

Effects of Mortality Salience on Religiosity and Transphobia

by

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### **Abstract**

This study examined the effects of mortality salience on religiosity and subsequent transphobia. Participants were either reminded of an exam (control group) or of their own mortality (mortality salient group) and then their religious worldview, religious fundamentalism, and level of transphobia were measured. Thinking of their own death was anticipated to strengthen religious participants' preexisting religious beliefs, resulting in a subsequent increase in their level of transphobia, especially among those holding fundamentalist religious views. However, the results from the current study were contrary to predictions. The control group had stronger correlations between both forms of religiosity and transphobia, particularly fundamentalism. The mortality salient group even showed significantly lower religious fundamentalism scores, contradicting expected findings. These results indicate that further research should investigate empathy and mortality salience, differences between religiously motivated prejudice towards transgender individuals and other members of the LGBT community, and the possible effects of spirituality and political beliefs.

## Effects of Mortality Salience on Religiosity and Transphobia

Human cognition and behavior are largely influenced by a person's beliefs about life and reality, and these beliefs can shed light on many different aspects of humanity, such as faith, coping, and conflict (Koltko-Rivera, 2004). These beliefs affect and are affected by religious worldviews. Although many religions teach peace and love, studies have shown that many religious people are prejudiced and discriminate against certain groups (Leak & Finken, 2011; Rowatt et al., 2006). One explanation for this relationship between religion and prejudice is Terror Management Theory (TMT). TMT states that faith in a meaningful worldview (e.g., religious, scientific, political, etc.) serves a critical existential anxiety-buffering function. Specifically, embracing a central, coherent, purpose-oriented worldview allows people to manage the anxiety they feel when reminded of their own mortality (e.g., through everyday events such as tragic news reports, death of a loved one, car accidents, etc.).

Unfortunately, TMT studies have shown that making people aware of their own mortality (aka mortality salience) increases their likelihood of embracing out-group stereotypes, which is the cognitive component of prejudice (Schimel et. al, 1999). That is, according to TMT, in order to maintain psychological security in the face of mortality salience, people react negatively to anything or anyone that has the potential to threaten or undermine their constructed worldview (Greenberg & Arndt, 2012). For example, recent studies have found that mortality salience increases non-Muslim's (e.g., Christians', Jews', Buddhists') negative attitudes towards Islamic symbols (e.g., mosques) and that reading about the desecration of the Quran, an Islamic religious text, helps alleviate death-related anxieties (Cohen, Soenke, Solomon, & Greenberg, 2013).

Considering religion broadly, Goplen and Plant (2015) developed the Religious Worldview (RWV) scale in order to measure the strength of a person's general religious worldview. This general measure of religiosity captures the strength with which a person's perceptions of the world, interpretations of events, and sense of worldly purpose are shaped by his or her religious beliefs. Goplen and Plant (2015) have found that Christians' RWV scale scores are positively correlated with explicit prejudice towards religious outgroups (e.g., Hinduism and Buddhism), as well as with aggression towards competing religious groups and scientific worldviews. These findings support a core tenet of TMT by offering evidence that contrary worldviews "contribute to religious prejudice because religious outgroups threaten strong RWV people's worldview" (Goplen & Plant, 2015, p.1478). The proposed study will examine whether increasing the strength of one's religious worldview through mortality salience results in an increase in expressed prejudice.

It should be noted that RWV has not been found to be correlated with *explicit racial prejudice*, nor does RWV predict prejudice to the extent that religious fundamentalism does. In fact, religious fundamentalism – the belief that "one set of religious teachings clearly contain the fundamental truth" about humanity and good and evil (Altemeyer & Hunsberger, 1992; p. 118) - shows the most pushback against threats and results in greater prejudice towards those threats, compared to other aspects of religiosity (Rowatt et. al, 2006). For example, scores on the Revised Religious Fundamentalism Scale (Altemeyer & Hunsberger, 2004) predict a variety of prejudices, including Islamophobia, homophobia, racial prejudice, and transphobia (Leak & Finken, 2011; Nagoshi et al., 2008).

The latter prejudice, transphobia, is a relatively recent topic of investigation stemming from current political discourse on transgender rights as well as the severe harassment transgender individuals have gone through. Unfortunately, there is very little research on the harmful societal attitudes towards this population (Tebbe & Moradi, 2012). Tebbe and Moradi (2012) describe transphobia, or transgender prejudice, as emotional disgust towards people who do not conform to societal gender expectations (e.g., transgender individuals, cross-dressers, non-binary, etc.). A recent Pew Research Poll has shown that 68% of Protestant Christians believe one's sex is determined at birth, with 84% of White, Evangelical Christians agreeing with this statement (Smith, 2017). It is possible that transphobia is greater among religious fundamentalists because that group believes transgender persons contradict religious scripture and God's will. That is, individuals who do not conform to gender expectations may be seen as going against God's plan by failing to adopt the gender God has given them (Human Rights Campaign, 2014). To religious fundamentalists, these "deviants from God's plan" may represent a particularly novel religious threat, and thus an "evil" in the world that must be overcome. The proposed study examined this possibility by measuring the association between religious fundamentalism and transphobia among people who are either high or low in mortality salience.

### **General Design Overview**

The present research project sought to broaden our understanding of society's attitudes towards transgender individuals by evaluating the way in which reminders of mortality affect different aspects of religiosity and subsequent transphobia. Specifically, this study was a mixed-model quasi-experiment. Religiosity was conceptualized as both

the strength of participants' religious worldview (as measured by the RWV scale) and participants' level of religious fundamentalism (as measured by the Revised Religious Fundamentalism Scale). Prejudice toward transgender persons was assessed via the Transphobia Scale (Nagoshi et al., 2008). Compared to control participants, those made aware of their own mortality were expected to report higher levels of general religiosity, religious fundamentalism, and stronger associations between transphobia and both forms of religiosity.

