).

***Hypothesis 5: Prevalence Statistics and Religious Status.*** To test Hypothesis 5, I examined the interaction between prevalence statistics and religious status on prejudice within the ANOVA. Specifically, I expected that the level of prejudice for those reading the prevalence of atheist statistics would be significantly higher than for those not reading the prevalence statistics, specifically among religious individuals (as compared to non-religious individuals). To test this hypothesis, I conducted the simple slope analyses (see *Figure 2*).

***Hypothesis 6: Prevalence Statistics and Mortality Salience.*** To test Hypothesis 6, I examined the interaction between prevalence statistics and mortality salience on prejudice within

the ANOVA. Specifically, I expected that the level of prejudice toward atheists would be higher for those in the MS condition than for those in the TV Show condition. To test this hypothesis, I conducted the simple slope analyses (see *Figure 3*).

***Research Question: Religious Status, Prevalence Statistics, and Mortality Salience.*** To test the Research Question, I examined the interactions between religious status, prevalence statistics, and mortality salience on prejudice within the ANOVA. Compared to individuals in the courtroom procedures condition, TV show condition, and who are non-religious, will individuals who are in the mortality salience condition, who receive the prevalence statistics, and who are religious exhibit the greatest prejudice towards atheists (see *Figure 4*)?

## CHAPTER 3

### RESULTS

#### Data Cleaning

I first sorted by citizenship and removed all cases that were not United States citizens or at least 18 years of age yielding a sample size of  $N=233$ . Then the data were cleaned in preparation for the data analyses and to ensure the necessary statistical assumptions were met.

The Negative Attitudes Scale histogram was positively skewed. Shapiro-Wilk's test for normality was  $p < .001$  for the dependent variable of Negative Attitudes Scale. Homogeneity of variance was assessed via Levene's test, and was significant at  $F(7, 215) = 9.156, p < .001$ , suggesting that the groups do not have equal variance. However, because the ANOVA is robust to the violation of homogeneity of variance for fairly large sample sizes and balanced data, all results are reported with original data for easier interpretation.

#### Descriptive Statistics

The descriptive statistics for the independent variables on the Negative Attitudes toward Atheist Scale are as follows: Religious Status (Religious  $N=96, M= 2.72$ ; Non-religious  $N=124, M= 1.43$ ), Mortality Salience (Mortality Salience  $N=127, M= 2.0$ ; TV Show  $N=93, M = 1.97$ ), and Prevalence Statistics (Prevalence Statistics  $N=112, M= 2.05$ ; Courtroom Procedures  $N=108, M= 1.92$ ) are listed in Table 2.

The independent variables on DTA: Religious Status (Religious  $N=97, M=1.96$ ; Non-religious  $N=126, M=1.90$ ), Mortality Salience (Mortality Salience  $N=128, M= 1.96$ ; TV Show  $N=95, M = 1.87$ ), and Prevalence Statistics (Prevalence Statistics  $N=114, M= 1.90$ ; Courtroom Procedures  $N=109, M= 1.94$ ) are listed in Table 3.



Table 2:  
*Descriptive Statistics of Independent Variables on Negative Attitudes toward Atheists*

	N	Mean	SD	CI	SE
Religious	96	2.7156	1.0402	2.5049- 2.9264	.1061
Non-religious	124	1.4248	.48788	1.3381-1.5116	.0438
Mortality Saliency	127	2.0028	1.04938	1.8186 - 2.187	.0931
TV Show	93	1.9680	.95210	1.7719- 2.1640	.0987
Prevalence Statistics	112	2.0536	1.05818	1.8554-2.2517	.0999
Courtroom Procedures	108	1.9202	.95184	1.7386-2.1018	.0916

Table 3:  
*Descriptive Statistics of Independent Variables on DTA*

	N	Mean	SD	CI	SE
Religious	97	1.96	.983	1.76-2.16	.100
Non-religious	126	1.90	1.128	1.70 - 2.10	.101
Mortality Saliency	129	1.96	1.116	1.76-2.16	.099
TV Show	94	1.87	.997	1.67-2.08	.103
Prevalence Statistics	113	1.90	1.026	1.71-2.09	.097
Courtroom Procedures	110	1.94	1.109	1.73-2.16	.107

Chi square tests on the frequencies (see Table 4) of the independent variables,  $\chi^2(2) = 3.72, p = .054$ ;  $\chi^2(2) = .231, p = .630$ , indicate that chance alone accounts for any deviation from expected values. This is within the accepted range for deviation.

