

University of Kentucky

UKnowledge

Theses and Dissertations--Social Work

College of Social Work


2019

SUICIDE ATTITUDES AND TERROR MANAGEMENT THEORY

Athena Kheibari

University of Kentucky, azkheibari@gmail.com

Author ORCID Identifier:

 <https://orcid.org/0000-0002-1084-0738>

Digital Object Identifier: <https://doi.org/10.13023/etd.2019.297>

[Right click to open a feedback form in a new tab to let us know how this document benefits you.](#)

Recommended Citation

Kheibari, Athena, "SUICIDE ATTITUDES AND TERROR MANAGEMENT THEORY" (2019). *Theses and Dissertations--Social Work*. 26.

https://uknowledge.uky.edu/csw_etds/26

This Doctoral Dissertation is brought to you for free and open access by the College of Social Work at UKnowledge. It has been accepted for inclusion in Theses and Dissertations--Social Work by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@sv.uky.edu.

STUDENT AGREEMENT:

I represent that my thesis or dissertation and abstract are my original work. Proper attribution has been given to all outside sources. I understand that I am solely responsible for obtaining any needed copyright permissions. I have obtained needed written permission statement(s) from the owner(s) of each third-party copyrighted matter to be included in my work, allowing electronic distribution (if such use is not permitted by the fair use doctrine) which will be submitted to UKnowledge as Additional File.

I hereby grant to The University of Kentucky and its agents the irrevocable, non-exclusive, and royalty-free license to archive and make accessible my work in whole or in part in all forms of media, now or hereafter known. I agree that the document mentioned above may be made available immediately for worldwide access unless an embargo applies.

I retain all other ownership rights to the copyright of my work. I also retain the right to use in future works (such as articles or books) all or part of my work. I understand that I am free to register the copyright to my work.

REVIEW, APPROVAL AND ACCEPTANCE

The document mentioned above has been reviewed and accepted by the student's advisor, on behalf of the advisory committee, and by the Director of Graduate Studies (DGS), on behalf of the program; we verify that this is the final, approved version of the student's thesis including all changes required by the advisory committee. The undersigned agree to abide by the statements above.

Athena Kheibari, Student

Dr. Julie Cerel, Major Professor

Dr. Julie Cerel, Director of Graduate Studies

SUICIDE ATTITUDES AND TERROR MANAGEMENT THEORY

DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Social Work at the University of Kentucky

By
Athena Kheibari

Lexington, Kentucky

Director: Dr. Julie Cerel, Professor of Social Work

Lexington, Kentucky

Copyright © Athena Kheibari 2019

ABSTRACT OF DISSERTATION

SUICIDE ATTITUDES AND TERROR MANAGEMENT THEORY

Virtually every mental health problem carries stigma, but suicide appears to run so counter to our accumulative, achievement-oriented society, that it poses even greater threat of stigma. While suicide is inherently troubling in that it opposes the fundamental human instinct for self-preservation, the tendency to stigmatize and reject individuals affected by suicide appears to be counterproductive and excessive. Hence, the purpose of this three-manuscript dissertation is to gain a more nuanced understanding of suicide attitudes from an exploratory and terror management theory perspective. More specifically, this dissertation attempts to answer three general questions: (1) how do suicide attitudes differ from other stigmatized deaths – namely, unintentional opioid overdose, (2) does death anxiety and baseline self-esteem impact attitudes toward suicide, and (3) can the effects of death anxiety on suicide attitudes be reversed by temporarily boosting self-esteem? To address the first question, Study 1 compares suicide attitudes to attitudes toward opioid overdose death – another type of stigmatized death that has emerged as a major public health issue in the U.S. in recent years. Study 2 addresses the second question by examining the effect of mortality salience on attitudes toward suicide and by investigating whether participants' baseline self-esteem will moderate this effect, in keeping with the theory's claim that self-esteem buffers against death anxiety. Building on the theoretical assumptions of the second study, Study 3 tests whether the effects of death anxiety on suicide attitudes can be reversed by temporarily bolstering the participant's self-esteem using experimental manipulation. In other words, can cultural worldview validation and self-esteem enhancement inhibit the awareness of personal death and promote prosocial attitudes and behavior? All three proposed studies used quantitative research strategies to examine the research questions detailed above. Study 1 used a traditional questionnaire method to explore and compare attitudes toward suicide and drug overdose death; whereas Study 2 and 3 employed an experimental design to test the MS hypothesis on suicide attitudes. Participants were recruited online using an inexpensive crowdsourcing service called Amazon MTurk.

Findings from these studies could have important implications for how we understand the psychological underpinnings of suicide stigma and contribute to the growing body of evidence of the role of existential mortality concerns in hostile attitudes and discriminatory behavior. Not only are we confronted with death reminders in our everyday lives, the topic of suicide is inherently a reminder of death – making the problem of death anxiety even more relevant and unavoidable. These findings could expand our understanding of how cultural worldview and self-esteem are relevant to mitigating death anxiety, and the relationship between death anxiety and suicide.

KEYWORDS: Suicide Attitudes, Opioid Overdose, Terror Management Theory, Stigma, Death Anxiety

Athena Kheibari

May 21, 2019

SUICIDE ATTITUDES AND TERROR MANAGEMENT THEORY

By

Athena Kheibari

Dr. Julie Cerel

Director of Dissertation

Director of Graduate Studies

May 21, 2019

Date

ACKNOWLEDGEMENTS

This dissertation would not be possible without the support and guidance of my advisor and role model, Dr. Julie Cerel. I would also like to thank my dissertation committee, Dr. Christopher Flaherty, Dr. Jay Miller, Dr. Michele Staton, and Dr. Laura Frey, for their thoughtful insights and dedication to my intellectual growth. Last but not least, I would like to acknowledge Robert Walker who inspires me everyday with his brilliance and kindness.

TABLE OF CONTENTS

Acknowledgements	iii
List of Tables	vi
Chapter One: Introduction	
Theoretical Background.....	1
Research Agenda	22
Definition of Terms.....	22
Conceptual Framework.....	33
Chapter Two: Comparing Attitudes toward Stigmatized Deaths: Suicide & Opioid Overdose Deaths	
Introduction.....	14
Present Study	16
Method	16
Data Collection & Sample	16
Materials	17
Demographic Survey	17
Stigma of Suicide Scale – Short Form (SOSS-SF).....	18
Willingness to Intervene Against Suicide – Intention Subscale (WIS-I).....	19
Analytic Procedure.....	20
Results.....	21
Comparing Suicide and Unintentional Opioid Overdose	22
Stigma Scale.....	22
Willingness to Intervene Scale.....	22
Predictors of Suicide Attitudes	23
Predictors of Opioid Overdose Attitudes	24
Discussion	24
Comparing Suicide and Unintentional Opioid Overdose	24
Predictors of Attitudes	28
Limitations and Future Directions	29
Chapter Three: The Role of Death Anxiety and Self-Esteem on Suicide	
Attitudes	38
Introduction.....	38
Terror Management Theory	39
Present Study	42
Method	42
Participants.....	42
Procedure & Materials	43
Demographic Survey	44
Rosenberg Self-Esteem Scale (SES).....	44
MS Manipulation	44
Word Completion Task.....	45

Stigma of Suicide Scale – Short Form (SOSS-SF).....	45
Willingness to Intervene Against Suicide – Intention Subscale (WIS-I).....	46
Donation Allocation Task.....	46
Analytic Procedure.....	46
Results.....	47
Manipulation Check and Group Differences	47
Hypothesis Testing: Attitudes Toward Suicide	47
SOSS-SF	48
WIS-I.....	49
Donation Allocations	49
Discussion.....	49
Limitations & Future Directions	52
Chapter Four: Does Self-Esteem Inflation Mitigate Mortality Salience Effects on Suicide Attitudes?	56
Introduction.....	56
Terror Management Theory & Prosocial Behavior	57
The Present Study	59
Method	60
Participants.....	60
Procedure & Materials	60
Demographic Survey	61
MS Manipulation	61
Word Completion Task.....	61
Self-Esteem Manipulation	62
Stigma of Suicide Scale – Short Form (SOSS-SF).....	62
Willingness to Intervene Against Suicide – Intention (WIS-I).....	63
Donation Allocation Task.....	63
Analytic Procedure.....	64
Results.....	64
Manipulation Check and Group Differences	64
Hypothesis Testing: Attitudes Toward Suicide and Self-Esteem Boost....	65
SOSS-SF	65
WIS-I.....	66
Donation Allocation.....	66
Discussion	67
Limitations and Future Directions	70
Chapter Five: Conclusion	73
Implications.....	76
Appendix A	78
References	87
Vita.....	96

LIST OF TABLES

Table 2.1. Demographic Characteristics of Participants (N=503).....	31
Table 2.2. Independent Samples T-Test Results for Short Form of SOSS/SODOS Subscales & WIS-I/WIO-I - Including Individual Item Analysis	32
Table 2.3. Descriptive Statistics for Significant Predictors of Suicide Attitudes (N = 274).....	35
Table 2.4. Descriptive Statistics for Significant Predictors of Opioid Overdose Attitudes (N = 229)	36
Table 3.1. Multifactor ANOVA with Mortality Salience and Baseline Self-Esteem	55
Table 4.1. Multifactor ANOVA with Mortality Salience, Baseline Self-Esteem, and Self-Esteem Boost Condition.....	72

Chapter 1: Introduction

Suicide, defined as a deliberate act of taking one's own life, is a worldwide phenomenon that seemingly contradicts all theories of self-preservation (Joiner, 2005). In the U.S. alone there were nearly 45,000 suicide deaths and 1.3 million suicide attempts in 2016 (Centers for Disease Control and Prevention [CDC], n.d.; Substance Abuse and Mental Health Services Administration [SAMHSA], 2017). A high incidence of suicide attempt and death also means that a large percentage of the population (approximately 40%) are exposed to suicide at least once in their lifetime (Cerel et al., 2016). The aftermath of suicide attempt and loss should not be underestimated as research has revealed an increased risk for suicidality among individuals who have a history of suicide attempt (Finkelstein et al., 2015) and suicide loss survivors (i.e., family members or close friends of a loved one who has died by suicide) (Pitman, Osborn, King, & Erlangsen, 2014). One might assume that this public health crisis would lead to more compassion and assistance to those affected by suicide. Unfortunately, given its perplexing nature, death by suicide is still treated as a stigmatized death – defined as a type of death that is attributed to immoral, evil, or illegal causes (Newman & Newman, 1987). While there have been some improvements in attitudes toward suicide over the decades (Witte, Smith, & Joiner, 2010), the continued stigma suggests that there is a missing piece to the puzzle of eradicating suicide stigma.

Virtually every mental health problem carries stigma, but suicide appears to run so counter to our accumulative, achievement-oriented society, that it poses an even greater threat of stigma. The stigma of suicide has existed throughout the centuries – though specific perspectives regarding suicide have varied by culture and religion

(Sprang & McNeil, 1995). Stigma is a social construct defined as a mark of social disgrace on a person that identifies him/her as being inferior and devalued (Arboleda-Florez, 2002). Until the mid-20th century, much of the Western world treated suicide as an act of self-homicide (or attempted homicide in the case of attempted suicide) (Vandekerckhove, 1998). Before decriminalization, the punishments for suicide or attempted suicide were extraordinarily demeaning, such as publicly violating the corpse of a suicide victim, seizing control of the suicide victim's property and burial procedure, and imposing harsh penalties on attempt survivors and surviving family members (Neeleman, 1996; Vandekerckhove, 1998). Despite significant changes in U.S. legislation to legalize physician aid in dying (Galvin, 2016), discrimination on an institutional level against individuals who suicide persists, such as when insurance companies deny eligibility for benefits and coverage for claims related to suicide (Andrews, 2014). The cumulative effect of these laws and policies has contributed to a culture of intolerance against suicide and suicidal behavior (Young, 2002). Although there is some evidence indicating a rise in permissive attitudes toward suicide, it is largely in the context of fatalistic reasons, such as an incurable disease or terminal illness (Frey & Hans, 2016; Romer & Jamieson, 2003). Research on negative suicide attitudes reveal a common perception that suicide is an immoral and incomprehensible act, and that individuals who attempt or die by suicide are weak, selfish, and manipulative (Arnautovska & Grad, 2010; Batterham, Calear, & Christensen, 2013a).

Knowing that suicide is marked by stigma, the question then becomes, what are the psychological underpinnings for this stigma? Why is it that, despite decades of suicide prevention efforts and public awareness campaigns on suicide and mental health,

society continue to stigmatize suicide? One could argue that stigmatizing suicide is adaptive because it could act as a gatekeeper for individuals who may have otherwise found it to be permissible to suicide. While there is some evidence that religious objection to suicide may protect against suicide attempts in the context of some cultures, there is limited evidence that stigma effectively deters suicidal behavior or death (Wu, Wang, & Jia, 2015). In fact, research indicates the exact opposite – stigma is more likely to be a barrier to seeking mental health treatment, leads to self-stigmatization in people who experience suicidal ideation or behavior, and exposes them to a greater likelihood of dying by suicide (Carpiniello, & Pinna, 2017; Pompili, Mancinelli, & Tatarelli, 2003). While suicide is inherently troubling in that it opposes the fundamental human instinct for self-preservation, the tendency to stigmatize and reject individuals affected by suicide appears to be counterproductive and excessive.