## **Method**

### **Participants**

Forty college students were recruited for this study. There was an approximately equal ratio of males to females. All participants were 18 years old or older. Participants were recruited from undergraduate introductory psychology classes at Middle Tennessee State University, and received credit toward a psychology research course requirement in return for their participation.

### **Materials**

*Religious World View Scale.* The Religious World View scale (RWV; Goplen & Plant, 2015) is a 19-item survey that measures the strength of participants' religious worldview – that is, the amount they use their religious beliefs as a lens to interpret different aspects of life. The scale has statements regarding knowledge (e.g., “My religious leaders give me important information about the world.”), morality (e.g., “My morals come from my religion.”), and life purpose (e.g., “The purpose of my life is to do my God’s work on earth.”). See Appendix A for a copy of this scale. Participants rate each statement on a scale ranging from 1 (Strongly Disagree) to 9 (Strongly Agree).



Goplen and Plant (2015) found that the scale has an alpha reliability coefficient of .97 and good discriminate validity.

*Revised Religious Fundamentalism Scale.* The Revised Religious Fundamentalism scale (Altemeyer & Hunsberger, 2004) is a 12-item survey that measures monotheistic religious fundamentalism, which is defined as a person's view that their religious beliefs are uniquely true (to the exclusion of other religions) and fundamental to explaining life. The scale includes statements such as, "God has given humanity a complete, unfailing guide to happiness and salvation, which must be totally followed." and "To lead the best, most meaningful life, one must belong to the one, fundamentally true religion." See Appendix B for a complete list of the scale items. Participants' responses can range from -4 (Very Strongly Disagree) to +4 (Very Strongly Agree), with 0 being neutral. Altemeyer and Hunsberger (2004) found that the scale has an alpha reliability coefficient of .91 and a high validity.

*Transphobia Scale.* The Transphobia Scale (Nagoshi et al., 2008) is a 9-item survey that measures explicit prejudice toward transgender individuals. Some of its questions include, "I think there is something wrong with a person who says that they are neither a man nor a woman." and "I believe that a person can never change their gender." See Appendix C for all nine items. Participants respond to these statements on a scale of 1 (Completely Disagree) to 7 (Completely Agree). Nagoshi et al. (2008) report a Cronbach's alpha reliability coefficient of .82 and a test-retest stability score of .88 for the validated scale.

## Procedure

Participants were recruited through an online scheduling program, SONA, used in undergraduate introductory psychology classes. Those who were interested signed up for a time slot and answered 11 demographic questions (e.g., “Do you consider yourself a religious person?” and “What religion do you consider yourself to be?”). See Appendix D for all 11 demographic questions. Participants then went to a data collection room in Jones Hall during their time slot to complete the study.

Upon arrival to the room, participants were given an informed consent page to read and sign (see Appendix E) and then were randomly assigned to either a mortality salience condition or a control condition. Those assigned to the control condition were given a sheet of paper containing the following written instruction at the top: “Please briefly describe the emotions that the thought of your next exam arouses in you. Now, jot down, as specifically as you can, what you think will happen to you as you take your exam and after your exam is finished” (See Appendix F). They had 3 minutes to complete this written assignment.

Those assigned to the mortality salience condition were given a sheet of paper containing the following written instructions at the top: “Please briefly describe the emotions that the thought of your own death arouses in you. Now, jot down, as specifically as you can, what you think will happen to you as you physically die and once you are physically dead” (See Appendix F). Participants had 3 minutes to complete the written task. These instructions, for both groups, represent a recently published mortality salience manipulation used in aforementioned research (Cohen et al., 2013). Both groups then performed a 4-item “fill-in-the-blank” phrase completion task (see Appendix