Table 4:  
*Mortality Salienc\*Prevalence Statistics\*Religious Status  
Frequency Table*

		Religious	Non-religious
Prevalence Statistics <sup>(a)</sup>	Mortality	23	41
	Salienc		
	TV Show	27	23
Courtroom Procedures <sup>(b)</sup>	Mortality	29	36
	Salienc		
	TV Show	18	27

a.  $\chi^2(2) = 3.72, p = .054$

b.  $\chi^2(2) = .231, p = .630$

### Between-subjects Factorial ANOVA - DTA

All assumptions were met for the Death-thoughts Accessibility dependent variable. Levene's test was not significant,  $F(7, 213) = 1.125, p = .348$ , meeting the assumption of homogeneity. The boxplots showed no outliers and the histogram showed a normal distribution. The omnibus ANOVA was non-significant  $F(7, 213) = .495, p = .837$  (see Table 5 for test effects).

### Between-Subjects Factorial ANOVA – Prejudice

Hypotheses were tested with a between-subjects 2(Mortality Salienc/TVSHOW) x 2(Prevalence Statistics/Courtroom Procedures) x 2 (Religious/Non-religious) ANOVA with averaged scores from the Negative Attitudes toward Atheists scale as the dependent variable. The omnibus ANOVA was significant  $F(7, 215) = 24.059, p < .001, R^2 = .439$  (see Table 6 for test effects). Frequencies for this scale are listed in Table 7. This table lists each item from the

Table 5: *Effects of Mortality Salience, Prevalence Statistics and Religious Status on Death-thought Accessibility*

Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta^2_p$
Religious Status (A)	1	.356	.308	.579	.001
Mortality Salience (B)	1	.544	.471	.493	.002
Prevalence Statistics (C)	1	.157	.136	.713	.001
A x B	1	.532	.461	.498	.002
A x C	1	.058	.050	.823	.000
B x C	1	2.620	2.272	.133	.011
A x B x C	1	.009	.008	.928	.000
Error	213	1.153			

a. R Squared = .016 (Adjusted R Squared = -.016)

Table 6: *Effects of Mortality Salience, Prevalence Statistics and Religious Status on Negative Attitude toward Atheists*

Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta^2_p$
Religious Status (A)	1	85.255	146.004	.000*	.404
Mortality Salience (B)	1	1.610	2.758	.098	.013
Prevalence Statistics (C)	1	1.544	2.644	.105	.012
A x B	1	3.657	6.263	.013*	.028
A x C	1	.420	.702	.403	.003
B x C	1	.316	.540	.463	.003
A x B x C	1	.331	.567	.452	.003
Error	215	.584			

a. R Squared = .439 (Adjusted R Squared = .421)

Table 7: Negative Attitude toward Atheists Scale Frequencies

I would be uncomfortable with an atheist teaching my child	n (%)
Strongly Disagree	157 (67.4)
Somewhat Disagree	16(6.9)
Neither Agree nor Disagree	22(9.4)
Somewhat Agree	12(5.2)
Strongly Agree	26(11.2)
I Strongly Believe in Separation of Church and State*	n (%)
Strongly Disagree	7(3.0)
Somewhat Disagree	10(4.3)
Neither Agree nor Disagree	11 (4.7)
Somewhat Agree	28 (12.0)
Strongly Agree	176 (75.5)
Societies function better if everyone believes in God	n (%)
Strongly Disagree	110 (52.4)
Somewhat Disagree	32 (13.7)
Neither Agree nor Disagree	50 (21.5)
Somewhat Agree	27 (11.6)
Strongly Agree	14 (6.0)
Religion facilitates moral behavior like nothing else	n (%)
Strongly Disagree	122 (52.4)
Somewhat Disagree	29 (12.4)
Neither Agree nor Disagree	30 (12.9)
Somewhat Agree	36 (15.5)
Strongly Agree	16 (6.9)
Prefer Religious Company	n (%)
Strongly Disagree	80 (34.3)
Somewhat Disagree	37 (15.9)
Neither Agree nor Disagree	76 (32.6)
Somewhat Agree	27 (11.6)
Strongly Agree	13 (5.6)
Not bothered by President who did not have religious beliefs*	n (%)
Strongly Disagree	15 (6.4)
Somewhat Disagree	14 (6.0)
Neither Agree nor Disagree	12 (5.2)
Somewhat Agree	35(15.0)
Strongly Agree	157(67.4)
In times of crisis, I am more inclined to trust religious people	n (%)
Strongly Disagree	103(44.2)
Somewhat Disagree	32 (13.7)
Neither Agree nor Disagree	51(21.9)
Somewhat Agree	33 (14.2)
Strongly Agree	13 (6.0)

Negative Attitudes toward Atheists scale (e.g., I would be uncomfortable with an atheist teaching my child), with the number of answers from each category (Strongly Disagree – Strongly Agree) also listed as a percentage.