Theoretical Background

According to terror management theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986), our presumably unique human cognitive ability to contemplate death causes us to experience intense anxiety. TMT theorists posit that cultural belief systems and self-esteem serve a death-denying function by providing a sense of existential purpose and importance, and by promising both literal (e.g., afterlife, reincarnation) and symbolic (e.g., personal legacy, national identity) immortality. Therefore, we continuously seek to bolster our faith in cultural worldviews and sense of value in society in order to minimize death-related anxiety – much of which occurs outside of conscious awareness. As a result, reminders of our own mortality trigger distal death defenses that lead us to negatively evaluate those who threaten our cultural values, such as individuals

who suicide, and engage in the impulse to reject, avoid, and even aggress against dissimilar others (e.g., Florian & Mikulincer, 1997; Greenberg et al., 1990; Hirschberger & Ein-Dor, 2006; McGregor et al., 1998; Pyszczynski et al., 2006). Terror management theory is discussed in greater detail below.

The most common approach to examining the theoretical propositions of TMT has been to use the morality salience (MS) hypothesis, which states that if certain psychological barriers – namely cultural worldviews and self-esteem – operate as a buffer against our fear of death, then making people think about their own morality will engender increased reinforcement of these protective structures (Greenberg et al., 1990; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989). A typical TMT study involves experimentally manipulating morality salience by priming the participant with either a death-related stimulus or a non-death-related control topic, followed by one or two distraction tasks before finally completing the dependent measure(s) that either challenge or reinforce their worldviews. The purpose of the delay between the MS manipulation and dependent measure(s) is to allow for death-related cognitions to recede from consciousness, which is necessary to activate the distal death defenses that only operate when the fear of death is beneath the surface of consciousness (Greenberg et al., 1990). Previous research has found that removal of the delay produces null findings (Greenberg, Arndt, Simon, Pyszczynski, & Solomon, 2000). Hence, the proposed studies will aim to gain a more nuanced understanding of suicide attitudes and to use the MS hypothesis in an experimental setting to examine the effect of morality salience (i.e., heightened awareness of death) on fueling hostile attitudes toward suicide.

Research Agenda

In the following chapters, I examine how suicide attitudes compare to another type of stigmatized death, as well as explore the possibility that suicide stigma is fueled by existential anxiety using terror management theory as the conceptual framework. Specifically, this dissertation attempted to answer three general questions: (1) how do suicide attitudes differ from other stigmatized deaths – namely, unintentional opioid overdose, (2) does death anxiety and baseline self-esteem impact attitudes toward suicide, and (3) can the effect of death anxiety on suicide attitudes be reversed by temporarily boosting self-esteem?

To address the first question, Study 1 compared suicide attitudes to attitudes toward opioid overdose death – another type of stigmatized death that has emerged as a major public health issue in the U.S. in recent years (Ahmad, Rossen, Spencer, Warner, & Sutton, 2018). Much like suicide, death by opioid overdose is highly stigmatized, perhaps due to the perception that the death was somehow avoidable and that the victim was engaged in irresponsible behavior (Connery, 2018). In reality, substance misuse is highly associated with suicide and suicidal behaviors (Dragisic, Dickov, Dickov, & Mijatovic, 2015; Voss et al., 2013). Additionally, there is the problem of undetected drug-overdose suicides that are classified as accidental or undetermined, which may further complicate efforts to obtaining accurate suicide prevalence rates (Taylor et al., 2018; Weinstock, 2018). There is data to suggest that addiction is more stigmatized than mental illness (Barry, McGinty, Pescosolido, & Goldman, 2014); whereas in the context of stigma associated to bereavement, individuals bereaved by suicide report greater perceived stigma as compared to those who experienced a drug overdose loss

(Feigelman, Jordan, & Gorman, 2011; Pitman, Stevenson, Osborn, & King, 2018).

Examining the differences in attitudes toward suicide and opioid overdose death is important for several reasons. First, by identifying commonalities and unique differences in attitudes toward these two types of sudden unnatural deaths has the potential to inform individual- and community-level interventions for individuals bereaved by these traumatic deaths. Secondly, if results indicate a high degree of similarity between the two types of stigmatized death, then this study would add to the justification for greater attention to these neglected bereaved populations.

Study 2 addressed the second question by examining the effect of death anxiety on attitudes toward suicide and by investigating whether participants' baseline self-esteem will moderate this effect, in keeping with the theory's claim that self-esteem buffers against death anxiety (Greenberg et al., 1990). Indeed, previous research has found that high implicit self-esteem is associated with weakened terror management defenses (Schmeichel et al., 2009). By investigating this effect on suicide attitudes, the study attempted to illuminate the role of death anxiety and low self-esteem in motivating bias against suicide.

Building on the theoretical assumptions of the second study, Study 3 tested whether the effects of death anxiety on suicide attitudes can be reversed by temporarily bolstering the participant's self-esteem using experimental manipulation. In other words, can cultural worldview validation and self-esteem enhancement inhibit the awareness of personal death and promote prosocial attitudes and behavior? Most, if not all, cultures place high value on prosocial and altruistic behaviors and individuals who engage in generous and compassionate behaviors are often rewarded by their culture (Hirschberger,

Ein-Dor, & Almakias, 2008). As research has demonstrated, self-interest plays an important role in the likelihood of these prosocial behaviors because they reinforce the view that one is a valuable member of society (Jonas, Schimel, Greenberg, & Pyszczynski, 2002). Since TMT suggests that the belief that one is a meaningful contributor to the world provides a sense of security against the threat of personal morality, reminding people of cultural norms of compassion and benevolent behaviors should defend against the harmful effects of death anxiety. The findings of this study have the potential to inform suicide prevention strategies to be more effective in improving public attitudes.

Attitudes toward suicide were examined by measuring participants' evaluation of individuals who die by suicide and willingness to intervene when someone is suicidal. For the comparison study (i.e., Study 1), attitudes toward drug overdose deaths was measured using the same measurement tools as Study 2 and 3 but replaced the terms "suicide" with "opioid overdose" in the dependent measures. For example, the Stigma of Suicide Scale (SOSS) measures attitudes toward a "typical" person who dies by suicide, which was adapted for the purposes of this study to measure attitudes toward a "typical" person who dies by drug overdose (hereafter referred to as Stigma of Drug Overdose Scale; SODOS). For Study 2 and 3, an addition measure was used to measure willingness to donate to a suicide prevention cause as a proxy measure for attitudes.

Definition of Terms

Suicide is the intentional act or instance of ending one's own life (Joiner, 2005).

Opioid overdose death, for the purpose of this dissertation, will be defined as death resulting from unintentional overdose of opioids, where the underlying cause is

drug misuse or dependence. The decision to focus on opioid overdose was made to emphasize the stigmatized aspect of drug overdose death and to limit the possibility of misinterpretation (e.g., overdose due to accidental drug-interaction or poisoning that is unrelated to drug abuse). Furthermore, opioid-related overdose deaths have skyrocketed in recent years (Ahmad, Rossen, Spencer, Warner, & Sutton, 2018) – making it even more relevant to examine in the proposed study.

Stigmatized death is defined as a type of death that is believed to be caused by illegal, evil, or immoral forces or behavior (Newman & Newman, 1987).

Cultural worldview refers to an individual's fundamental beliefs and assumptions about the universe that is formed by the socialization process of passing knowledge and traditions from one generation to another (Greenberg, Pyszczynski, & Solomon, 1986).

Mortality salience (MS) is defined as the heightened awareness, conscious and nonconscious, by an individual that life will inevitably end in death (Greenberg, Pyszczynski, & Solomon, 1986). For the purpose of this dissertation, MS will refer to the method used to prime participants with death-related thoughts (i.e., active death awareness).

Proximal defense refers to the active suppression of conscious death-related thoughts, occurring immediately after thinking about death, aimed to drive the problem of mortality into the far-off future (Greenberg, Pyszczynski, & Solomon, 1986).

Distal defense refers to the nonconscious psychological mechanism involving self-esteem and worldview defense to relieve death anxiety, which occurs only after death-related thoughts have moved beyond conscious awareness but are still highly accessible (Greenberg, Pyszczynski, & Solomon, 1986). While, on the surface, distal

defenses may appear to lack any rational relationship to the problem of mortality, they buffer death anxiety by enabling an individual to perceive him/herself as a meaningful contributor to society.

Conceptual Framework

Rooted in evolutionary psychology and existential psychology, terror management theory (TMT; Greenberg, Solomon, & Pyszczynski, 1986) is a relatively new and controversial approach to explaining human behavior. The theory originated mainly from the work of anthropologist Ernest Becker (1973) who claimed that all human behavior is driven by the fear and anxiety generated by the awareness of the inevitability of death. Greenberg, Solomon, and Pyszczynski built on this idea that the fear of death is a powerful nonconscious motivator influencing human behavior and were able to propose a theory that has since then resulted in over 500 studies supporting terror management theory (Greenberg & Arndt, 2011). It is important to note that the purpose of TMT was to contribute to a fuller comprehension of a broad range of behaviors affected by the uniquely human ability to understand the concept of mortality, rather than fully account for any particular behavior. Additionally, the implications of this theory have been used to explain the basis of religious and political wars – which is partially why it is viewed as a controversial theory.

In his 1973 Pulitzer Prize winning book, *The Denial of Death*, Becker states that there is a constant competition between two thoughts, creating cognitive dissonance within the human mind. The first is that we seek to be involved in life and think of ourselves as important and meaningful contributors in the world; and the second is an awareness that life is temporary, thus, making all our efforts potentially insignificant.

This internal struggle to accept our eventual death causes us to create an alternative reality where we can immortalize ourselves symbolically. Becker also discusses the conception of self-esteem and its relation to the avoidance and fear of death. He claims that man is inherently narcissistic and that self-esteem is invariably tied to our narcissism. Additionally, our self-worth is derived symbolically. By observing the behavior of children, Becker (1973) came to the conclusion that:

Children openly express man's tragic destiny: he must desperately justify himself as an object of primary value in the universe, stand out, be a hero, make the biggest possible contribution to world life, show that he counts more than anything or anyone else (p. 4).

Other influential theorists that set the foundation for TMT are Soren Kierkegaard, Charles Darwin, Sigmund Freud, and Otto Rank to name a few. Known for setting the stage for existential philosophy, Kierkegaard (Kierkegaard, Thomte, & Anderson, 1980) posited that humans are faced with the paradox that we are mortal creatures able to consciously contemplate the infinite. Darwin's theory of evolution suggested that human beings are animals who share similar origins to other species; and therefore, there exists no basis to which we should believe that humans possess a soul, spirit, or divine origin (Darwin, 1859). This premise gave credence to TMT's principle that our cultural views are simply a consequence of our death anxiety and that they function to buffer the adverse effects due to this awareness. Additionally, TMT draws from Freud's idea that humans are animals that struggle between achieving our fundamental psychological needs and abiding by the cultural restraints placed upon us (Greenberg, Pyszczynski, Greenberg, & Solomon, 2000). This concept reflects the TMT position that people prioritize a symbolic reality and internalize cultural rules that are motivated by the fear of retribution for basic needs.

Lastly, Rank's influence on shifting psychoanalytic thought to an existential direction had vital significance to principles in TMT. He rejected the notion that the need for social order drives our cultural tendency to transform our animalistic characteristics/needs into symbolic forms (Rank, 1945). Instead, he suggests that this transformation stems from the need to cope with the fear induced by our knowledge of mortality.

Terror management theory posits that mortality salience can be activated without conscious involvement and that it can elicit a nonconscious, primal reaction to minimize the consequences of mortality (Greenberg, Pyszczynski, Greenberg, & Solomon, 2000). The same cognitive structures that allow human beings to be aware of their eventual death are also responsible for the development of mechanisms to manage death anxiety. One such mechanism is death-denying cultural belief systems, which serve to provide equanimity in the face of death-related terror (Greenberg & Arndt, 2011). Cultural worldviews are "widely shared beliefs about the nature of reality that imbue life with meaning and order and provide the opportunity for some form of death transcendence" (Landau, Solomon, Pyszczynski, & Greenberg, 2007, p. 478). These worldviews also offer answers to cosmological questions about human existence and universal causation, such as What created the universe? Moreover, What is the purpose to life? Additionally, since the human body consists of organic material by which life eventually passes unto death, it is a strong source of death anxiety (Greenberg, Pyszczynski, Greenberg, & Solomon, 2000). Thus, we can derive comfort from believing that human beings have unique, enduring identities with a soul because it distinguishes us from other living beings fated only to cease existing upon dying. Furthermore, cultural norms regarding the

human body allow us to elevate ourselves metaphorically from flesh and bone to a higher plane of existence as objects of dignity, appeal, and spirituality; hence distancing people from the animal world.