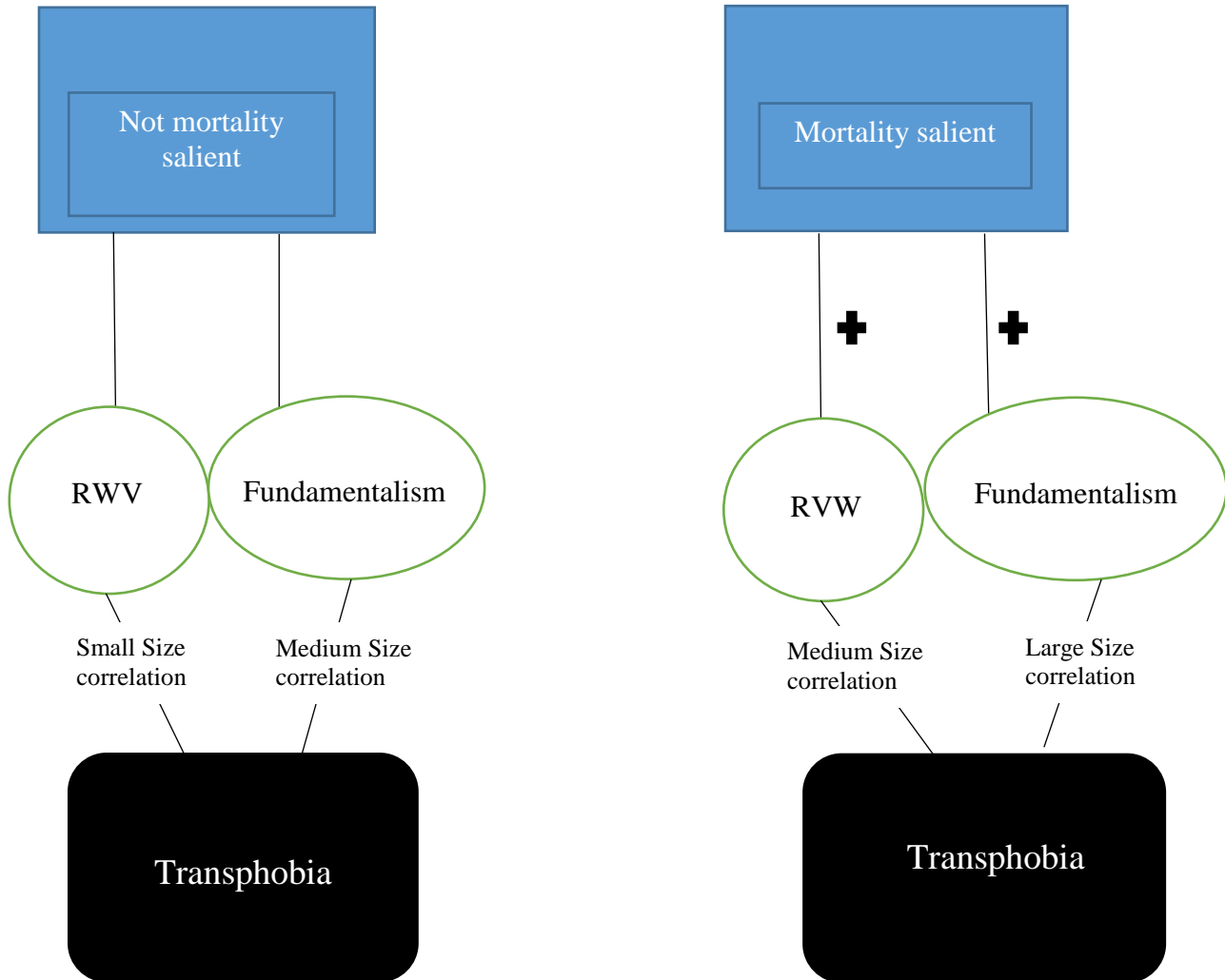
G). Each item had a two-word phrase, with one word of the phrase missing. For all 4-items, the missing word could be completed with either “dead” or “death”. This task served as a mortality salience manipulation check. All participants then read a brief literature passage (Wilson, 2009; See Appendix G), circling each “T” and underlining each “I”, as a filler task, because mortality salience has been shown to be more impactful if participants are distracted before the measurement of its effects (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994).

All participants then completed the RWV scale, the fundamentalism scale, and the Transphobia Scale. The entire procedure lasted approximately 45 minutes. Before they left, all participants were thanked, given research credit for participation, debriefed, and given a copy of the debriefing form for their own records (see Appendix H).

### **Data Analyses and Predictions**

Four correlational analyses were performed to test key hypotheses. For the control (i.e., mortality not salient) group, paired sample correlations were calculated between (a) participants’ religious worldview scores and their own transphobia scores, and (b) participants’ fundamentalism scores and their own transphobia scores. The former correlation coefficient was expected to be small in size (e.g.,  $r \leq 0.20$ ) whereas the latter was expected to be medium in size (e.g.,  $r = 0.30$ ). Similarly, for the mortality salient group, paired sample correlations were calculated between (a) participants’ religious worldview scores and their own transphobia scores (medium size correlation predicted,  $r = 0.30$ ), and (b) participants’ fundamentalism and transphobia scores (large size correlation predicted,  $r \geq 0.50$ ). A linear regression was calculated to determine if religiosity can predict transphobia. Finally, an ANOVA was conducted to test the

prediction that mean RWV scores and mean Fundamentalism scores will be lower in the control group than in the mortality salient group.



## Results

### Demographics

Data were collected from 41 participants (30 female, 10 male, 1 other). Of the 41, 26 self-identified as religious (23 Christian, 2 Muslim, 1 Other) and 15 self-identified as nonreligious. In addition, in the demographics questions collected upon participation, 28 participants identified as belonging to the Democratic party, 4 to the Republican party, 4 to the Libertarian party, and 5 as independent. Two participants did not complete all of the surveyed information, and their data was excluded, leaving 39 participants.

### Hypothesized Relationships

For participants in the control condition, religious worldview was significantly correlated with transphobia ( $r = .805$ ,  $n = 18$ ,  $p < .001$ ). Similarly, religious fundamentalism was significantly correlated with transphobia ( $r = .791$ ,  $n = 18$ ,  $p < .001$ ). For participants in the mortality salient condition, religious worldview had a smaller, significant correlation with transphobia ( $r = .465$ ,  $n = 21$ ,  $p = .017$ ). Unexpectedly, those participants' religious fundamentalism scores were not significantly correlated with transphobia ( $r = .082$ ,  $n = 21$ ,  $p = .362$ ).

### Hypothesized Group Differences

Unexpectedly, one-way ANOVAs revealed no significance difference in religious worldview scores between control participants ( $M = 110.61$ ,  $SD = 45.54$ ) and mortality salient participants ( $M = 93.29$ ,  $SD = 41.81$ )  $F(1, 37) = 1.53$ ,  $p = .112$ ,  $\eta^2 = .039$ . There was a marginally significant difference between the mortality salient and non-salient conditions for religious fundamentalism,  $F(1, 37) = 2.74$ ,  $p = .053$ ,  $\eta^2 = .068$ , which indicates a low-to-medium effect of condition on fundamentalism scores. However,

contrary to prediction, those in the control condition ( $M = 11.50$ ,  $SD = 25.25$ ) had a higher mean religious fundamentalism score than the mortality salient group ( $M = -2.38$ ,  $SD = 26.79$ ). Also, unexpectedly, scores on the transphobia scale did not differ between participants in the control condition ( $M = 29.78$ ,  $SD = 11.79$ ) and in the mortality salient condition ( $M = 27.57$ ,  $SD = 15.46$ )  $F(1, 37) = 0.244$ ,  $p = .312$ ,  $\eta^2 = .006$ .