### **Tests of the Hypotheses**

**Religious Status.** Hypothesis 1 predicted a main effect of religious status, such that the prejudice marginal mean for religious individuals would be higher than the prejudice marginal mean for non-religious individuals. Consistent with Hypothesis 1 Religious Status was significant with a large effect size. The marginal mean for religious individuals was significantly higher ( $M= 2.708, SE = .079$ ) than for the non-religious individuals ( $M= 1.433, SE = .070$ ), indicating that religious individuals showed higher levels of prejudice toward atheists than did non-religious individuals.

**Mortality Salience.** Hypothesis 2 predicted a main effect of mortality salience, such that the prejudice marginal mean for participants writing about their death would be higher than the prejudice marginal mean for those writing about a favorite TV show. Contrary to Hypothesis 2 Mortality Salience was not significant but did have a small effect size. The marginal mean for those writing about their death was not significantly different ( $M= 2.158, SE = .069$ ) than for those writing about a TV show ( $M= 1.983, SE = .080$ ), indicating that mortality salience does not significantly raise levels of prejudice toward atheists more than a TV show.

**Prevalence Statistics.** Hypothesis 3 predicted a main effect of prevalence statistics, such that the prejudice marginal mean for participants reading prevalence statistics would be higher than the prejudice marginal mean for participants not reading prevalence statistics. Contrary to Hypothesis 3 Prevalence Statistics was not significant. The marginal mean for those reading statistics about the prevalence of atheists was not significantly different ( $M= 2.156, SE = .074$ )

than for those reading about courtroom procedures ( $M= 1.984, SE = .075$ ), indicating that prevalence statistics do not significantly raise levels of prejudice toward atheists more than courtroom procedures.

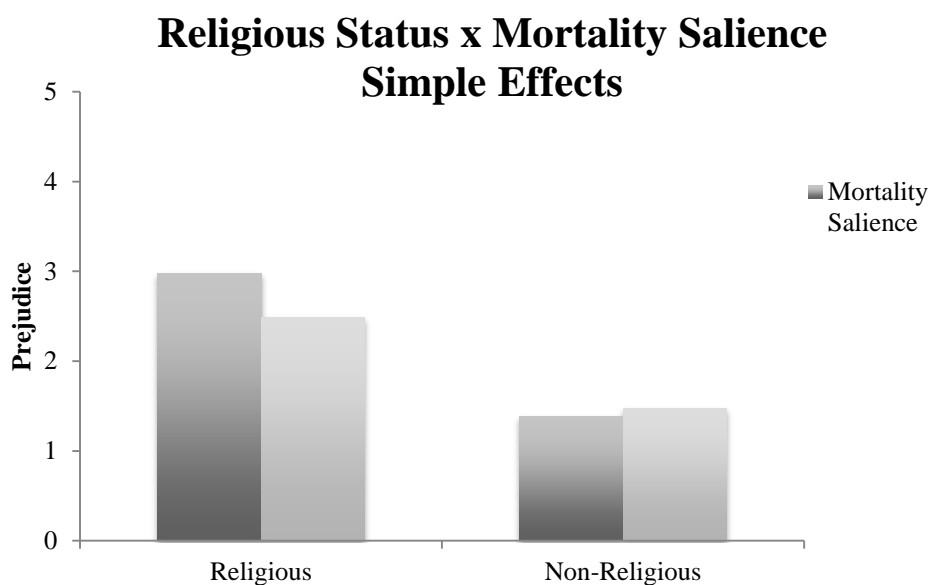
**Religious Status and Mortality Salience.** Hypothesis 4 predicted an interaction between religious status and mortality salience on prejudice, such that the level of prejudice towards atheists would be significantly higher for those in the MS condition than in the TV Show condition, specifically among religious individuals (as compared to non-religious individuals). In other words, Mortality Salience should trigger participants to defend their worldview. Those with a religious cultural worldview should report more prejudice in the Negative Attitudes toward Atheists scale. Consistent with Hypothesis 4, the interaction was small, but significant suggesting that the religious status of the individual did have an effect on the level of prejudice for those writing about their own death.