There are two ways in which culture contributes to feeling transcendent of death: it “allows us to feel literally immortal by providing conceptions of a soul that continues beyond death” and offers “symbolic immortality by providing avenues for our identity and contributions to be preserved after our physical death” (Sullivan & Greenberg, 2013, p 20). For example, we can obtain literal immortality by maintaining religious faith that promises eternal life after death, such as found in Islam or Hinduism; while symbolic immortality can be achieved through individual accomplishments that transcend time and make history, such as van Gogh’s *Starry Night*. Culture also provides a set of value standards, and a means to evaluate the behavior of others and ourselves. By choosing to comply with cultural standards of value, we are rewarded with a sense of importance and that we are connected to something greater than our individual lives. Insofar that one perceives to be a valuable contributor to a meaningful society, one will derive and maintain greater self-esteem (Landau, Solomon, Pyszczynski, & Greenberg, 2007). However, since cultural worldviews are socially constructed and dependent on continuous affirmation by others, one is strongly vested in seeking feedback from others to confirm the validity of his beliefs and to assure that he is adhering to the value standards set by society. Thus, according to TMT, cultural belief systems and self-esteem function to benefit human beings overcome deeply rooted existential terror.

To assuage the anxiety engendered by death awareness, we employ a variety of defense mechanisms. Proximal defenses are threat-focused attempts to protect oneself

from death anxiety by either avoiding thoughts of death or minimizing the possibility that one could die in the near future (e.g., I do not drive drunk all that often or I have a lot of time before I could get cancer from smoking). Conversely, distal defenses of self-esteem and worldviews are less rational. The empirical findings from TMT studies are copious (Greenberg & Arndt, 2011); only a brief overview will be provided here. First, people are less likely to experience anxiety – especially death-related anxiety – when their faith in cultural worldviews and one’s sense of value is bolstered (Sullivan & Greenberg, 2013). Secondly, people become motivated to intensify faith in their cultural beliefs and work harder to follow the prescribed cultural standards when faced with mortality reminders. Lastly, people are more likely to think about death when their sense of personal significance or faith in worldview is disturbed. While the defense strategies used to buffer death anxiety as described by TMT do not always resemble a logical or straightforward connection to the inescapable reality of mortality, self-esteem and cultural worldviews “function by virtue of experiential linkages established very early in life between meaning and value on one hand and safety and security on the other” (Greenberg, Pyszczynski, Greenberg, & Solomon, 2000, p. 201).

Chapter 2: Comparing Attitudes toward Stigmatized Deaths: Suicide & Opioid Overdose Deaths

Introduction

Much attention has been focused on recent reports of declining life expectancy among Americans due to suicide and drug overdoses (Joszt, 2018). Not only have suicide rates in the U.S. steadily increased over the past two decades (Kegler, Stone, Holland, 2017), but there has also been a dramatic spike in drug overdose deaths – most involving synthetic opioids – in recent years (Ahmad, Rossen, Spencer, Warner, & Sutton, 2018). In 2017, nearly 47,000 people died by suicide and 1.3 million had attempted suicide (Centers for Disease Control and Prevention [CDC], n.d.; Substance Abuse and Mental Health Services Administration [SAMHSA], 2017), while 63,632 died from drug overdose (nearly two thirds involving opioids) and 119,198 were admitted to the emergency room for suspected opioid-overdose (Hedegaard, Warner, & Miniño, 2017; Vivolo-Kantor et al., 2018). While a recent study found that approximately 40% of the U.S. population has been exposed to a suicide attempt or loss (Cerel et al., 2016), there is no data yet to indicate the rates of exposure to opioid overdose. Hence, there is a critical need for increased research on individuals impacted by opioid overdose, including those bereaved by overdose.

Past research has found that substance use and suicide are strongly linked such that those who use drugs are at an increased risk for suicide attempt and death (Dragisic, Dickov, Dickov, & Mijatovic, 2015; Voss et al., 2013). There is also evidence that those who experience psychiatric disorders and suicide ideation often use drugs and alcohol as a means to cope with their negative feelings – which adds further complications and increases the likelihood of subsequent suicide ideation or attempt (Pompili et al., 2010;

Zhang & Wu, 2014). Moreover, certain cases of high-risk substance misuse could be considered non-suicidal self-injurious behavior – defined as behaviors that may range from intentional self-injurious attempts to low lethality where the person’s aim is not death (Mauri et al., 2005), such as a sublethal drug overdose. Indeed, one study found that a significant portion of patients who were identified as engaging in suicidal behaviors used prescription drugs (Mauri et al., 2005). Due to this close association, sometimes suicide deaths involving self-poisoning are misclassified as unintentional drug overdose; whereas at other times, fatal drug overdoses are actually instances of suicide that go undetected (Taylor et al., 2018; Weinstock, 2018). This misclassification can be partially attributed to a lack of context around the circumstances of the death but can also be due to stigma around suicide and substance use. This stigma is particularly consequential, not only because it results in unreported cases of suicide and inaccurate data, but also because stigma has been shown to be a barrier to seeking healthcare and treatment, lead to internalized self-stigma, and loss of social support (Carpiniello, & Pinna, 2017).

While the research literature on suicide stigma has identified some of the common characteristics and predictors of these attitudes, little is known about stigma toward fatal drug overdose – specifically, opioid overdose deaths where the underlying cause is drug misuse or dependence. There are some who suggest that death by opioid overdose and suicide share similar stigma due to the assumption that the decedent behaved in an irresponsible manner and that the death could have been prevented (Connery, 2018). Available data on substance use attitudes has been predominately focused on non-fatal substance use, with a few studies that have examined the similarities between attitudes

toward substance use and mental illness. For example, one literature review aiming to compare the stigma of alcoholism to other mental disorders found that individuals struggling with alcoholism are perceived to be more responsible for their condition, less regarded as suffering from a psychiatric condition, and are subject to more social rejection (Schomerus et al., 2011). However, no studies have investigated attitudes toward fatal opioid overdose, nor have there been any studies comparing perceptions of opioid overdose and suicide.

The Present Study

Given the strong association between suicide and substance use, as well as the harmful consequences of stigma, it is important to investigate whether these two types of deaths share similar stigmatized perceptions and ambivalence towards intervention that would impede prevention and treatment efforts for both of these public health issues. Hence, this study is the first to conduct a comparative analysis of attitudes toward suicide and unintentional opioid overdose deaths. Specifically, this study explored multidimensional attitudes toward suicide and opioid overdose death and examined a range of factors that may be associated with attitudes. No specific or directional hypotheses were formed for the difference in attitudes between the two types of stigmatized deaths due to the lack of theoretical or empirical evidence to support an a priori stance.

Method

Data Collection and Sample

A Qualtrics survey was developed to explore attitudes toward suicide and opioid overdose deaths. Inclusion criteria for eligibility included being at least 18 years old,

English-speaking, and residing in the U.S. Participants were recruited using Amazon Mechanical Turk (MTurk), a reliable online recruitment service (Crump, McDonnell, & Gureckis, 2013; Horton, Rand, & Zeckhauser, 2011; Paolacci, Chandler, & Ipeirotis, 2010), to complete the online survey. Participants were compensated \$0.75 for their time.

Following voluntary consent, participants were randomly assigned to one of two groups: (1) those that responded to questions related to suicide and (2) those that responded to questions about opioid overdose death. Participants were asked to respond to a series of questionnaires that differed only in the language referring to the type of death. A brief demographic questionnaire was administered at the end of the study, including questions about personal experience with either suicide or opioid overdose depending on the group. This sampling strategy resulted in a total sample size of 503, with 274 participants in the suicide condition and 229 participants in the opioid overdose condition. All procedures were approved by the University of Kentucky's non-medical IRB.

Materials

The materials used in this study are described below. The dependent measures across both groups (i.e., suicide and opioid overdose) were identical, except that the measures administered to participants in the opioid overdose condition were adapted to target opioid overdose death instead of suicide.

Demographic Survey. A brief demographic survey was used to collect background information from the participant. Background variables included participant age, sex, race, education, military service history, firearm ownership status, and items related to religiosity and political ideology. Participants were also asked about their

history of exposure to suicide (loss survivor, attempt survivor, or both), and history of exposure to drug overdose (fatal or non-fatal).

Stigma of Suicide Scale – Short Form (SOSS-SF). The short form Stigma of Suicide Scale (SOSS-SF; Batterham, Calear, & Christensen, 2013a; 2013b) is a 16-item measure of community attitudes toward a “typical” person who dies by suicide. The items in the short form were derived from the full 58-item scale in order to reduce the amount of time the participant would need to complete the full form. Each SOSS item is a 1- or 2-word descriptor of a “prototypical” suicide decedent rated on a 5-point Likert scale ranging from 1 (Strongly Agree) to 5 (Strongly Disagree). Previous research using the SOSS has revealed a three-factor structure, with each subscale reflecting a different unique category of attitudes: Stigma (e.g., Immoral, Stupid), Isolation/Depression (e.g., Lonely, Isolated), and Glorification/Normalization (e.g., Brave, Dedicated) (Batterham, et al. 2013a; 2013b). The justification for using the short-form over the 58-item long-form of the SOSS was that the 16-item version of the SOSS reduces the burden of completing lengthy questionnaires. Scale reliability for the present sample (i.e., participants in the suicide condition) was adequate as indicated by the Cronbach’s alpha ($\alpha = 0.75$).

The instructions of the SOSS-SF were adapted in consultation with Philip Batterham, the lead developer of the SOSS, by changing the language to focus on individuals who die by opioid overdose. Thus, the instructions for each scale read as follows: ‘In general, people who [suicide or die by opioid overdose] are...’ The adapted version of the SOSS-SF contained the same items as the SOSS-SF and was named the

Stigma of Drug Overdose Death Scale (SODOS). The Cronbach's alpha coefficient for the adapted scale was strong ($\alpha = 0.96$).

Willingness to Intervene Against Suicide – Intention subscale (WIS-I). The 75-item Willingness to Intervene Against Suicide questionnaire (WIS; Aldrich, Harrington, & Cerel, 2014) was developed to measure attitudes, subjective norms, perceived behavioral control (PBC) and intentions to intervene in situations involving a suicidal person. Due to the large number of items in the WIS and greater predictive power of the intention to intervene subscale, it was determined that only the 22-item intention subscale would be implemented in the proposed project. The intention to intervene construct assesses a person's likelihood or intent to engage in behaviors to intervene in suicide. Items on the intention to intervene subscale (WIS-I) are rated on a 5-point Likert scale, ranging from 1 (Not likely at all) to 5 (Extremely likely), with higher scores indicating greater intention to engage in intervention-type behavior when someone is suicidal. The scale's Cronbach's alpha for the sample of participant in the suicide condition was strong ($\alpha = 0.91$).

In order to have a consistent measure of willingness to intervene to compare groups in this study (i.e., suicide versus opioid overdose death), the WIS-I was adapted in consultation with the lead researcher involved in developing the WIS, Rosalie Aldrich, by changing the language to focus on individuals who are at a high risk for an opioid overdose (e.g., non-medical use of opioid, polysubstance use, and injection drug use). Thus, the instructions for the scale read as follows: 'The following survey items concern your intent to intervene with someone who is at a high risk for opioid drug overdose.' Individual items that use suicide-related terms were replaced with terminology that refers

to high-risk individuals who are struggling with drug addiction (e.g., “Express my concern for someone who is at high risk for opioid drug overdose”). The adapted version of the WIS-I contained the same 22 items and was named the Willingness to Intervene Against Overdose (WIO-I) questionnaire. For the sample of participants in the overdose condition, the Cronbach’s alpha indicated strong reliability ($\alpha = 0.94$).

Analytic Procedure

Even though participants were randomly assigned to each condition (suicide vs. unintentional opioid overdose death), it was necessary to confirm that groups did not differ on any particular demographic variable. Thus, prior to conducting the main analyses, a series of chi-square tests and an independent samples t-test for age were used to compare participants groups on each demographic variable so to determine whether there were any significant differences that would potentially influence the results of the main analyses.

To explore commonalities and differences in attitudes and behaviors in response to suicide and opioid overdose deaths, a series of independent samples t-tests were used to compare participants in each condition on both dependent measures. Additionally, to achieve a more detailed examination of attitudes, independent samples t-tests were used to compare groups on each individual item on the stigma scale and willingness to intervene scale. These direct comparisons were possible only because the dependent measures were identical in the number and type of items in each measure.

A second series of analyses were performed to identify significant predictors of attitudes for both groups (suicide condition and overdose death condition) independently. Sample characteristics were tabulated and differences in the dependent measures were

examined for each group separately using bivariate analyses. Post-hoc analyses were used to determine group differences on non-binary variables. Multivariate analyses were not used due to extremely uneven group sizes and cell counts fewer than 5 in a factorial analysis of variance (ANOVA). Data were analyzed using SPSS version 23 software (SPSS Inc., Chicago, IL).