### **Manipulation Check**

A manipulation check was created from participants' responses to four two-word phrases where one word was missing (e.g., "\_\_\_\_\_End"). Participants were asked to fill in the missing word to complete the phrase. Participants' choices for the words were reviewed, and coded for death-related meaning. Participants' death-related words were tallied, resulting in a score between 0 and 4. An One-way Analysis of Variance (ANOVA) indicated that the manipulation check scores were not significantly different between the control ( $M = 0.83$ ) and experimental group ( $M = 1.19$ ),  $F(1, 37) = 0.68$ ,  $p = .208$ ,  $\eta^2 = .018$ .

### **Religion Differences**

A one-way ANOVA indicated that, as expected, religious participants scored higher on the Religious Worldview Scale ( $M = 127.85$ ,  $SD = 23.07$ ) than did non-religious participants ( $M = 48.15$ ,  $SD = 19.99$ ),  $F(1, 37) = 112.50$ ,  $p < .001$ ,  $\eta^2 = .75$ . The former also scored higher on the Religious Fundamentalism Scale ( $M = 14.69$ ,  $SD = 16.33$ ) than did non-religious participants ( $M = -17.30$ ,  $SD = 31.0$ ),  $F(1, 37) = 18.05$ ,  $p < .001$ ,  $\eta^2 = .33$ . Further, religious participants scored higher on the Transphobia Scale ( $M = 32.88$ ,  $SD = 12.17$ ) than did non-religious participants  $F(1, 37) = 9.25$ ,  $p = .004$ ,  $\eta^2 = .20$ .

A linear regression showed that religion, as a category (i.e., Protestant, Catholic, etc.), did not significantly predict transphobia scores ( $\beta = .304$ ,  $t(3) = 1.14$ ,  $p = .131$ ), nor did religious fundamentalism ( $\beta = -0.121$ ,  $t(3) = -0.662$ ,  $p = .256$ ). However, Religious Worldview alone did significantly predict transphobia scores, ( $\beta = .946$ ,  $t(3) = 3.136$ ,  $p = .002$ ), with  $R^2 = .335$ . Categorizing participants into religious and nonreligious groupings (i.e., those who self-reported being religious versus not being religious), linear regression shows that, for nonreligious participants, religious worldview was a *moderately* significant predictor of transphobia ( $\beta = 0.498$ ,  $t(2) = .243$ ,  $p = .052$ ), but that for religious participants, religious worldview *was not* a significant predictor of transphobia ( $\beta = 0.368$ ,  $t(2) = 1.35$ ,  $p = .096$ ).

### **Discussion**

Two key hypotheses examined in the present study were that control (i.e., non-mortality salient) participants' transphobia scores would be (a) weakly correlated (e.g.,  $r = 0.20$ ) with their religious worldview scores and (b) moderately correlated (e.g.,  $r = 0.30$ ) with their fundamentalism scores. Contrary to predictions, control participants' transphobia scores were strongly correlated with both their religious worldview and religious fundamentalism. These relationships are far stronger than anticipated, which suggests that religion may be linked to transphobia, even when one is not contemplating one's own mortality. Various religions, while not often having strict text-based teachings regarding transgender individuals, espouse homophobic beliefs (Reygan & Moane, 2014). Also, research findings have shown that prejudice towards gay and lesbian individuals conceptually differs from prejudice towards other LGBT groups, including transgender individuals (Worthen, Lingiardi, & Caristo, 2017). It is possible that these

religious-based attitudes towards different sexual orientations have bled over into biases towards gender identity. The ways in which religious belief may influence attitudes and perceptions of transgender individuals is an area that future research should consider.

These results confirm that there are differences in transphobia for religious and nonreligious people, further supporting a possible root in religious belief the results in transphobic attitudes. The interesting relation between religious worldview and transphobia, particularly in nonreligious participants, should be considered. This relationship could possibly be due to two unanticipated factors: spirituality and political views. Participants who identified as nonreligious still had moderate scores on the Religious Worldview Scale, indicating that the scale was measuring possible spiritual beliefs that shape the participants' worldview in a way that correlates with transphobia. Spirituality is the secularization of religious belief, creating cultural, worldly versions of religious beliefs (Meyer 2012). In the present study, spiritual beliefs may have been more influential in transphobia because participants' religiously-oriented beliefs are also grounded in their secular worldviews, readily giving those beliefs real-world application to social issues. This grounding could be in political worldviews and ideologies, which is another variable that should be considered as an influence. People's political beliefs shape their view of the world in a way similar to religion. Conservative or liberal beliefs indicate traditional social leanings, which has a high likelihood of correlating with attitudes towards transgender individuals. This kind of relation has been shown in today's news and political debates about transgender bathrooms and healthcare rights.