The simple effects analysis for religious individuals was significant  $F(1, 215) = 7.754, p = .006$ , unlike the non-religious individuals  $F(1, 215) = .402, p = .527$ , (see *Figure 6*). This indicates that there is a significant difference in Negative Attitudes toward Atheists between MS and TV at the religious level of Religious Status (see *Table 6*).

Table 8: *Estimated Marginal Means*

		Mean	Std. Error
Religious	Mortality Salience	2.978	.107
	TV Show	2.488	.116
Non-religious	Mortality Salience	1.388	.087
	TV Show	1.477	.110

Figure 6: Simple effects of Religious Status on Prejudice



**Prevalence Statistics and Religious Status.** Hypothesis 5 predicted an interaction between prevalence statistics and religious status on prejudice, such that the level of prejudice for those reading the prevalence of atheist statistics would be significantly higher than for those not reading the prevalence statistics, specifically among religious individuals (as compared to non-religious individuals). However, contrary to Hypothesis 5 the interaction was not significant suggesting that the religious status of the individual did not affect the level of prejudice for those reading about the prevalence of atheists.

**Prevalence Statistics and Mortality Salience.** Hypothesis 6 predicted an interaction between prevalence statistics and mortality salience on prejudice, such that the level of prejudice toward atheists would be consistent with those in the MS condition, but not with those in the TV Show condition. However, contrary to Hypothesis 6 the interaction was not significant

suggesting that the mortality salience intervention did not moderate the level of prejudice for those reading about the prevalence of atheists.

### **Research Question**

*Religious Status, Prevalence Statistics, and Mortality Salience.* A Bonferroni-adjusted alpha of .007 was used to determine significance for the Research Question because it was not an a priori hypothesis, and therefore could be considered an added test on the dependent variable. The alpha level was determined by taking the conventional alpha level of  $p < .05$  and dividing it by the total number of tests in the analysis of variance (i.e., seven tests).

The Research Question suggested that a three-way interaction between religious status, prevalence statistics, and mortality salience might exist with regards to prejudice. Compared to individuals in the courtroom procedures condition, TV show condition, and who are non-religious, we would hope to find the greatest prejudice for the individuals who are in the mortality salience condition, who received the prevalence statistics, and who are religious. In other words, the MS condition would increase the reaction to the Prevalence Statistics, resulting in a report of greater prejudice from the Religious participants. However, contrary to the Research Question the interaction was not significant indicating that there was no three-way interaction.



## CHAPTER 4

### DISCUSSION

In the Discussion, I will review the main results of the statistical tests and their implications. First, I will summarize the results of the major tests of the hypotheses. Next, I will review the results of the tests of the research question and alternate mediating variable.

#### Significant Findings

***Religious Status and Mortality Salience Interaction.*** The fourth hypothesis predicted an interaction between religious status and mortality salience. This hypothesis was supported. There was a significant, small interaction implying that when religious individuals are reminded of their own death, their attitudes toward atheists become more negative as a defense of their own religious worldview. I particularly expected to see an effect here because the effects of mortality salience have been seen in literature many times within TMT research. This finding replicated (Cook, Cohen & Solomon, 2015; Greenberg, 1986, 2008, 2012; Shmel et al., 2007), in that mortality salience increased negative attitudes of the religious participants toward the alternative atheist worldview. We may also be seeing the effect of mortality salience on the non-religious participants toward a worldview that is similar, or the same as their own (Becker, 1975; Greenberg, 1986, 2008; Greenberg et al., 1992).

The reasoning behind TMT is that death-thoughts magnify the fear of what is different from one's own worldview and increases one's identification with one's own worldview. The defining factor of the differences between the religious worldview and atheism is no God or afterlife. This finding implies that the addition of reminders of one's own eventual death increases the fear of the unknowns of death, and that the religious, but not the non-religious, see atheists as a threat to the worldview they have built up as a buffer to death-related anxiety.

According to TMT, those who are non-religious would not feel threatened by the atheistic worldview as their death-anxiety is not buffered by a belief in God or literal immortality. Instead, for those who are non-religious, symbolic immortality – or making a difference in the world (e.g., art, literature, science, family) can be a buffer against the anxiety of inevitability of death (Becker, 1975; Solomon et al., 1991; Mikulincer, 2002; Shimel et al., 2007; Greenberg, 2008).