Results

Participants were between 18 and 77 ($M = 38.5$, $SD = 12.45$) years of age. The majority of the sample self-identified as White ($N = 394$, 78.3%) and slightly over half were female ($N = 258$, 51.3%). The sample was predominately well-educated, with 42.7% ($N = 215$) holding a bachelor's degree, 19.1% ($N = 96$) holding a PhD/professional degree, and 25.8% ($N = 130$) who had taken some college credits. Most participants self-identified as belonging to a Christian faith ($N = 273$, 54.3%), while 39.2% ($N = 197$) indicated no religiosity (including agnostic and atheist). Less than 9% of the sample had served in the U.S. Armed Forces ($N = 43$). Regarding personal experience with suicide and substance use, 32.4% ($N = 163$) reported having had previous suicide ideation and 7.6% ($N = 38$) reported having a history of substance use treatment. Over half of the sample had known someone who had died by suicide ($N = 266$, 52.9%) and 35.2% ($N = 177$) had exposure to someone who had died by unintentional drug overdose. Participant groups (suicide vs. opioid overdose death) did not differ on any demographic characteristics as revealed by chi-square tests and t-tests ($p > .05$). Table 2.1 shows the complete demographic characteristics of the sample.

Comparing Suicide and Unintentional Opioid Overdose

Stigma Scale. The results of the independent samples t-tests for the stigma scale revealed no statistically significant differences on the Stigma ($p = .35$) and Glorification/Normalization factors ($p = .14$). However, there was a statistically significant difference on the Isolation/Depression scale, $t(501) = 4.96, p < .001, d = .45$. On average, participants in the suicide condition were significantly more likely to attribute the death to isolation or depression ($M = 12.58, SD = 3.4$) as compared to those in the opioid overdose condition ($M = 11.12, SD = 3.15$).

Since this study is the first to adapt the SOSS-SF to examine attitudes toward opioid overdose deaths, further examination of differences between groups on each individual item was deemed relevant. Sample differences on each of the 16 items are reported in greater detail in Table 2.2; only a subset of these results is highlighted here. Interestingly, results showed that participants who were asked about an overdose decedent had significantly greater endorsement of the following items as compared to those who were asked about a suicide decedent: Pathetic, An Embarrassment, Irresponsible, and Stupid. Furthermore, while participants who were asked about suicide decedent indicated significantly greater endorsement of the descriptors Brave and Dedicated, participant groups did not differ significantly on their agreement of decedents as Strong and Noble.

Willingness to Intervene Scale. Results revealed that participants were significantly more willing to intervene in a hypothetical case of a person at-risk for suicide ($M = 65.31, SD = 15.07$) than those who were asked about a person at-risk for opioid overdose ($M = 62.31, SD = 15.91$), $t(490) = 2.14, p < .05, d = .19$.

Subsequent analyses on individual items showed statistically significant differences on nine items on the willingness scale (see Table 2.2 for complete results). As compared to those asked about a person at-risk for overdose, participants in the suicide condition showed significantly greater willingness to (1) share their concern with a friend about the person at-risk, (2) contact that person's family to express concern, (3) express concern directly to the person at-risk, and (4) to intervene in "some way." Conversely, participants who were asked about a person at-risk for opioid overdose were significantly more likely to indicate they that would (1) do nothing, (2) tell the person to stop being "dramatic," (3) ignore the situation, and (4) give the person space.

Predictors of Suicide Attitudes

Univariate analyses for predictors of suicide attitudes were conducted using data from the participants in the suicide condition only. Results are presented in Table 2.3. Older adults tended to have lower levels of glorification/normalization. Males had greater endorsement of stigmatizing views of a suicide decedent than female participants. Less educated participants (GED or less) had significantly lower scores on the WIS-I scale than those who had taken some college credits and those who had obtained a bachelor's degree. Participants who self-identified as a Christian had more stigma and less glorified/normalized views than those who were not religious.

Examination of exposure to suicide and substance use variables revealed significant differences between exposure groups. Participants who reported knowing someone who has survived a suicide attempt had less stigma and greater willingness to intervene against suicide. Participants who had a personal history of suicide ideation and attempt reported less stigma and greater glorifying/normalizing views of a suicide

decedent. Those who had personally known someone who struggled with substance use also had less stigma toward suicide. Furthermore, participants who knew someone who had died by unintentional drug overdose had significantly more glorified/normalized views of suicide and less stigma – although the latter was only nearly significant ($p = .053$).

Predictors of Opioid Overdose Attitudes

Predictors of opioid overdose attitudes among participants in the overdose condition were examined using univariate analyses (see Table 2.4 for detailed results). Males endorsed more stigma, while female participants indicated greater willingness to intervene in the case of a person at-risk for overdose. Participants who knew someone with a substance dependence indicated greater willingness to intervene and those who had exposure to an unintentional overdose death held more normalizing views of an opioid overdose decedent. Those who reported a history of substance use treatment also endorsed more normalizing views. Interestingly, participants who reported having survived an unintentional overdose held more accepting views and less endorsement of isolation or depression as a description of an overdose decedent; however, they were also less willing to intervene in the case of potential overdose.

Discussion

Comparing Suicide and Unintentional Opioid Overdose

Past research suggests that public attitudes toward mental illness and other psychiatric conditions are specific to the illness (Angermeyer & Matschinger, 2003; Link et al., 1999). Hence, the present study aimed to establish the particularities of stigma toward suicide compared to unintentional opioid overdose deaths. Results of this

comparative analysis revealed significant differences that exist regarding attitudes toward these two types of unnatural deaths. On the direct measure of stigma (i.e., SOSS-SF), participants rated suicide decedents and opioid overdose decedents on stigma and acceptance similarly. However, follow-up analysis on individual items revealed that as compared to those who were asked about a suicide decedent, participants perceived opioid overdose decedents to be more pathetic, irresponsible, stupid and an embarrassment. Participants had more agreement in the suicide condition that decedents were brave and dedicated, as compared to overdose decedent. The negative language used toward overdose decedents aligns with a previous nationally representative survey that found that public attitudes toward individuals with addiction are commonly described using the same descriptive terms (excluding “an embarrassment”) (Hazelden Foundation, 2009). This pejorative language directed toward opioid overdose decedents could be understood as these individuals having ‘bad character,’ poor decision-making, and more worthy of blame. The descriptors of brave and dedicated for suicide decedents may possibly be due to the fact that the thought of death is terrifying for most people (Becker, 1973), and that any intentional behavior directed to end one’s life must be so extreme that it requires strong will and bravery.

Additionally, while suicidal actions and deaths have ceased to be criminalized (Vandekerckhove, 1998), active opioid users are still largely regarded as criminals, whether it be for the methods that are used to obtain the drug or the offenses that are committed while intoxicated (Piece et al., 2017). This may contribute to the more negative perceptions of opioid overdose decedents because of the public knowledge that a

significant portion of the federal prison population are comprised of persons who committed a drug-related offense (U.S. Department of Justice, 2015).

The present research also found that suicide deaths were more attributed social isolation than opioid overdose deaths. However, both suicide and substance dependence have been found to be strongly link to feelings of loneliness and isolation (Hosseini, Yassini Ardekani, Bakhshani, & Bakhshani, 2014; Mushtaq, Shoib, Shah, & Mushtaq, 2014); and thus, it is somewhat surprising to find that participants in this study had a disparity in perceptions of isolation between the two types of deaths. Even though substance use has been associated with social and family problems (Daley, 2013), it is possible that participants in this study were more likely to view substance use as occurring in social settings and requiring social interactions to acquiring the substance. Indeed, studies have shown that social contact with other substance users can influence the propensity of drug intake (Strickland & Smith, 2013). Nonetheless, the fact that some people use substance socially should not be taken as direct evidence that these individuals don't feel disconnected or lonely.

Another troubling finding from the present study is that participants were less willing to intervene against drug overdose as compared to suicide. Specifically, participants in the opioid overdose condition indicated less willingness to express concern for the person at-risk for overdose either direct to that person or to friends and family, but more likely to ignore the situation and give the person space to deal with their substance dependence on his/her own. This discrepancy between willingness to intervene could be due to several factors. First, it is possible that people have less knowledge about how to intervene when someone is struggling with substance dependence. Secondly,

given that the present study found greater agreement on descriptors of opioid overdose decedents as ‘an embarrassment’ and ‘pathetic,’ it is conceivable that these unsympathetic views contributed to decreased willingness to intervene. Furthermore, the fact that the only action that participants in the overdose condition were more willing to do was to direct persons at-risk for opioid overdose to seek help from a professional treatment and prevention website may be indicative of a desire to avoid a more personal approach to intervene, such as speaking directly to the person or his/her family members. However, this interpretation may be premature as participants in both conditions had no significant differences on other items on the WIS-I scale, such as encouraging the person to seek help from a professional or a crisis hotline.

The fact that participants in this study endorsed more negative language and less glorified views of opioid overdose decedents, had lower attribution of isolation to overdose deaths, and were less willing to intervene against overdose raises the question of whether the public has stronger perceptions of dangerousness and a greater desire for social distance toward persons with substance-dependence as compared with persons struggling with suicide ideation. Past research on attitudes toward alcohol dependent persons has found a similar preference for greater social distance and beliefs of dangerousness as compared to persons with mental illness (Angermeyer & Matschinger, 1996; 1997; Schomerus et al., 2011). Taken together, these findings could possibly be interpreted as more severe stigmatization of substance-dependent individuals who die by opioid overdose for the present sample.

Predictors of Attitudes

This study also sought to identify and compare predictors of suicide and opioid overdose attitudes. Results showed a greater number of variables that correlated with suicide attitudes as compared to opioid overdose attitudes. Regarding suicide attitudes, participants who were younger had significant lower endorsement of glorified/normalized views of suicide. Participants who were male, self-identified as Black (as compared to White), and Christian (as compared to non-religious participants) had more stigma toward suicide. Furthermore, participants who were less educated were less willing to intervene against suicide as compared to those who had taken some college credits or obtained a bachelor's degree. However, for participants in the opioid overdose condition, the only demographic variable that was found to be a significant predictor of attitudes was sex: males had more stigma, while females were more willing to intervene.

Most notably was the finding that variables related to participant exposure to suicide (e.g., exposure to suicide loss, previous history of suicide ideation) and substance use/drug overdose (e.g., exposure to overdose loss, previous history of substance use treatment) were significant predictors of suicide attitudes; whereas, only variables related to drug overdose exposure were significant for attitudes toward opioid overdose deaths (e.g., more accepting views for participants with exposure to overdose loss and personal substance use history). This could possibly be understood as a stronger perceived link between suicide and opioid overdose deaths in the present sample. That is, for participants in this study, exposure to substance use/drug overdose may alter attitudes toward suicide differently (i.e., less stigma and more acceptance) than those who had no exposure. It is possible that these participants had a greater understanding of the

challenges for substance dependent persons who use drugs to cope with emotional pain; and thus, are more sympathetic toward the problem of suicide for similar reasons (i.e., challenge of will to live and feelings of desperation to escape pain).

Limitations and Future Directions

While the present study is the first to perform a comparative analysis of attitudes toward suicide and unintentional opioid overdose deaths, as well as the first to identify correlates of attitudes toward opioid overdose, there were several limitations of this study. First, these findings may only be generalized to the present sample and thus, is not representative of the broader U.S. population. Secondly, due to sample cell counts when examining various predictors of attitudes for each type of death, multivariate analyses were not conducted. There were also some drawbacks for using measures of attitudes that were originally developed to target suicide. That is, assessing attitudes toward opioid overdose deaths using measures initially intended for suicide may miss certain dimensions of attitudes that would be specific to overdose deaths. For example, regarding the willingness to intervene scale, there may have been additional actions that would be more relevant for opioid overdose risk than suicide risk, such as participants' likelihood to administer the life-saving drug, naloxone, to reverse opioid overdose in a pre-hospital setting. However, the decision to use the same measures for both types of death was considered the best way to make direct comparisons. Moreover, the SOSS-SF and WIS-I were the easiest measures to adapt to target opioid overdose as they required the least degree of change in the instructions and item wording.

Future research seeking to replicate the findings of this study should strive to use a more representative sample for improved generalizability. Given that research into

attitudes toward opioid overdose is almost non-existent, additional studies are critically needed to further explore the multidimensional nature of these attitudes that may not have been captured in the present study. Measures of opioid overdose attitudes should investigate a greater range of descriptors of opioid overdose decedents, as well as intervention behaviors. By the same token, an extension of this research is needed to identify other correlates of opioid overdose attitudes, as well as studies investigating perceived stigma among at-risk persons who use opioids and the rapidly growing number of family members of opioid overdose decedents who are likely to experience stigma by association.