Two additional hypotheses were that mortality salient participants' transphobia scores would be moderately correlated (e.g.,  $r = 0.30$ ) with their religious worldview



scores and strongly predicted (e.g.,  $r > 0.50$ ) by their religious fundamentalism scores. In line with these predictions, the mortality salient participants' transphobia scores were moderately correlated with their religious worldview scores ( $r = 0.47$ ). Unexpectedly, participants' transphobia scores were very weakly correlated with religious fundamentalism ( $r = 0.08$ ). This finding starkly contradicts predictions, and is rather difficult to explain. Mortality salient participants' drastic decrease in fundamentalism is incongruent with Terror Management Theory. The theory suggests that people's beliefs are strengthened when reminded of their mortality, and the control group did not display low fundamentalism beliefs. This may possibly be due to the content of the manipulation.

Failure to obtain such differences may be due to a lack of strength of the mortality salience manipulation. Although the manipulation used was effective in previous research (e.g., Cohen, Soenke, Solomon, & Greenberg, 2013), the manipulation check results indicate that our attempt to prime morality was ineffective. This could be attributed to a variety of reasons. The biggest aspect of the manipulation activity that stands out is the content. Though almost half of responses (47.6%) to the mortality prompt were lackluster (e.g., "I have no feeling really"), half of the participants seemed to put extensive, deep thought into their own death and the emotion that it causes. Two-thirds of the responses involving death focused on participants' emotions or existential anxiety. However, many responses also described the likely emotional reactions of the participants' families and loved ones left behind (e.g., sorrow and grief). This particular focus, when considering one's death, may have dulled the manipulation effect because participants were not considering their own fear of dying. These responses may also shed light on the drastic decrease in observed fundamentalism. When thinking of their families' reactions to their

deaths, it is possible that participants, instead of priming death-anxieties, were primed with empathy because they put themselves in the shoes of their loved ones. This empathy would be a possible explanation for the disrupted fundamentalism in particular because of the rigid, us-versus-them mentality that fundamentalism denotes, and empathy inspires people to look past differences to understand those who hold different views. In support, research has shown that, although people may feel more empathy for their own ingroups, priming empathy makes empathy for outgroups increase, which results in more positive attitudes towards those outgroups (Tarrant, Dazeley, & Cottom, 2010).

The role of empathy in death-thought could be a partial result of the age of the participants. Research has previously shown that age is negatively correlated with death anxieties, and in accordance with Terror Management Theory, older people are less anxious about their deaths because they cling tightly to their relationships, using social support as a mode of quelling those anxieties (Chopik, 2016). However, these findings still somewhat contradict previous research due to the use of social relationships to assuage death anxieties in young populations, who are supposed to be highly anxious and harsh in their reactions to death. Further, it seems that the empathy inspired by participant's close relationships did more than subdue their reactions to death anxieties, it reversed the anticipated effects. It seems possible that the younger generation is faced with issues, such as increased mass shootings and bombings, that have shifted the ways that people think about death, in comparison to the Generation X and millennials that came before.

Another reason why the manipulation may have been ineffective lies with the wait time between priming mortality and completing the survey. Previous research conducted

by Greenberg, Pyszczynski, Solomon, Simon, and Breus (1994) found that morality salience is most potent if participants are distracted between mortality priming and attitude assessment. In the present study, distraction was implemented, but running multiple participants at once led many participants to finish before others, causing them to wait an extended amount of time before moving on. It is possible that this additional wait time, wherein participants looked around the room in boredom or even resorted to using their cellphones, caused the length of the distraction task to detract from the effects of the manipulation. In future research, running each participant through on a computer would remedy this possible issue. Participants would be able to complete the study at their own pace, which would reduce wait times and help unify the research experience for all participants.

Interestingly, the more extreme measure of religiosity— Religious Fundamentalism— may have been more affected by the manipulation due to its polarizing nature. Fundamentalism is characterized by a belief in the infallible word of religious doctrine, the persistent rivalry with evil, and the view that one's religious tradition is the sole purveyor of truth (Altemeyer & Hunsberger, 2004). These beliefs are unbending and lack any grey area, which would leave participants on either end of the scale, not somewhere in the middle. This theme would only be exaggerated by the manipulation, allowing for this scale to show the effects of the manipulation when others did not. Had more participants been run, the statistical power of the present analysis power may have been large enough to detect differences in scores on other scales caused by the manipulation.

It is also possible that the title of the study listed in the online sign-up (“Mortality Salience and Beliefs”) caused participants in the control condition to think about their mortality when that construct was not supposed to be salient. In fact, 38.9% of participants in the control condition filled out the manipulation check with at least one death-related word, even though they were not primed for death-thoughts in the study, and 11.1% of control participants filled in death-related words for all four questions.

Further, there may be current societal influences, such as the content of the news, that make it harder to manipulate existential anxiety within participants. On a daily basis, the media cover stories such as murders, mass shootings, and other terror-inducing attacks. These stories may serve to make mortality seem more eminent now than it was in the past, especially for younger generations (e.g., current college freshmen) that hear about people their own age being killed on their own campuses, in their own schools, and at leisure facilities such as concerts and movie theaters. This constant confrontation with mortality is further perpetuated by the advent of social media, where this sort of news is spread around the world and readily available at people’s fingertips at all times of the day. Research has shown that violence has become increasingly prevalent in media, and young people are consuming that violent media in large amounts, which could not only prime aggression, but could also prime mortality (Anderson, 2003). In many ways, the tragedies of life are inescapable as they never have been before.