This finding also expanded upon the work of other researchers by finding a significant effect of mortality salience increasing anti-atheist prejudice among religious individuals, but not among the non-religious. Other studies have looked at differences between attitudes toward two dissimilar groups (e.g., atheists vs. Quakers, conservative vs. liberal), after mortality salience manipulation (Cook et al., 2015; Greenberg et al., 1992), but not at direct prejudice toward a particular group as a result of one's religious status. This is a new finding that can be added to the support for terror management theory.

**Religious Status.** The first hypothesis predicted a main effect of Religious Status on participant's prejudice toward atheists, such that greater prejudice would be reported by those who were Religious as compared to those who are Non-religious. This hypothesis was supported. Religious individuals reported higher levels of prejudice than the non-religious individuals. This finding replicates previous research (Becker, 1973, 1975; Greenberg, 1986; Greenberg, 2012; Shimel et al., 2007). These studies reported that when presented with an alternate cultural worldview there should be a strengthening of negative attitude toward the alternate worldview. This finding implies that people who are religious respond with more negativity toward those of an alternate worldview (atheists) as a way of defending their own worldview. We can possibly infer from this finding that religious individuals regard atheists as a threat to their belief in a God and an afterlife.

## Non-significant Findings

***Mortality Salience.*** The second hypothesis predicted a main effect of mortality salience on participant's prejudice toward atheists. I had expected a much higher rate of prejudice when participants were presented with an intervention designed to make death salient, especially when compared to those who are reminded of their favorite TV show. This hypothesis was not supported, although there was a small effect on negative attitudes toward atheists. This finding was somewhat surprising considering the amount of research done previously using this measure (Cook et al., 2014; Cook, Cohen & Solomon, 2015; Greenberg, 1986, 2008, 2012; Shimmel et al., 2007). The participants were relatively educated people (over 65% college graduates). Education generally leads to more liberal thinking and tolerance of differences in other people. It may be that when you control for religious status there is not enough negative attitude toward atheists to be a trigger for worldview defense for a sample with mixed religious and non-religious individuals. The participants were predominantly college graduates (many with graduate degrees) and may have been more tolerant, or liberal regardless of religious status.

***Prevalence Statistics.*** The third hypothesis predicted a main effect of prevalence statistics, meaning that those reading about the increasing prevalence of atheists in the U.S. over the last decade would report more prejudice toward atheists as a defense against a differing worldview. This hypothesis was not supported, although according to TMT, the very existence of alternate worldviews that contrast with one's own sense of value and social framework threaten the personal value built up by sharing and contributing to a view with others in their own cultural worldview (Becker, 1973, 1975; Greenberg, 1986).

The U.S. has a predominantly Christian identity (Kosmin & Keysar, 2008, 2013; Pew Research Center, 2012, 2015) and as such, those with an alternate worldview such as atheism

would pose a threat to their religious worldview. Previous research regarding American's view toward the prevalence of outgroups (Edgell, 2006; Fosset & Klecolt, 1989; Giles & Evans, 1986; Pettigrew, 1958; Zuckerman, 2009) has found that when the prevalence of an outgroup is high the prejudice toward the outgroup will increase. This indicates that increasing atheist prevalence should increase prejudice.

In contrast, previous research conducted by Gervais (2011) found that negative attitudes toward atheists were *reduced* when atheists were perceived to be more prevalent. Gervais' hypotheses ran contrary to my own, in that he expected to find that atheist prevalence would be negatively related to anti-atheist prejudice worldwide. This included countries where atheism is prevalent, and in countries such as the U.S. and Canada, where atheism is relatively rare, in which case he manipulated perceived prevalence. These studies found that atheist prevalence is negatively related to anti-atheist prejudice.

The logic behind having an hypothesis contrary to Gervais', who was essentially testing the same concept, is that his hypothesis is based on a distrust-based threat, and mine was based on a fear-based threat. Contrell and Neuberg (2005) suggest that prejudice comes from a threat, and that different outgroups evoke different emotional reactions leading to prejudice. This reaction to threat can manifest in many different forms, such as dislike, distrust, fear, and hostility (Gervais et al., 2011; Gervais & Norenzayan, 2012b; Wright & Nichols, 2014). The driving force in the current study is the anxiety caused by mortality salience, which is missing from Gervais' study. This is a fear-based threat, and not one of morals or values (distrust-based threat).

Because of these differing views, I believed that examining anti-atheist prejudice in regard to atheist prevalence through the lens of terror management theory would be an addition

to the larger picture of both Greenberg's and Gervais' previous work. By manipulating MS we would be triggering the worldview defense based on fear. Atheists are not simply an alternate worldview, but also a threat to the immortality that the religious worldview embraces.