Table 2.1*Demographic characteristics of participants (N=503)*

Age	18-77 ($M=38.50$, $SD=12.45$)
Female	258 (51.8%)
Race	
White	394 (78.3%)
Black	38 (7.6%)
Latino	26 (5.2%)
Asian-American	27 (5.4%)
Other	18 (3.6%)
Education	
GED or less	43 (8.6%)
Some college credits	130 (25.8%)
Associate degree	19 (3.8%)
Bachelor's degree	215 (42.7%)
PhD or professional degree	96 (19.1%)
Religion	
Christian	273 (54.6%)
Other major world religions	24 (4.8%)
Nonreligious or not affiliated to a religion	183 (36.6%)
Don't give it much thought	14 (2.8%)
Other	6 (1.2%)
Suicide Exposure	
Know a suicide attempt survivor	207 (41.2%)
Know a suicide decedent	266 (54.6%)
History of suicide ideation	163 (33.9%)
History of suicide attempt	51 (10.1%)
Drug Overdose Exposure	
Know someone with drug addiction	320 (65.8%)
Know a drug overdose decedent	177 (36.3%)
History of substance use treatment	38 (7.8%)
History of unintentional overdose	23 (4.7%)

Table 2.2

Independent samples t-test results for short form of SOSS/SODOS subscales & WIS-I/WIO-I - including individual item analysis

	Suicide Attitudes	Overdose Attitudes	t-test
	M (SD)	M (SD)	
<i>Stigma Factor</i>	<i>13.73 (7.76)</i>	<i>14.35 (7.05)</i>	<i>ns</i>
Pathetic	1.47 (1.22)	1.72 (1.18)	-2.38*
Shallow	1.62 (1.18)	1.60 (1.12)	ns
Immoral	1.54 (1.27)	1.75 (1.15)	ns
An embarrassment	1.36 (1.26)	1.66 (1.19)	-2.67**
Irresponsible	2.19 (1.21)	2.63 (1.12)	-4.25**
Stupid	1.77 (1.22)	2.00 (1.19)	-2.06*
Cowardly	2.23 (1.21)	1.71 (1.14)	4.90**
Vengeful	1.48 (1.09)	1.42 (1.10)	ns
<i>Isolation/Depression Factor</i>	<i>12.58 (3.4)</i>	<i>11.12 (3.15)</i>	<i>4.96**</i>
Lonely	3.19 (.93)	2.60 (1.02)	6.69**
Isolated	3.11 (.95)	2.69 (.96)	4.89**
Lost	3.24 (.98)	3.02 (.99)	2.50*
Disconnected	3.05 (.99)	2.82 (.96)	2.69**
<i>Glorification/Normalization Factor</i>	<i>5.43 (3.54)</i>	<i>4.95 (3.77)</i>	<i>ns</i>
Strong	1.32 (1.09)	1.31 (1.08)	ns
Brave	1.37 (1.13)	1.14 (1.06)	2.36*
Noble	1.04 (.97)	1.18 (1.07)	ns
Dedicated	1.71 (1.13)	1.32 (1.06)	4.03**

Note. SOSS: Stigma of Suicide Scale; SODOS: Stigma of Drug Overdose Scale; WIS-I: Willingness to Intervene against Suicide – Intention; WIO-I: Willingness to Intervene against Overdose – Intention; * $p < .05$, ** $p < .01$

Table 2.2 (Continued)

	Suicide Attitudes	Overdose Attitudes	t-test
	M (SD)	M (SD)	
<i>WIS-I/WIO-I</i>	<i>65.31 (15.07)</i>	<i>62.31 (15.91)</i>	<i>2.14*</i>
Express my concern to others	3.08 (.90)	2.95 (.90)	ns
Talk to a friend about my concern	3.18 (.88)	3.00 (.91)	2.16*
Contact the family of at-risk person about my concern	2.99 (1.02)	2.67 (1.03)	3.47**
Express my concern to a professional	2.63 (1.12)	2.56 (1.14)	2.52*
Tell someone who is at-risk I am concerned about him or her	3.33 (.89)	3.13 (.91)	ns
Call a crisis hotline for help for someone who is at-risk	2.50 (1.18)	2.38 (1.17)	ns
Talk to a professional for help regarding someone who is at-risk	2.55 (1.16)	2.41 (1.17)	ns
Find someone to talk to the person who is at-risk who feels more comfortable talking about (suicide/drug addiction) than me	2.76 (1.14)	2.63 (1.15)	ns
Seek help from a webpage about (prevention/treatment)	2.71 (1.23)	2.65 (1.14)	ns
Tell campus authority about the person who is at-risk - if he/she were in college	2.64 (1.19)	2.46 (1.25)	ns
I would intervene in some way	3.12 (.96)	2.79 (1.04)	3.52**
Do nothing; it is none of my business	.61 (.98)	.96 (1.23)	-3.44**
Encourage the person who is at-risk to seek help from a professional	3.16 (.97)	3.01 (.95)	ns
Encourage the person who is at-risk to seek help from a crisis hotline	2.99 (1.01)	2.93 (1.05)	ns
Encourage the person who is at-risk to talk to an RA or other campus authority - if he or she were in college	2.90 (1.14)	2.85 (1.10)	ns
Tell the person who is at-risk to seek help from a (prevention/treatment) webpage	2.45 (1.25)	2.69 (1.11)	-2.18*
Encourage the person to talk to his/her family	3.03 (1.05)	3.09 (.96)	ns
Tell the person to stop being so dramatic	.45 (.91)	.70 (1.15)	-2.65**

Table 2.2 (Continued)

Ignore the situation	.48 (.90)	.80 (1.17)	-3.32**
Give the person space. He or she is sad and needs alone time to heal	1.00 (1.01)	1.35 (1.15)	-3.60**
Ignore the subject unless the person who is at-risk brings it up first	.96 (1.06)	1.06 (1.18)	ns
Ask the person if anything is wrong	2.77 (1.13)	2.84 (1.08)	ns

(continued)

Table 2.3*Descriptive statistics for significant predictors of suicide attitudes (n = 274)*

	Stig M (SD)	I/D M (SD)	G/N M (SD)	WIS-I M (SD)
Age	13.73 (7.76)	12.58 (3.4)	5.43 (3.54)*	65.31 (15.07)
Sex				
Male	15.22 (8.03)*	12.46 (3.61)	5.57 (3.74)	63.79 (15.61)
Female	12.62 (7.32)	12.66 (3.27)	5.32 (3.39)	66.48 (14.67)
Race				
White	13.23 (7.66)*	12.57 (3.39)	5.52 (3.49)	65.23 (15.74)
Black	17.86 (7.47)	14.00 (2.28)	3.76 (3.06)	69.24 (9.58)
Education				
GED or less	11.60 (7.57)	12.20 (4.09)	6.90 (3.66)	54.70 (15.27)*
Some college credits	13.12 (8.89)	12.91 (3.56)	4.91 (3.50)	67.49 (14.24)
Bachelor's degree	14.08 (7.29)	12.44 (3.43)	5.70 (3.66)	66.18 (14.30)
Religion				
Christian	15.16 (7.81)*	12.72 (3.37)	4.63 (3.36)*	68.01 (14.50)*
Nonreligious/No affiliation	11.96 (7.16)	12.56 (3.34)	6.35 (3.38)	62.84 (15.39)
<i>Suicide Exposure</i>				
Know a suicide attempt survivor				
Yes	11.82 (7.68)*	12.70 (3.38)	5.88 (3.57)	68.80 (14.47)*
No	15.21 (7.56)	12.53 (3.40)	5.08 (3.48)	62.97 (15.11)
History of suicide ideation				
Yes	10.60 (7.23)*	13.09 (3.12)	6.16 (3.52)*	64.63 (14.09)
No	15.39 (7.62)	12.38 (3.51)	4.98 (3.50)	65.97 (15.69)
History of suicide attempt				
Yes	8.30 (6.72)*	12.93 (2.97)	7.07 (4.27)*	64.56 (16.77)
No	14.29 (7.71)	12.54 (3.48)	5.23 (3.41)	65.80 (14.82)

Table 2.3 (Continued)

Drug Overdose Exposure

Know someone with drug addiction

Yes	12.88 (7.65)*	12.69 (3.38)	5.54 (3.41)	66.37 (14.70)
No	15.30 (8.05)	12.33 (3.50)	5.15 (3.87)	63.80 (15.90)

Know a drug overdose decedent

Yes	12.45 (7.83)	12.47 (3.43)	6.59 (3.78)*	66.13 (15.10)
No	14.44 (7.69)	12.70 (3.37)	4.79 (3.25)	65.62 (14.82)

History of substance use treatment

Yes	16.40 (6.82)	11.93 (3.75)	7.13 (4.47)*	64.27 (11.97)
No	13.49 (7.80)	12.62 (3.40)	5.30 (3.45)	65.57 (15.22)

Note. SOSS: Stigma of Suicide Scale; SODOS: Stigma of Drug Overdose Scale; WIS-I: Willingness to Intervene against Suicide – Intention; WIO-I: Willingness to Intervene against Overdose – Intention; Stig: stigma factor; I/D: isolation/depression factor; G/N: glorification/normalization; Only significant pairs of groups were reported in this table; * $p < .05$, ** $p < .01$

Table 2.4*Descriptive statistics for significant predictors of opioid overdose attitudes (n = 229)*

	Stig M (SD)	I/D M (SD)	G/N M (SD)	WIS-I M (SD)
Sex				
Male	15.59 (6.95)* 13.12 (6.98)	11.01 (3.29) 11.24 (3.03)	4.72 (3.44) 5.15 (4.08)	65.61 (14.32)* 59.33 (16.86)
Female				
<i>Drug Overdose Exposure</i>				
Know someone with drug addiction				
Yes	14.13 (7.30)	11.07 (3.27)	4.98 (3.95)	63.85 (15.31)*
No	14.56 (6.70)	11.34 (2.91)	4.70 (3.52)	59.38 (16.91)
Know a drug overdose decedent				
Yes	14.48 (7.19)	11.09 (3.29)	5.77 (4.45)*	62.43 (15.48)
No	14.19 (7.03)	11.19 (3.07)	4.30 (3.14)	62.34 (16.34)
History of substance use treatment				
Yes	16.00 (8.26)	10.57 (2.74)	7.87 (4.36)*	57.78 (15.45)
No	14.09 (6.93)	11.23 (3.15)	4.56 (3.53)	63.23 (15.68)
History of unintentional overdose				
Yes	15.07 (8.82)	9.00 (3.37)*	8.00 (4.51)*	52.14 (17.59)*
No	14.23 (6.99)	11.31 (3.05)	4.71 (3.62)	63.35 (15.39)

Note. Stig: stigma factor; I/D: isolation/depression factor; G/N: glorification/normalization;
Only significant pairs of groups were reported in this table; * $p < .05$, ** $p < .01$

Chapter 3: The Role of Death Anxiety and Self-Esteem on Suicide Attitudes

Introduction

Attitudes in the context of suicide are of great importance due to their potential to impact how individuals perceive and interact with those affected by suicide, including individuals who experience suicidal thoughts or behaviors and those dealing with the aftermath of a suicide attempt or loss (Kodaka, Postuvan, Inagaki, & Yamada, 2011). Generally defined as a person's global and long-term evaluation toward a particular object in the environment (Eaton & Visser, 2008), attitudes play an important role in our understanding of complex social problems and in determining how we respond to these issues. Previous research has shown that while there is some indication of improvement in suicide attitudes in the content of physician aid in dying (Frey & Hans, 2016; Romer & Jamieson, 2003), suicide is still marked by stigma and individuals affected by suicide continue to be subjected to prejudice and discrimination (Andrews, 2014). Even in light of rising suicide rates in the U.S. (Kelger, Stone, & Holland, 2017) and increased effort to educate the public and reduce stigma every time there is a highly publicized suicide death, such as the 2018 deaths of fashion designer Kate Spade and chef Anthony Bourdain, suicide stigma continues to persist. The dissonance between this pressing public health crisis and the stigmatization of suicide calls for a careful examination of the thought processes involved in perceptions of suicide. Hence, the present experiment applies terror management theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986) as the theoretical background to examine suicide attitudes. Specifically, this study examines the interactive effects of self-esteem and reminders of death (or mortality salience; MS)

on evaluations of suicide decedents and willingness to engage in prosocial behaviors in the context of suicide prevention.

Terror Management Theory

TMT (Greenberg, Pyszczynski, & Solomon, 1986) originated mainly from the work of anthropologist Ernest Becker (1973) who claimed that all human behavior is driven by the fear and anxiety generated by the awareness of the inevitability of death. Greenberg and colleagues built on this idea that the fear of death is a powerful nonconscious motivator influencing human behavior and proposed a theory that has since then resulted in over 500 empirical studies supporting the theory (Greenberg & Arndt, 2011). It is important to note that the purpose of TMT was to contribute to a fuller comprehension of a broad range of behaviors affected by the uniquely human ability to understand the concept of mortality, rather than fully account for any particular behavior.