Two major limitations of this study were the aforementioned possible extraneous variables of spirituality and political views. Specifically, nonreligious participants were not given an opportunity to identify their specific spiritual beliefs. For example, several participants who identified as nonreligious then marked that they were somewhat

religious on a later scale. Similarly, one participant asked during the study what to mark if they were “spiritual but not religious”. Thus, an interesting avenue for future research would be to examine the differences in people who identify as “spiritual but not religious”, as compared to people who identify as atheist or agnostic. This distinction may account for some of the relationship between religious worldview and transphobia in nonreligious participants observed in the present study. Being spiritual does not come with a unified, subscribed set of beliefs or codes to follow, due to the un-institutionalized nature of the belief, so it is difficult to tell why having a spiritual worldview would shape prejudice towards others. For those who identify as spiritual, their spirituality may encompass hold a wide array of beliefs, codes of morality, and practices, which would result in different manifestations of why those beliefs link to transgender biases. Future studies could delve into the interplay between spirituality and prejudice, which would require gathering data on exactly what being spiritual entails for the individual and how that results in a religious worldview.

Another limitation is the possible effect of political ideologies. Political worldviews may have an important influence on people’s attitudes towards transgender individuals and should also be researched (Worthen, Lingardi, & Caristo, 2017). While their political worldview may influence both religious and nonreligious participants, it is possible that the effects of this worldview are larger for those who have a low religious worldview. Unfortunately, this study had highly unequal sample sizes for political party affiliation, thereby preventing statistical analysis of this variable. Future research may control for and measure both religiosity and political worldview in order to understand their unique effects on transphobia.

In conclusion, this study examined the effects of mortality salience on religiosity and subsequent transphobia. It was expected that those who were made mortality salient would have increased scores on worldview, fundamentalism, and transphobia. However, the results from the current study were contrary to expectation. The control group had stronger correlations between both forms of religiosity and transphobia, particularly fundamentalism. The mortality salient group even showed significantly lower religious fundamentalism scores, contradicting expected findings. These results indicate that further research should investigate empathy and mortality salience, differences between religiously motivated prejudice towards transgender individuals and other members of the LGBT community, and the possible effects of spirituality and political beliefs.

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## Appendix A

Strongly Disagree

Neutral

Strongly Agree

1      2      3      4      5      6      7      8      9

1. My religious scriptures (e.g., Bible, Torah) are a reliable source of knowledge.
2. My morals come from my religion.
3. The purpose of my life is to do my God's work on earth.
4. My religious leaders give me important information about the world.
5. I try hard to live my life the way my religion tells me to live it.
6. I believe science is the only way that one can obtain knowledge about the universe. (R)
7. When I am unsure whether an act is right or wrong, I often look to my religion to give me the answer.
8. My purpose in life is NOT determined by my religion. (R)
9. There are some things about the way the world works that I can only come to understand through religion.
10. My religion gives me a clear, stable set of morals.
11. The meaning of life actually lies in what is beyond this life.
12. My sense of right and wrong does NOT come from my religion. (R)
13. My religious beliefs will NOT influence the career I choose for myself. (R)
14. My religion has taught me how to lead a moral life.
15. I often look to my religion for directions when making important life decisions.
16. I believe my religion has a plan for my life.
17. I believe that my religion holds the answers as to how the universe was created.

18. If I were considering who to vote for in a political election, I would NOT look to my religion to help me decide. (R)

19. I believe my life is controlled by my God.

Note. RWV = religious worldview.

(R)= measurement reversed

## Appendix B

This survey is part of an investigation concerning general public opinion concerning a variety of social issues. You will probably find that you *agree* with some of the statements, and *disagree* with others, to varying extents. Please indicate your reaction to each statement by blackening the corresponding bubble according to this scale:

Very

Strongly	Strongly	Moderately	Slightly	
Disagree	Disagree	Disagree	Disagree	Neutral
-4	-3	-2	-1	0
			Very	
Slightly	Moderately	Strongly	Strongly	
Agree	Agree	Agree	Agree	
+4	+3	+2	+1	

You may find that you sometimes have different reactions to different parts of a statement. For example, you might very strongly disagree (“-4”) with one idea in a statement, but slightly agree (“+1”) with another idea in the same item. When this happens, please combine your reactions, and write down how you feel on a balance (a “-3” in this case).

1. God has given humanity a complete, unfailing guide to happiness and salvation, which must be totally followed.
2. No single book of religious teachings contains all the intrinsic, fundamental truths about life. (R)
3. The basic cause of evil in this world is Satan, who is still constantly and ferociously fighting against God.
4. It is more important to be a good person than to believe in God and the right religion. (R)

5. There is a particular set of religious teachings in this world that are so true, you can't go any "deeper" because they are the basic, bedrock message that God has given to humanity.
6. When you get right down to it, there are basically only two kinds of people in the world: the Righteous, who will be rewarded by God, and the rest, who will not.
7. Scriptures may contain general truths, but they should NOT be considered completely, literally true from beginning to end. (R)
8. To lead the best, most meaningful life, one must belong to the one, fundamentally true religion.
9. "Satan" is just the name people give to their own bad impulses. There really is *no such thing* as a diabolical "Prince of Darkness" who tempts us. (R)
10. Whenever science and sacred scripture conflict, *science* is probably right. (R)
11. The fundamentals of God's religion should never be tampered with, or compromised with others' beliefs.
12. *All* of the religions in the world have flaws and wrong teachings. There is *no* perfectly true, right religion. (R)

Note. (R)= measurement reversed

## Appendix C

1      2      3      4      5      6      7

Completely Disagree

Completely Agree

1. I don't like it when someone is flirting with me, and I can't tell if they are a man or a woman.
2. I think there is something wrong with a person who says that they are neither a man nor a woman.
3. I would be upset, if someone I'd known a long time revealed to me that they used to be another gender.
4. I avoid people on the street whose gender is unclear to me.
5. When I meet someone, it is important for me to be able to identify them as a man or a woman.
6. I believe that the male/female dichotomy is natural.
7. I am uncomfortable around people who don't conform to traditional gender roles, e.g., aggressive women or emotional men.
8. I believe that a person can never change their gender.
9. A person's genitalia define what gender they are, e.g., a penis defines a person as being a man; a vagina defines a person as being a woman.