***Prevalence Statistics and Religious Status.*** The fifth hypothesis predicted an interaction between reading the prevalence statistics and the religious status of the participant. In previous research (Cook et. al., 2015) they successfully used an atheist salience measure (write down what you think it means to be an atheist and how that makes you feel) instead of a mortality salience measure to trigger worldview defense. We hypothesized that information about the increasing prevalence of atheists would act as a trigger for worldview defense, much like mortality salience does, and would increase negative attitudes toward atheists at the religious level of Religious Status. This hypothesis was not supported. The prevalence statistics did not increase the negative attitude toward atheists in the religious participants. In the previous research the measure for atheist salience the participant had to write a short essay about their belief and feelings about atheists. This could have generated different results, both because of the emotional aspect of the manipulation and because we used a prejudice scale, whereas an anxiety scale (DTA measure) was used previously.

***Prevalence Statistics and Mortality Salience.*** The sixth hypothesis predicted an interaction between prevalence statistics and mortality salience. This hypothesis was not supported. In previous research these variables were used as different levels of the same condition (Cook et al., 2015) and both showed a significant effect compared to the control. My thought was that mortality salience would increase the negative attitudes toward atheists for those reading about increasing prevalence statistics. If one thinks about what will happen to them when they die (MS) and then think about atheists (no God/afterlife) it should cause more anxiety

over death because most people buffer thoughts of death with the idea that death is not the end. It could be that this sample (e.g., highly educated, science reddit users), do not heavily rely on the comforting thoughts of an afterlife or perhaps the prevalence statistics did not incur thoughts of no afterlife. Mortality salience has been used in multiple studies to show a defense of worldview when alternate worldviews are presented.

**Research Question.** There was only one research question associated with the present research. In previous research (Cook et al., 2015), when atheist salience and mortality salience were compared as levels of MS, the two did not differ significantly in their effect on DTA, however both differed significantly from the control. Because of this, I thought it would be reasonable for the effect of prevalence statistics to depend on the manipulation of mortality salience to increase negative attitude toward atheists, especially for religious people. However, there was no 3-way interaction.

Neither interaction (prevalence statistics x religious status; prevalence statistics x mortality salience) were significant nor was there a main effect of prevalence statistics. It could be that the perception of increasing prevalence of atheists acts as reduction of worldview defense.

**Death-thoughts accessibility.** This measure was added as an extra way to see if mortality salience had an effect on individual's worldview defense following a delay; however none of the effects were significant despite a range of people responding with the death related terms. This measure is supposed to measure death-thoughts generated by the Mortality Salience measure, and was expected to reflect the findings in the prejudice measure. This was not the case. One possibility is that this measure was used following the delay task, which is a possible reason for the non-significant findings.

According to previous research, when primed with death related thoughts with the mortality salience exercise, death related thoughts enter awareness, but are subdued by proximal defenses such as denial, suppression, and rationalization (Greenberg et al., 1994; Juhl & Rutledge, 2010; Shatil, 2012). These thoughts are still accessible by implicit measures (such as the DTA measure), but will come back to awareness in a distal measure (such as the Negative Attitudes measure) following a delay (Greenberg et al., 1994; Shatil, 2012). Greenberg et al. (1994) found that a delay is useful to capture the distal defenses in the outcome measure, because proximal defenses often mask the defense when a delay is not used. Studies using the DTA measure have been used both before and after the delay, however some testing on this measure (Trafimow and Hughes, 2011) has shown a decrease in DTA when used after a delay.

### **Limitations**

The present research was limited by the use of a convenience sampling of science-based reddit users (e.g., biology, chemistry, psychology) as the research participants. Whether individuals in the general population would have the same reactions to statistics about the increasing prevalence of atheists or to the questions in the Negative Attitude toward Atheists scale is unknown. It is unknown whether the findings of the current study can be generalized to the general population. As seen in previous research (Cook et al., 2014, 2015; Greenberg et al., 1992; Rosenblatt et al., 1989), the more liberal and tolerant individuals are, the more they accept other worldviews and worldview defense is not triggered. The sample derived from science-based social media may have fit into this category (e.g., liberal and tolerant). Overall, a sample more representative of the U.S. population would strengthen the generalizability of the findings. It would be appropriate in future research to sample from a more random population.