Terror management theory posits that mortality salience can be activated without conscious involvement and that it can elicit a nonconscious, primal reaction to minimize the consequences of mortality (Goldenberg, Pyszczynski, Greenberg, & Solomon, 2000). The same cognitive structures that allow human beings to be aware of their eventual death are also responsible for the development of mechanisms to manage death anxiety. One such mechanism is death-denying cultural belief systems, which serve to provide equanimity in the face of death-related terror (Greenberg & Arndt, 2011). Cultural worldviews are “widely shared beliefs about the nature of reality that imbue life with meaning and order and provide the opportunity for some form of death transcendence” (Landau, Solomon, Pyszczynski, & Greenberg, 2007, p. 478). These worldviews also offer answers to cosmological questions about human existence and universal causation,

such as What created the universe? Moreover, What is the purpose to life? Additionally, since the human body consists of organic material by which life eventually passes unto death, it is a strong source of death anxiety (Goldenberg, Pyszczynski, Greenberg, & Solomon, 2000). Thus, we can derive comfort from believing that human beings have unique, enduring identities with a soul because it distinguishes us from other living beings fated only to cease existing upon dying. Furthermore, cultural norms regarding the human body allow us to elevate ourselves metaphorically from flesh and bone to a higher plane of existence as objects of dignity, appeal, and spirituality; hence distancing people from the animal world.

There are two ways in which culture contributes to feeling transcendent of death: it “allows us to feel literally immortal by providing conceptions of a soul that continues beyond death” and offers “symbolic immortality by providing avenues for our identity and contributions to be preserved after our physical death” (Sullivan & Greenberg, 2013, p 20). For example, we can obtain literal immortality by maintaining religious faith that promises eternal life after death, such as found in Islam or Hinduism (Valea, n.d.); while symbolic immortality can be achieved through individual accomplishments that transcend time and make history, such as van Gogh’s *Starry Night*. Culture also provides a set of value standards, and a means to evaluate the behavior of others and ourselves. By choosing to comply with cultural standards of value, we are rewarded with a sense of importance and that we are connected to something greater than our individual lives. Insofar that one perceives to be a valuable contributor to a meaningful society, one will derive and maintain greater self-esteem (Landau, Solomon, Pyszczynski, & Greenberg, 2007). However, since cultural worldviews are socially constructed and dependent on

continuous affirmation by others, one is strongly vested in seeking feedback from others to confirm the validity of his beliefs and to assure that he is adhering to the value standards set by society. Thus, according to TMT, cultural belief systems and self-esteem function to help human beings overcome deeply rooted existential terror.

To assuage the anxiety engendered by death awareness, we employ a variety of defense mechanisms. Proximal defenses are threat-focused attempts to protect oneself from death anxiety by either avoiding thoughts of death or minimizing the possibility that one could die in the near future (e.g., I do not drive drunk all that often or I have a lot of time before I could get cancer from smoking). Conversely, distal defenses of self-esteem and worldviews are less rational. The empirical support for TMT studies is copious and generated by a variety of distinct hypotheses tests (Greenberg & Arndt, 2011). The MS hypothesis used in the present study claims that if cultural worldviews and self-esteem serve to protect individuals from existential fear, then death reminders should lead to increased need for these protective psychological structures. Previous TMT studies using the MS hypothesis have shown that reminders of death lead to: (1) more vigorous efforts to follow prescribed cultural standards and heightened reliance on salient cultural values (Jonas et al., 2008); (2) harsher evaluations of individuals who threaten or violate one's cultural worldviews (Greenberg et al., 1990; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989); and (3) increased need for self-esteem and self-enhancement (Pyszczynski et al., 2004). Consistent with TMT's claim that self-esteem confers resilience against death anxiety, some research has found that individuals with high self-esteem show a reduced effect of MS on worldview defense (Schmeichel et al., 2009). While the defense strategies used to buffer death anxiety as described by TMT do

not always resemble a logical or straightforward connection to the inescapable reality of mortality, self-esteem and cultural worldviews “function by virtue of experiential linkages established very early in life between meaning and value on one hand and safety and security on the other” (Goldenberg, Pyszczynski, Greenberg, & Solomon, 2000, p. 201).

Present Study

The present study is the first to apply TMT to the study of suicide attitudes. Thus, the purpose of this study was to use the MS hypothesis to examine whether reminders of death leads to increased worldview defense in the context of suicide attitudes and whether self-esteem moderates these reactions to death reminders. Suicide attitudes and behaviors were examined using three indicators: (1) attitudes toward a suicide decedent, (2) willingness to intervene against suicide, and (3) suicide prevention charity donation behavior. Specifically, this experiment predicted that, as compared to participants primed with pain-related cognitions, those primed with death-related cognitions would endorse higher levels of stigma toward suicide, lower willingness to intervene, and allocate fewer dollars to a suicide prevention organization. However, it is also predicted that this effect would be moderated by the participant’s self-reported explicit self-esteem such that those with low self-esteem would have increased worldview defense against suicide as compared to those with high self-esteem.

Method

Participants

Participants were recruited online using Amazon Mechanical Turk (MTurk), an inexpensive crowdsourcing website that has become increasingly popular for survey-

based research and has been supported as a reliable online recruitment method by previous studies (Crump, McDonnell, & Gureckis, 2013; Horton, Rand, & Zeckhauser, 2011; Paolacci, Chandler, & Ipeirotis, 2010), and were compensated \$0.75 for their time. The inclusion criteria in the study was a minimum age of 18 years, English-speaking, and residing in the U.S. Participants were randomly assigned to each of the two experimental conditions in a 2 (MS vs. dental pain) x 2 (explicit self-esteem: high vs. low) between-subjects factorial design. The present data was collected as part of a larger data collection effort.

This sampling strategy resulted in 239 participants, with age ranging 18-77 years and an average age of 39.44 ($SD = 13.23$). Slightly more than half of the sample was female (54.9%, $N = 129$). The majority of the sample self-identified as White (75.5%, $N = 178$), with 8.4% Black ($N = 20$), 6.7% Asian-American ($N = 16$), 4.2% Latino ($N = 10$), and 4.2% Biracial ($N = 10$). Nearly half of the sample had completed a bachelor's degree (45.6%, $N = 109$), whereas 27.2% ($N = 65$) had completed some college credits and 18.4% ($N = 44$) had obtained a PhD or professional degree.

Procedure and Materials

Participants were told that they would take part in an anonymous study on personality and attitudes toward emotionally sensitive social issues. Following voluntary consent, participants completed a brief demographic survey to collect background information and Rosenberg's (1979) Self-Esteem Scale (SES). Next, participants were randomly assigned to the experimental conditions (MS vs. dental pain). Following the manipulation, participants completed a filler task in the form of a word completion activity. Participants were then asked to complete the dependent measures and respond to

questions regarding their history of exposure to suicide and substance use. At the end of the study, participants were thanked and debriefed. The measures in this study were presented in the following order.

Demographic Survey. The demographic survey consisted of questions related to the participant's background characteristics. Demographic variables included participant age, sex, race, education.

Rosenberg Self-Esteem Scale (SES). The Rosenberg (1979) Self-Esteem Scale (SES) is a 10-item self-report scale of a person's global self-esteem. Each item is rated on a 4-point Likert scale, ranging from 1 (*I don't agree at all*) to 4 (*I very much agree*), with five items reverse scored. Higher overall composite scores indicating higher explicit self-esteem. The SES is a well-established measure of explicit self-esteem and has been used in large number of TMT studies (Burke, et al., 2010). Both of these facts influenced the decision to use this scale in the proposed studies. Furthermore, while explicit measures of self-esteem are not without limitations, measures of implicit self-esteem have shown to be problematic in their own right and susceptible to context bias (Bosson, Swann, Pennebaker, & Diener, 2000). Scale reliability for the present sample was strong as indicated by the Cronbach's alpha coefficient ($\alpha = 0.95$).

MS Manipulation. Participants in each condition were presented a 2-item open-ended questionnaire regarding the participant's mortality – formally referred to as the Morality Attitudes Personality Survey (MAPS; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989) – aimed to manipulate mortality salience. Participants in the MS condition were asked to write about (a) what they believe will happen to them physically when they die, and (b) the emotions that arise when thinking about their own

death. Alternatively, participants in the control condition were asked to write about (a) what they think will happen to them when undergoing an intensely painful dental procedure, and (b) the emotions that the thought of experiencing intense dental pain arouses in them. One-hundred and eighteen participants responded to the MS prompt and 121 to the control.

Word Completion Task. Participants were asked to complete a filler-distractor scale in the form of a word completion task. The task required participants to complete a list of 25 incomplete words, six of which could be completed with words related to death and used as an indicator of death salience: coffin, buried, dead, grave, killed, and skull (Arndt, Pyszczynski, & Solomon, 1997). The word completion task acts as a delay between MS activation and the dependent measures, allowing death-related thoughts to drift beyond conscious awareness and triggering distal defense mechanisms. The word completion task also operates as a manipulation check for the death-thought accessibility in the distal defense phase – a methodology that has been recommended from previous TMT research (e.g., Arndt et al., 1997; Burke, et al., 2010).

Stigma of Suicide Scale – Short Form (SOSS-SF). The 16-item short form version of the Stigma of Suicide Scale (SOSS-SF; Batterham, Calear, & Christensen, 2013a; 2013b) measures attitudes toward a “typical” suicide decedent. Each item is a one- or two-word descriptor of a “prototypical” suicide decedent rated on a 5-point Likert scale ranging from 1 (*Strongly Agree*) to 5 (*Strongly Disagree*). Previous research using the SOSS-SF has revealed a three-factor structure, with each subscale reflecting a different category of attitudes: Stigma (e.g., Immoral, Stupid), Isolation/Depression (e.g., Lonely, Isolated), and Glorification/Normalization (e.g., Brave, Dedicated) (Batterham,

et al. 2013a; 2013b). Higher composite scores for each factor indicated greater endorsement. The scale's Cronbach's alpha coefficient for this sample was good ($\alpha = 0.72$).

Willingness to Intervene Against Suicide – Intention subscale (WIS-I).

Derived from the larger 75-item questionnaire, the 22-item Willingness to Intervene Against Suicide – Intention subscale (WIS-I; Aldrich, Harrington, & Cerel, 2014) was developed to measure intentions to intervene in situations involving a suicidal person. The intention to intervene construct is aimed to examine a person's likelihood or intent to engage in intervening behaviors in response to a person at-risk for suicide. Each item is rated on a 5-point Likert scale, ranging from 1 (*Not likely at all*) to 5 (*Extremely likely*), with five items reverse coded. Higher scores indicate greater intention to intervene when someone is suicidal. The Cronbach's alpha coefficient for the WIS-I in the present sample was strong ($\alpha = 0.95$).

Donation Allocation Task. As a proxy measure of suicide attitudes, participants were informed that they would be eligible for a chance to win a \$200 Amazon gift card and asked to determine how much of their potential winnings they would be willing to donate to a non-profit suicide prevention organization if chosen in the lottery – measured in dollars. This prosocial behavioral measure follows the exact same procedure of a previous TMT study that examined prosocial behavior (Ferraro, Shiv, & Bettman, 2005).

Analytic Procedure

Chi-square analyses and an independent samples t-test on participant age were used to ensure that there were no differences between experimental groups after random assignment. An independent samples t-test was also used to examine whether the MS

manipulation resulted in greater death-thought accessibility for those in the MS condition. To examine the hypotheses stated previously, the sample was split into two groups based on their scores on the SES – below and above the median (low self-esteem ranged 0-15 and high self-esteem ranged 16-30). This transformation is consistent with previous TMT studies using self-esteem as a moderating variable (Schmeichel et al., 2009). A series of separate two-way analysis of variance (ANOVA) tests were conducted for morality salience (MS vs. control) x SES (high vs. low) as factors and the three measures of suicide attitudes as the dependent variables. Subsequent simple main effects tests were used to identify differences between subgroups for significant interaction effects.

Results

Manipulation Check and Group Differences

In the word-stem completion task, participants in the MS condition wrote more death-related words ($M = 2.64$, $SD = 0.78$) as compared to participants in the control condition ($M = 1.42$, $SD = 0.72$), $t(237) = -12.62$, $p < .001$. A regression analysis showed that this effect was not moderated by self-reported explicit self-esteem. Furthermore, independent samples t-tests and chi-square analyses revealed no significant differences between experimental groups on any demographic variables ($p > .05$).

Hypothesis Testing: Attitudes Toward Suicide

Results of the ANOVA tests are presented below. Relevant adjusted means and standard errors across groups and dependent variables are presented in Table 3.1. As stated previously, it was predicted that participants who responded to the death prompt (MS condition) would have greater worldview defense against suicide, with higher stigma scores, lower acceptance scores, decreased willingness to intervene, and less

money allocated to a suicide prevention organization, as compared to those in the control condition. However, it was also hypothesized that the MS effect would be more pronounced among participants with low self-esteem. No specific hypotheses were made for the Isolation/Depression factor as it is unclear whether endorsement of isolation and depression as being attributed to suicide would be considered as a negative or stigmatized view.