## Appendix D

1. What gender do you identify as?
  - A. Female
  - B. Male
  - C. Other
  
2. What is your race/ethnicity?
  - A. African American
  - B. Asian or Pacific Islander
  - C. Hispanic or Latino or Spanish Origin
  - D. White
  - E. Other
  
3. What is your age? \_\_\_\_\_
  
4. Do you consider yourself to be a religious person?
  - A. Yes
  - B. No
  
5. If you answered yes to number 4, what religion do you consider yourself to be?  
\_\_\_\_\_
  
6. If you answered yes to number 4, please pick the category that best describes your religious beliefs.
  - A. Buddhism
  - B. Christianity (Catholic, Protestant, Orthodox)
  - C. Hinduism
  - D. Islam
  - E. Judaism
  - F. Other



7. On a scale from 1 to 5, how religious do you consider yourself to be?

1	2	3	4	5
Not Religious		Moderately		Very
At All		Religious		Religious

A. Have you ever converted to a different religion?    A. Yes    B. No

8. How long have you been in this religion or non-religious?

A. < 1 Year

B. 1-5 Years

C. 4-10 Years

D. Longer than 10 Years

9. I most closely align politically with:

A. Democratic

B. Republican

C. Green Party

D. Libertarian

E. Other

10. Do consider yourself politically liberal (i.e., open, believe government should be active in change) or conservative (i.e., traditional, believe government should stay out of limited government influence)?

Very Liberal	Moderately Liberal	Somewhat Liberal	Neutral
1	2	3	4
Somewhat Conservative	Moderately Conservative	Very Conservative	
5	6	7	

## Appendix E

**Principal Investigator:** Lauren Morris

**Study Title:** Effects of Mortality Salience on Beliefs

**Institution:** Middle Tennessee State University

Name of participant:

\_\_\_\_\_ Age:  
\_\_\_\_\_

The following information is provided to inform you about the research project and your participation in it. Please read this form carefully and feel free to ask any questions you may have about this study and the information given below. You will be given an opportunity to ask questions, and your questions will be answered. Also, you will be given a copy of this consent form.

Your participation in this research study is voluntary. You are also free to withdraw from this study at any time, for any reason, without penalty or repercussion. In the event new information becomes available that may affect the risks or benefits associated with this research study or your willingness to participate in it, you will be notified so that you can make an informed decision whether or not to continue your participation in this study.

For additional information about giving consent or your rights as a participant in this study, please feel free to contact the MTSU Office of Compliance at (615) 494-8918.

1. **Purpose of the study:** You are being asked to participate in a research study examining how thoughts affect one's beliefs toward religion and certain groups.
2. **Description of procedures to be followed and approximate duration of the study:** You will be asked to answer questions that may evoke existential thoughts. You will then be asked to complete a task in which you fill in five word-puzzles and read a short literature passage. You will then be asked to fill out three surveys. It will take approximately 30 minutes to complete.
3. **Expected costs:** There are no expected costs to participating in this study.
4. **Description of the discomforts, inconveniences, and/or risks that can be reasonably expected as a result of participation in this study:** You will be asked some questions about sensitive topics. However, there are no anticipated risks of participating in this study. All information will be kept completely confidential, anonymous, and secure.
5. **Compensation in case of study-related injury:** MTSU will not provide compensation in the case of study related injury.
6. **Anticipated benefits from this study:**

a) The potential benefits to science and humankind that may result from this study are advances in knowledge about the ways that mortality salience and other thoughts may affect human belief and attitudes.

b) The potential benefit to you from this study is a better understanding of some of the processes that can affect your beliefs and attitudes.

**7. Alternative treatments available:** N/A

**8. Compensation for participation:** You will receive one research credit for your introductory psychology course.

**9. Circumstances under which the Principal Investigator may withdraw you from study participation:** N/A

**10. What happens if you choose to withdraw from study participation:**

Participants will be able to withdraw at any time without penalty.

**11. Contact Information.** If you should have any questions about this research study or possible injury, please feel free to my Faculty Advisor, John Pennington, at (615) 898-5937 (or john.pennington@mtsu.edu), or the Office of Compliance at (615) 898-2400 (or compliance@mtsu.edu).

**12. Confidentiality.** All efforts, within reason, will be made to keep the personal information in your research record private, but total privacy cannot be promised. Your information may be shared with MTSU or the government, such as the Middle Tennessee State University Institutional Review Board, Federal Government Office for Human Research Protections, if you or someone else is in danger or if we are required to do so by law.

**13. STATEMENT BY PERSON AGREEING TO PARTICIPATE IN THIS STUDY**

**I have read this informed consent document and the material contained in it has been explained to me verbally. I understand each part of the document, all my questions have been answered, and I freely and voluntarily choose to participate in this study.**

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of patient/volunteer

Consent obtained by:

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_

## Appendix F

## Manipulation Task:

1. Please briefly describe the emotions that the thought of your own death arouses in you.
  
2. Now, jot down, as specifically as you can, what you think will happen to you as you physically die and once you are physically dead.
  - As I am dying... (Please write three sentences)
  
  - After I am physically dead... (Please write three sentences)

## Control Task:

1. Please briefly describe the emotions that the thought of your next exam arouses in you.
  
2. Now, jot down, as specifically as you can, what you think will happen to you as you take your exam and after your exam is finished.
  - As I take the exam... (Please write three sentences)
  
  - After I finish the exam... (Please write three sentences)

## Appendix G

There are 5 phrases listed below with one of the words missing. Please fill in the word that completes the phrase.