Another limitation to the current research could be the use of only one measure of prejudice. Many studies used two or more measures, such as a social distancing scale, and a feeling thermometer. Most mortality salience measures included an anxiety measure as well, which would not have measured prejudice, but could show whether mortality salience had differing effects on prevalence statistics other than prejudice.

### **Future Directions**

Future research in this area should use a measure of atheist salience (e.g., what does it mean to be an atheist, and how does that make you feel?) to test the interaction with mortality salience, instead of the prevalence statistics measure used in the present study. It may also be helpful to add a measure indicating tolerance or liberal characteristics of participants because this may have played a part in the non-significance in the present study. Researchers should add a measure of self-worth including items assessing identification with social-groups, including church attendance. Strong identity with social-groups have been shown to decrease worldview defense (Cook et al., 2014, 2015; Greenberg et al., 1992; Rosenblatt et al., 1989) and it would be interesting to see if a strong identification with a church group changed the effects of MS manipulation in the religious population.

Another direction for future research would be to add another non-religious group to contrast outcomes to examine whether it was the term atheist that was the reason for the effect on religious people, or the fact that it was an alternate worldview (Gervais & Norenzayan, 2012a; Jones et al., 1984; Norenzayan & Gervais, 2013; Pippa & Inglehart, 2003; Zuckerman, 2009). Whether or not the increasing prevalence of atheists reduces worldview defense should be examined. There may also be certain aspects of one's religious worldview that lends itself to the



mortality salience effects more strongly than others, such as how conservative their beliefs are, or how much their religion impacts their own self-concept.

**Conclusions.** The results of the present research provide support for terror management theory by indicating that mortality salience does increase negative attitudes depending on aspects of an individual's worldview. It also expands on the theory with the significant finding of awareness of the inevitability of one's own death leading to anti-atheist prejudice among religious individuals. The primary goal of the current study was to see if death-thoughts would be triggered by the increasing numbers of atheists in the U.S., resulting in anti-atheist prejudice. This research expands on previous research of atheist prevalence contributing to prejudice in the U.S. by inadvertently lending support to the findings of Gervais (2011) that increased prevalence of atheists will not increase anti-atheist prevalence. Even with the addition of reminders of the inevitability of their own death, there was no significant increase of prejudice of the religious participants toward the alternate worldview of atheists.

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## APPENDIX A

### NEGATIVE ATTITUDES TOWARD ATHEISTS SCALE

**On a scale of 1-5, how strongly do you agree with the following statements?**

(1= Strongly Agree 2=Somewhat Agree, 3= Indifferent, 4= Somewhat Disagree, 5=Strongly Disagree).

- I would be uncomfortable with an atheist teaching my child
- I strongly believe that church and state should be kept separate (R)
- Societies function better if everyone believes in God
- Religion facilitates moral behavior in a way that nothing else can
- I would prefer to spend time with people who are religious believers
- I would not at all be bothered by a President who did not have religious beliefs (R)
- In times of crisis, I am more inclined to trust people who are religious

Gervais, W.M., (2011). Finding the faithless: Perceived atheist prevalence reduces anti-atheist prejudice. *Personality and Social Psychology Bulletin* 37(4) 543-556

## APPENDIX B

### DEATH-THOUGHT ASSESSIBILITY

WORD COMPLETION TASK. 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. Write one letter per blank. Some words may be plural. Thank you.

1. BUR \_ \_ D
2. CHA \_ \_ \_
3. PLA \_ \_ \_
4. KI \_ \_ ED
5. \_ \_ OK
6. CL \_ \_ K
7. WAT \_ \_ \_
8. TAB \_ \_ \_
9. DE \_ \_ \_
10. W \_ \_ DOW
11. MU \_ \_ \_
12. SK \_ \_ L
13. \_ \_ NG
14. TR \_ \_ \_
15. B \_ T \_ LE
16. P \_ P \_ R
17. M \_ J \_ R
18. COFF \_ \_ \_
19. P \_ \_ TURE
20. \_ O \_ SE
21. FL \_ W \_ R
22. POST \_ \_ \_
23. GRA \_ \_ \_
24. R \_ DI \_ \_
25. K \_ \_ GS

(Possible death-related words: 18=coffin, 23=grave, 1=buried, 12=skull, 4=killed, 9=dead. To score the questionnaires, we simply add up the number of death-related word completions.)

Arndt, J., Greenberg, J., Pyszczynski, T., & Solomon, S. (1997). Subliminal presentation of death reminders leads to increased defense of the cultural worldview. *Psychological Science*, 8, 379- 385.