SOSS-SF. The ANOVA yielded no significant main effect for mortality salience or self-esteem on the Stigma subscale. However, consistent with the predicted effect of the MS and self-esteem hypothesis, there was a significant interaction effect for MS and self-esteem on stigma, $F(1, 237) = 4.66, p < .05$. Simple main effects revealed that, for participants with low self-esteem, the morality salience induction led to more stigma ($M = 13.46, SE = 1.52$) than the pain salience induction ($M = 9.88, SE = 1.58$), $F(1, 234) = 7.61, p < .05$. Thus, mortality salience triggered worldview defense in the form of increased stigma toward suicide decedents among participants low in explicit self-esteem.

With regard to normalizing suicide attitudes, the ANOVA revealed a significant main effect of SES on the Glorification/Normalization subscale, $F(1, 237) = 10.92, p < .01$, indicating that participants with low self-esteem had greater endorsement of glorifying or normalizing views of suicide ($M = 6.79, SE = .48$) as compared to those with high self-esteem ($M = 4.99, SE = .25$). While participants with low self-esteem in the mortality salience condition had less accepting views ($M = 6.12, SE = .67$) than those in the control condition ($M = 7.46, SE = .70$), this difference was not statistically significant. Thus, no significant effect for mortality salience or interaction effect on glorified/normalized attitudes was found.

There were no main effects or interaction effect for mortality salience and self-esteem on the Isolation/Depression subscale.

WIS-I. The ANOVA for the WIS-I scale revealed a significant main effect of SES on willingness to intervene, $F(1, 236) = 16.10, p < .01$, indicating that those with low self-esteem were less willing to intervene ($M = 59.47, SE = 2.35$) as compared to those with high self-esteem ($M = 69.02, SE = 1.10$). Despite the fact that participants in the MS condition had lower WIS-I scores (i.e., less willingness to intervene) in both high and low self-esteem participants (57.69 and 68.96 raw mean scores respectively) as compared to those in the control condition with high and low self-esteem (61.24 and 69.08 raw mean scores respectively), no other statistically significant main effects for mortality salience or interaction effect.

Donation Allocation. The results from the ANOVA revealed a significant main effect of mortality salience on how much money participants were willing to allocate to the non-profit suicide prevention organization, $F(1, 238) = 6.49, p < .05$. In line with the MS hypothesis, participants allocated significantly less money to the suicide prevention organization when there were reminded of death ($M = 49.56, SE = 6.17$) as compared to those in the control condition ($M = 71.99, SE = 6.28$). There was no significant main effect for self-esteem or interaction effect on donation allocation.

Discussion

As TMT posits, the fear of death can have a powerful driving influence on human behavior and, as such, human beings have had to utilize certain psychological processes and structures – namely, cultural worldviews and self-esteem – to protect themselves from this existential terror (Pyszczynski, Greenberg, & Solomon, 1999). As

discussed previously, research in support of TMT has found that when the problem of mortality becomes salient, people become highly motivated to engage in worldview defense by rejecting those who threaten their cultural belief systems and behaving in ways that promote self-enhancement – particularly among those with low self-esteem who may be more vulnerable to be affected by death-related anxiety. Hence, the present study was developed on the basis of TMT's assumptions and sought to examine whether participants would perceive the problem of suicide as a worldview threat by reacting with more negative evaluations of a suicide decedent and whether the extent of their reactions would be mediated by their own self-esteem.

While the present study found some evidence in support for TMT hypotheses, the overall results across all dependent variables were inconsistent and incomplete. The findings for the stigma measure (i.e., SOSS-SF Stigma subscale) provided the most consistent results with the present hypothesis that morality salience among participants with relatively low self-esteem would react with harsher attitudes toward a suicide decedent. This indicates that, for the present sample, death reminders trigger terror management mechanisms when evaluating suicide decedents on negatively charged personality descriptors (e.g., cowardly, stupid) but that not all participants reacted in such manner. The finding of increased worldview defense among low self-esteem participants in this study is consistent with TMT's theoretical basis that self-esteem functions to buffer against existential anxiety (Pyszczynski, Greenberg, & Solomon, 1999).

Additionally, while only providing partial support of the combined MS and self-esteem hypothesis in this study, mortality salience was found to have a statistically significant impact on the amount of money participants were willing to donate to a

suicide prevention cause, such that death reminders led to substantially fewer dollars donated (adjusted average of \$49.56 in MS condition compared to \$71.99 in control condition). This finding, which can only be generalizable to the present sample, also aligns with one of TMT's tenet that mortality salience increases individual's tendency to engage in more self-indulgent and less altruistic behaviors – particularly when the prosocial behavior is associated with a cause that represents a worldview threat (Solomon, Greenberg, & Pyszczynski, 2004).

However, despite the fact that the raw means for the remaining dependent variables for which a specific hypotheses were made were consistent with the expected results (i.e., lower scores on glorified/normalized attitudes subscale and WIS-I for low self-esteem participants under the MS condition as compared to the control), there were no statistically significant findings regarding the impact of MS or interaction between MS and self-esteem. Interestingly, not only was self-esteem the only significant variable impacting participant scores on the SOSS-SF Glorification/Normalization subscale and the WIS-I scale, but the effect was revealed in the opposite direction: participants with relatively high self-esteem had less glorified/normalized views of a suicide decedent but indicated greater willingness to intervene against suicide as compared to those with relatively low self-esteem. This finding of higher WIS-I scores is consistent with recent research that shows a connection between increased willingness to intervene in scenarios involving “immoral” or improper behavior and high self-esteem (Moisuc, Brauer, Fonseca, Chaurand, & Greitemeyer, 2018). Taken together, less normalized suicide attitudes and greater willingness to intervene among participants with high self-esteem in this study could perhaps be interpreted as a greater resolve to act to prevent a death that is

deemed unacceptable or abnormal. Moreover, research shows that the concepts of self-esteem and self-efficacy are closely interlinked (Judge, Erez, Bono, Thoresen, & Diener, 2002); thus, making it plausible that participants with high self-esteem in this study responded with a greater willingness to act against suicide because they may have greater confidence in their ability to do so. It is important to acknowledge that the findings of this study may only be appropriately generalized to the present sample and not the broader U.S. population.

Limitations and Future Directions

There are several important limitations that may explain the inconsistent or null findings of the MS hypothesis in this study. With regard to the partially supported hypothesis for the donation allocation measure, it is possible that a self-report measure of self-esteem does not fully capture the full extent of the construct within an individual; and thus, making it difficult to avoid self-presentational biases and cognitive distortion when responding to a measure of self-worth (e.g., Baumeister, Tice, & Hutton, 1989). As such, there may have been an interaction between MS and self-esteem on donation behavior that went undetected due to a lack of an implicit measure of self-esteem. Indeed, past research has found that high implicit self-esteem is likely to be more effective than high explicit self-esteem to attenuate the MS effect (Schmeichel et al., 2009).

The remaining null findings may be due to a number of various factors, including low experimental control when conducting studies on an online platform, social desirability bias, and the nature of the dependent measures that may elicit stronger or weaker MS reactions. While the online crowdsourcing MTurk platform provided a convenient way to obtain a large sample of non-college sample participants, it also

introduced the problem of lower experimental control. In doing so, it was impossible to control the participant's environment or to ensure that his/her attention was focused solely on the study and not be distracted by other stimuli. It is also possible that MTurk workers who complete online surveys are more susceptible to social desirability bias due to the fact that payment for work is contingent upon approval by the person requesting the work and that payees have the ability to impact the workers' performance ratings. Thus, even though participants were informed that they would receive payment for completing the study regardless of how much of the survey they completed and that their responses would remain anonymous, there was nothing to prevent them from responding in a manner that they may have perceived to be the most "desirable" response so to minimize the likelihood of receiving no payment or poor performance reviews. This issue may be most relevant when participants responded to the WIS-I scale, which arguably has the highest potential for self-presentational bias as it more directly asks about prosocial intentions. Additionally, the null findings on the WIS-I scale may be attributed to the nature of the scale itself. A review of the TMT literature (Burke et al., 2010) found that studies that used measures targeting attitudes toward a person elicited more potent MS reactions as compared to dependent measures that focused on other attitudes or constructs.

Even though the results of this study did not support the MS and self-esteem hypothesis across all dependent measures, there has been more than several hundred studies replicating the effect of mortality salience on a wide spectrum of topics and behaviors (Burke et al., 2010; Greenberg & Arndt, 2011; Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). Future research investigating the relevance of

mortality salience and self-esteem for suicide attitudes should attempt to remedy the limitations of the current study, such as improved sampling strategies to obtain a more representative U.S. population, utilization of both explicit and implicit measures of self-esteem, and the development of more effective research forums that allow for greater experimental control. Replication studies would also do well to measure other attitudinal and behavioral responses to suicide, particularly ones that consider more nuanced cases of suicide beyond attitudes toward a “typical” person who dies by suicide that provide no context. Since the purpose of this study was to test only the core assumptions of TMT (i.e., the effect of mortality salience and self-esteem), future research should also develop and test hypotheses regarding the potential for other factors to impact the MS effect beyond what has been previously examined in the TMT literature, such as previous history of suicide exposure. Additionally, it would be important to examine the MS hypothesis on suicide attitudes in samples outside the U.S., as our belief systems and worldviews are almost entirely dependent on the culture by which they were formed (Sullivan & Greenberg, 2013). That is, it is possible that the MS effect on reactions to suicide would be vastly different in cultures. In any case, the present findings that mortality salience and low self-esteem are indeed relevant to our attitudes toward suicide is highly valuable for our understanding of how stigma operates and the potential role of high self-esteem in mitigating negative reactions to this public health crisis.

Table 3.1*Multifactor ANOVA with mortality salience and baseline self-esteem*

	Stig		I/D		G/N		WIS-I		Donation Allocation	
	M (SE)	F (p)	M (SE)	F (p)	M (SE)	F (p)	M (SE)	F (p)	M (SE)	F (p)
Mortality		0.57		0.31		0.68		0.59		6.49
Salience (MS)		(.45)		(.58)		(.41)		(.44)		(.01)*
MS	13.25 (.89)		13.20 (.34)		5.66 (.38)		63.33 (1.67)		49.56 (6.17)	
Control	12.32 (.86)		12.93 (.35)		6.11 (.39)		65.16 (1.7)		71.99 (6.28)	
Self-esteem		3.27 (.07)		0.36 (.55)		10.92 (.00)*		16.1 (.00)*		0.08 (.78)
High	13.90 (.56)		12.92 (.23)		4.99 (.25)		69.02 (1.1)		59.53 (4.07)	
Low	11.67 (1.10)		13.21 (.43)		6.79 (.48)		59.47 (2.11)		62.02 (7.81)	
MS*Self-esteem		4.66 (.03)*		0.90 (.34)		2.70 (.10)		0.52 (.47)		2.36 (.13)

Note. Stig: stigma factor; I/D: isolation/depression factor; G/N: glorification/normalization; * $p < .05$

Chapter 4: Does Self-Esteem Inflation Mitigate Mortality Salience Effects on Suicide Attitudes?

Introduction

Given the increasing rates of suicide in the U.S. over the past several decades (Kelger, Stone, & Holland, 2017), reducing the stigma toward suicide is a critical step towards addressing the complex issue of suicide and suicidal behaviors. Recent research shows that among individuals affected by suicide (including survivors of a suicide loss or attempt in others) intolerant and stigmatizing attitudes toward suicide can lead to social isolation, reduced help-seeking behavior, self-stigma, and increased likelihood for suicide ideation and attempt (Carpiniello & Pinna, 2017; Tal-Young, et al., 2012). A major public health crisis like suicide should receive significant funding initiatives for prevention and treatment; yet it continues to receive a small fraction of federal funding (U.S. Department of Health and Human Services, 2019). The problem of suicide should be openly discussed so to educate the public and to allow those struggling with suicide to seek mental health care without the fear of retribution or prejudice; and still evidence shows that the stigmatization of suicide persists (Carpiniello, & Pinna, 2017). Hence, it is not only important to understand the basic psychological underpinnings of suicide stigma, but also to explore whether those same psychological processes hold the key for mitigating or reversing negative judgements toward individuals affected by suicide. If suicide prevention efforts are to be more successful, then it is important to identify interventions that increase the likelihood of the public engaging in prosocial behaviors in the case of suicide. Using terror management theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986) as the guiding framework, the present study sought to examine whether the hypothesized negative effects of morality salience (i.e., heightened awareness of

death) on suicide attitudes and virtuous behaviors can be reversed using an intervention to boost self-esteem via experimental manipulation. In other words, can enhancing self-esteem buffer against death anxiety and lead to prosocial attitudes and behavior toward suicide?