1. Untimely \_\_\_\_\_
2. \_\_\_\_\_ End
3. \_\_\_\_\_ Beat
4. \_\_\_\_\_ Certificate
5. Walking \_\_\_\_\_

Now, please complete this task to gauge attention. Please read the passage below and circle each letter “T” and underline each letter “I”.

“We will circle around the oak table, a table that was big enough to seat more than fifty guests in better times, where one thousand paper cranes will be placed—two hundred and fifty for each brother. These cranes will then be moved around the table by the force of four giant fans, positioned at each corner of the room, until only one paper crane is left on the table. The owner of that single bird will receive the mansion. However, before any of this occurs, the brothers must make their cranes, all one thousand, by hand.”

-Kevin Wilson, “Birds in the House”,

*Tunneling to the Center of the Earth*

## Appendix H

### **Debriefing**

You have been a part of an experiment testing whether making people think about their mortality affects their religiosity. It is believed that making mortality salient strengthens pre-existing religious worldviews in order to protect psychological stability from out-view threats. It is expected that an increase in religiosity will also correlate with subsequent higher scores on the transphobia scale. There are no anticipated risks of participating in this study and no penalties for declining participation. You will receive one research credit for your introductory psychology course.

All materials and surveys will be kept anonymous and locked away in an office in Jones Hall so that your information will remain completely secure. If you have any questions or concerns about the nature of this study, please feel free to contact Dr. John Pennington at (615) 898-5937 (or [john.pennington@mtsu.edu](mailto:john.pennington@mtsu.edu)), or the Office of Compliance at (615) 494 8918 (or [compliance@mtsu.edu](mailto:compliance@mtsu.edu)).

I, \_\_\_\_\_ have been debriefed as to the nature of this study and grant the experimenters permission to retain and analyze my responses.

## Appendix I

**IRB INSTITUTIONAL REVIEW BOARD** Office of Research Compliance, 010A  
Sam Ingram Building, 2269 Middle Tennessee Blvd Murfreesboro, TN 37129

IRBN007 Version 1.2 Revision Date 03.08.2016

**IRBN007 – EXEMPTION DETERMINATION NOTICE**

Wednesday, April 05, 2017

Investigator(s): Lauren Morris (Student PI) and John Pennington (FA)

Investigator(s') Email(s): lem5k@mtmail.mtsu.edu; John.Pennington@mtsu.edu

Department: Psychology

Study Title: Effects of Mortality Salience on Religiosity and Transphobia

Protocol ID: **17-1213**

Dear Investigator(s),

The above identified research proposal has been reviewed by the MTSU Institutional Review Board (IRB) through the **EXEMPT** review mechanism under 45 CFR 46.101(b)(2) within the research category (2) *Educational Tests*. A summary of the IRB action and other particulars in regard to this protocol application is tabulated as shown below:

IRB Action	EXEMPT from further IRB review***
Date of expiration	<b>NOT APPLICABLE</b>
Participant Size	60 (SIXTY)
Participant Pool	MTSU Psychology Research Pool
Mandatory Restrictions	Collecting identifying information is not permitted.



Additional Restrictions		<b>1. All participants need to consent. 2. 18 years of age or older</b>
Comments		NONE
Amendments	<b>Date</b> N/A	<b>Post-Approval Amendments</b>

\*\*\*This exemption determination only allows above defined protocol from further IRB review such as continuing review. However, the following post-approval requirements still apply:

- Addition/removal of subject population should not be implemented without IRB approval
- Change in investigators must be notified and approved
- Modifications to procedures must be clearly articulated in an addendum request and the proposed changes must not be incorporated without an approval
- Be advised that the proposed change must comply within the requirements for exemption
- Changes to the research location must be approved – appropriate permission letter(s) from external institutions must accompany the addendum request form
- Changes to funding source must be notified via email ([irb\\_submissions@mtsu.edu](mailto:irb_submissions@mtsu.edu))
- The exemption does not expire as long as the protocol is in good standing
- Project completion must be reported via email ([irb\\_submissions@mtsu.edu](mailto:irb_submissions@mtsu.edu))
- Research-related injuries to the participants and other events must be reported within 48 hours of such events to [compliance@mtsu.edu](mailto:compliance@mtsu.edu)

The current MTSU IRB policies allow the investigators to make the following types of changes to this protocol without the need to report to the Office of Compliance, as long

as the proposed changes do not result in the cancellation of the protocols eligibility for exemption:

- Editorial and minor administrative revisions to the consent form or other study documents
- Increasing/decreasing the participant size

The investigator(s) indicated in this notification should read and abide by all applicable post-approval conditions imposed with this approval. Refer to the post-approval guidelines posted in the MTSU IRB's website. Any unanticipated harms to participants or adverse events must be reported to the Office of Compliance at (615) 494-8918 within 48 hours of the incident.

All of the research-related records, which include signed consent forms, current & past investigator information, training certificates, survey instruments and other documents related to the study, must be retained by the PI or the faculty advisor (if the PI is a student) at the secure location mentioned in the protocol application. The data storage must be maintained for at least three (3) years after study completion. Subsequently, the researcher may destroy the data in a manner that maintains confidentiality and anonymity. IRB reserves the right to modify, change or cancel the terms of this letter without prior notice. Be advised that IRB also reserves the right to inspect or audit your records if needed.

Sincerely,

Institutional Review Board

Middle Tennessee State University