**APPENDIX D**  
**MORTALITY SALIENCE MEASURE**

1. What do you think will happen to you physically when you die (be specific).

{Enter Text}

[            ]

2. Write down some thoughts of what you are feeling when you think about yourself dying.

{Enter Text}

[            ]

Greenberg, J., Pyszczynski, T., & Solomon, S. (1986). The causes and consequences of the need for self-esteem: A terror management theory. In R. F. Baumeister (Ed.). *Public self and private self* (pp. 189-207). New York: Springer-Verlag

**APPENDIX E**  
**TELEVISION SHOW MEASURE**

1. Think about your favorite television show. What do you think happens to you physically when you watch the show (be specific)?

{Enter Text}

[            ]

2. Write down some thoughts of what you are feeling when you think about your favorite television show.

{Enter Text}

[            ]

## APPENDIX F

### PREVALENCE ABOUT ATHEISTS IN THE UNITED STATES

#### Information gathered from the Pew Reports 2012 and 2015

The literal definition of atheist in the Oxford dictionary is ‘a person that does not believe that a God exists’.

Between 2007 and 2014, the percentage of Americans who claim no religion– describing themselves as atheist, agnostic or “nothing in particular” – has jumped more than six points, from 16.1% to 22.8% (or 55.8 million Americans), which is an approximate increase of 19.3 million. Almost 9 million of those 55.8 million Americans claim to be atheist, with close to additional 27 million reporting that they do not believe in God.

In 2014, 35% of the millennial generation (age 18-30) fell into the category of no religion. This figure is up from only 25% in 2007.

#### **On a scale of 1-5, how aware were you of this information before today?**

(1= Totally Unaware 2=Somewhat Unaware, 3= Indifferent, 4= Somewhat Aware, 5=Fully Aware).

PEW Research Center, (2015). Americas changing religious landscape. Retrieved May 2015. Pew Research Center. (<http://www.pewforum.org/2015/05/12/americas-changing-religious-landscape/>)

PEW Research Center, (2012). “Nones” on the rise: One-in-Five Adults Have No Religious Affiliation. Retrieved on October 2012. Pew Research Center. (<http://www.pewforum.org/2012/10/09/nones-on-the-rise/>)

## APPENDIX G

### COURTROOM JURY SELECTION PROCEDURES

Citizens are called for jury duty and wait in a large room as the jury pool. The judge gives a speech and then the jurors are divided randomly for each court case. The jurors are questioned by the attorney for both parties, and sometimes by the judge as well. Sometimes jurors are questioned alone, and sometimes in the presence of the other jurors, depending upon the jurisdiction. During this time the attorneys explain the general background of the case to the jurors, and ask the prospective jurors about their own background, education, careers, etc. In this way the attorneys are able to get to know the juror, as well as to reveal any prejudices they may have.

**On a scale of 1-5, how aware were you of this information before today?**

(1= Totally Unaware 2=Somewhat Unaware, 3= Indifferent, 4= Somewhat Aware, 5=Fully Aware).



**APPENDIX H****REASON FOR READING (DELAY ACTIVITY)**

Do you read mostly for:

- school  
 work  
 pleasure

What genre do you prefer to read for pleasure?

[enter text]  
[            ]

What was the title of the last book you read (if you can't remember type N/A)

[enter text]  
[            ]

## VITA

**Wanda D. Brooks**  
 Old Dominion University  
 Department of Psychology  
 Norfolk, VA 23529-0267

### EDUCATION

**Master of Science** Psychology  
 Old Dominion University  
 Graduation: December 2016 (Expected)

*Thesis:* Prejudice toward Atheists in the United States as Related to Perceived Prevalence

**Bachelor of Science** Psychology  
 Old Dominion University  
 Graduation: May 2013

**Associate of Arts  
 and Science** Business Administration  
 Paul D. Camp Community College  
 Franklin, Virginia  
 Graduation: May 2010

### RESEARCH EXPERIENCE

**Research Assistant** Motivation, Identity, and Learning  
 Education Department (August 2016 – December 2016)  
 Old Dominion University

**Research Assistant** Applied-Experimental Psychology  
 Psychology Department (May 2012 – December 2015)  
 Old Dominion University Developmental Psychology  
 (May 2012 – December 2012)  
 Industrial/Organizational Psychology  
 (August 2011 – May 2012)

### TEACHING EXPERIENCE

**Teaching Assistant** Qualitative Methods  
 Psychology Department (August 2013 – December 2014)  
 Old Dominion University Abnormal Psychology  
 (January 2012 – May 2013)