Terror Management Theory and Prosocial Behavior

According to terror management theory (Greenberg, Pyszczynski, & Solomon, 1986), our presumably unique human cognitive ability to contemplate death causes us to experience intense anxiety. TMT theorists posit that cultural belief systems and self-esteem serve a death-denying function by providing a sense of existential purpose and importance, and by promising both literal (e.g., afterlife, reincarnation) and symbolic (e.g., personal legacy, national identity) immortality. Therefore, we continuously seek to bolster our faith in cultural worldviews and sense of value in society in order to minimize death-related anxiety – much of which occurs outside of conscious awareness. As a result, reminders of our own mortality (also referred to as mortality salience; MS) trigger distal death defenses that lead us to negatively evaluate those who threaten our cultural values, such as individuals who suicide, and engage in the impulse to reject, avoid, and even aggress against dissimilar others (e.g., Florian & Mikulincer, 1997; Greenberg et al., 1990; Hirschberger & Ein-Dor, 2006; McGregor et al., 1998; Pyszczynski et al., 2006).

Conversely, the MS effect has also shown to lead to positive evaluations of individuals who align with our worldviews and, at times, increases the likelihood of engaging in prosocial behavior in order to validate one's own view as being a valuable contributor to a meaningful society and attain self-esteem (Hirschberger, 2010).

Solomon, Greenberg, and Pyszczynski (1991, p. 120) explain that, "Providing help to

those in need, especially those who are deemed praiseworthy of help within the culture, is one example of how meeting cultural standards of value provides individuals with a sense of personal value.” Indeed, some research has shown that subtle reminders of death lead to more positive perceptions of charitable organizations and increased donations to a charitable cause (Jonas, Schimel, Greenberg, & Pyszczynski, 2002). However, follow-up studies have revealed that this effect does not hold true across all situations, such that the MS effect decreases prosocial attitudes and behaviors when the prosocial causes interferes with terror management processes (Hirschberger, Ein-Dor, & Almakias, 2008). In the case of suicide, it is possible that the likelihood of prosocial attitudes and behaviors will be diminished simply by the fact that the act of suicide has been historically criminalized and, in many cases, associated with immoral forces (Chen, Chien-Chang Courtwright, & Wu, 2017); thus, disrupting the terror management process. Unlike other stigmatized topics, such as drug use and mental illness, the topic of suicide itself has been shown to increase accessibility of death-related cognitions (Rustad, Small, Jobes, Safer, & Peterson, 2003).

One potential strategy to reduce defensive reactions to mortality salience and increase prosocial attitudes and behaviors toward suicide is to bolster one’s sense of self-worth. Previous studies not only support TMT’s primary tenet that death anxiety leads to defensiveness against those who challenge our worldviews and increases the tendency toward self-enhancement, but also supports the notion that heightened self-esteem buffers against this anxiety – another key assumption of the theory (Solomon, Greenberg, & Pyszczynski, 2004). Evidence suggests that people with high self-esteem show reduced defensiveness in response to the psychological threat of death and that boosting self-

esteem ameliorates the negative responses to MS (Schmeichel et al., 2009) – thus, making it more likely for individuals to engage in prosocial behaviors that provide a sense of personal value.

The Present Study

To provide converging support for the anxiety-buffering role of self-esteem, the present study tested the hypothesis that an intervention to raise explicit self-esteem diminishes the effects of mortality salience on suicide attitudes. A common method for testing the anxiety-buffering hypothesis of self-esteem is to experimentally manipulate self-esteem via positive personality feedback (e.g., Schmeichel et al., 2009; Greenberg et al., 1992; Arndt & Greenberg, 1999). Hence, this study used positive feedback regarding the participant's value in scientific research to boost self-esteem as the intervention. The dependent variables included: (1) evaluations of a suicide decedent, (2) behavioral intentions to intervene against suicide, and (3) charitable behavior toward a suicide prevention organization. It was predicted that, following the MS induction, participants who were reminded of death would respond with more stigmatized attitudes and less prosocial behaviors toward suicide, unless the participant received positive feedback aimed to boost self-esteem and, thus, moderate the MS effect. While the experimental procedure to manipulate self-esteem minimizes the impact of potential third variables, this study still controlled for baseline self-reported self-esteem measured prior to the MS induction.

Method

Participants

Participants were invited to complete an online study through an online crowdsourcing platform called Amazon Mechanical Turk (MTurk), a reliable recruitment method that has been supported by previous studies (Crump, McDonnell, & Gureckis, 2013; Horton, Rand, & Zeckhauser, 2011; Paolacci, Chandler, & Ipeirotis, 2010). Participants who were at least 18 years old, English-speaking, and residing in the U.S. were eligible to enroll in the study and compensated \$0.75 for their time. Participants were randomly designated to the experimental conditions in a 2 (MS vs. dental pain) x 2 (implicit self-esteem boost vs. no boost) between-subjects factorial design. These data were collected as part of a larger study.

A total sample of 485 participants, with an average age of 39.90 ($SD = 13.04$; range 18-77). The sample was roughly equal by sex, with 50.3% ($N = 244$) males, 48.9% ($N = 237$). The majority self-identified as White ($N = 359$, 74%), with 8% ($N = 39$) Asian-American, 7.8% ($N = 38$) Black, 4.9% ($N = 24$) Latino and Other each. Close to half of the sample had earned a bachelor's degree ($N = 212$, 43.7%), while 28% ($N = 136$) had completed some college credits and 17.3% ($N = 84$) had obtained a PhD or professional degree.

Procedure and Materials

Participants were told that they would be participating in a study examining personality and attitudes toward emotionally sensitive social issues. After providing basic demographic information, participants were instructed to write about their own death or dental pain. Participants then worked on a filler task in the form of a word completion

activity before being exposed to the self-esteem manipulation procedure. In the self-esteem boost condition, participants received positive feedback on their performance and value in the study (described below). Participants in the non-boost condition did not receive any feedback. Following the self-esteem manipulation, participants completed the dependent measures and provided information regarding personal history of exposure to suicide and substance use (including self and others). Lastly, participants were thanked and debriefed on the true purpose of the study. The measures are described in greater detail below and presented in the following order.

Demographic Survey. Participants were asked to provide basic background information on age, sex, race, and education.

MS Manipulation. In the MS condition, participants were asked to complete the standard death essay questions – formally referred to as the Morality Attitudes Personality Survey (MAPS; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989) and used in most TMT experiments. The MAPS consisted of two open-ended questions regarding the participant’s mortality. The first question asks participants to write about what they believe will happen to them physically when they die and the second asks them to describe the emotions that arise when thinking about their mortality. Participants in the control condition were asked to write about dental pain. Through random assignment, 248 participants were assigned to the MS condition and 237 in the control condition.

Word Completion Task. The word completion task consisted of a list of 25 incomplete words, with six words that were death-related and used assess the success of the MS manipulation: coffin, buried, dead, grave, killed, and skull (Arndt, Pyszczynski,

& Solomon, 1997). This methodology has been recommended from past TMT research (e.g., Arndt et al., 1997; Burke, et al., 2010) as it acts as both a delay between MS activation and the dependent measures and as a manipulation check for death-thought accessibility.

Self-Esteem Manipulation. The self-esteem boosting message was designed to reinforce the participant's belief that he/she is a valuable person to the researchers in a manner that is exaggerated and meant to be interpreted as personalized and accurate. As TMT states, self-esteem and cultural worldviews act as distal defenses to MS. When threatened, people will find ways to bolster their self-esteem and adhere more closely to their worldviews. If those worldviews and self-esteem operate well, then they will mitigate against the negative effects of MS. Thus, one may suppress anxiety-producing cognitions about death and feel that he/she is a valued member in a meaningful world by engaging in prosocial behavior (Hirschberg et al., 2008). Participants in the self-esteem boosting condition received the following bogus message just before completing the dependent measures:

Based on your responses thus far, you have been identified as a high-quality participant in social science research. Before you complete the remainder of this study, we would like to thank you for your attention to detail and willingness to answer difficult questions. Your data will be accepted for further analysis in our study.

Random assignment resulted in 246 participants who received the self-esteem boost and 239 who did not receive any boost.

Stigma of Suicide Scale – Short Form (SOSS-SF). The Stigma of Suicide Scale short form ((SOSS-SF; Batterham, Callear, & Christensen, 2013a; 2013b) is a 16-item measure of community attitudes toward a suicide decedent, with each item consisting of a

one- or two-word descriptor of a “typical” decedent. Items are rated on a 5-point Likert scale ranging from 1 (*Strongly Agree*) to 5 (*Strongly Disagree*). The SOSS-SF has a three-factor structure, each representing a unique category of attitudes: Stigma, Isolation/Depression, and Glorification/Normalization (Batterham, et al. 2013a; 2013b). Higher scores on each factor indicates greater endorsement of those attitudes. The Cronbach’s alpha coefficient for this scale using the present sample was adequate ($\alpha = .66$).

Willingness to Intervene Against Suicide – Intention (WIS-I). The Willingness to Intervene Against Suicide – Intention subscale (WIS-I; Aldrich, Harrington, & Cerel, 2014) is a 22-item subscale that measures the participant’s intention to intervene in situations involving a person at-risk for suicide or suicidal behavior. Items are rated on a 5-point Likert scale, ranging from 1 (*Not likely at all*) to 5 (*Extremely likely*). Five items are reverse scored. Higher composite scores reflect a greater willingness to intervene in situations involving a suicidal person. The WIS-I’s Cronbach’s alpha coefficient was strong ($\alpha = 0.93$).

Donation Allocation Task. A behavioral measure of donation allocation to a non-profit suicide prevention organization was used as a proxy measure of suicide attitudes. Participants told that they would be eligible to win a monetary reward of \$200 and asked to decide how much of their potential winnings they would be willing to donate to the suicide prevention organization. Participants were required to respond using dollar amounts (i.e., award had to be rounded to the nearest dollar amount). A previous TMT study has used the same procedure to examine prosocial behavior (Ferraro, Shiv, & Bettman, 2005).

Analytic Procedure

As a preliminary step, a series of chi-square analyses were used to determine whether there were any differences between experimental groups on demographic variables. Additionally, an independent samples t-test was performed as a manipulation check on death-related thoughts accessibility. This study tested the hypothesis that an explicit self-esteem boost would mitigate defensive responses to suicide, while controlling for baseline self-esteem (SES). Self-esteem scores, as measured by the Rosenberg's SES, were transformed to into a binary variable in order to classify participants as either low or high on the self-esteem measure (below and above the median; 0-15 considered low and 16-30 considered high). A series of three-way analysis of variance (ANOVA) tests were used to determine the effect of the self-esteem boost on the three dependent variables.

Results

Manipulation Check and Group Differences

Results of an independent samples t-test showed that participants in the MS condition completed the word-stem task with more death-related words ($M = 2.62$, $SD = 0.74$) than participants in the control condition ($M = 1.38$, $SD = 0.72$), $t(483) = -18.69$, $p < .01$. The effect of MS on death-thought accessibility was not moderated by explicit self-esteem, as revealed by a regression analysis. Chi-square analyses were used to identify any differences between participant groups and found no significant differences on any demographic variables ($p > .05$).

Hypothesis Testing: Attitudes Toward Suicide and Self-Esteem Boost

Results of the ANOVA tests are presented below. Adjusted means and standard errors were reported for the significant main and interaction effects (see Table 4.1). As stated previously, it was predicted that, under the mortality salience condition, participants who received the self-esteem boost would have lower stigma scores, higher acceptance scores, greater willingness to intervene, and more money allocated to a suicide prevention organization, as compared to those who did not receive a self-esteem boost. No specific hypotheses were made for the Isolation/Depression factor as it is unclear whether endorsement of isolation and depression as being attributed to suicide would be considered as a negative or stigmatized view.

SOSS-SF. A multi-factor ANOVA on the Stigma factor revealed a significant main effect for baseline self-esteem, $F(1, 483) = 7.25, p < .01$, with participants with high self-esteem endorsing more stigma ($M = 13.72, SE = .39$) than those with low self-esteem ($M = 11.45, SE = .75$). There were no other significant main effects or interaction effects on the Stigma factor.

There were no significant main effects for MS, self-esteem boost, or baseline self-esteem on the Isolation/Depression factor. However, there was a significant interaction effect for MS and self-esteem boost on the Isolation/Depression factor, $F(1, 484) = 6.01, p < .05$. Simple main effect tests revealed that, under the mortality salience condition, participants who received an explicit self-esteem boost had lower endorsement of isolation as attributed to suicide ($M = 12.24, SE = .31$) than those who did not receive a self-esteem boost ($M = 13.20, SE = .34$), $F(1, 477) = 4.40, p < .05$. Furthermore, under the self-esteem boost condition, participants who responded to the death prompt had

significantly lower Isolation/Depression scores ($M = 12.24$, $SE = .31$) than those who responded to the pain prompt ($M = 13.62$, $SE = .35$), $F(1, 477) = 8.58$, $p < .05$.

[Results for the Acceptance factor?]

WIS-I. Regarding willingness to intervene against suicide, there was a significant main effect for baseline self-esteem on the WIS-I, $F(1, 481) = 20.87$, $p < .01$.

Participants with high self-esteem were more willing to intervene against suicide ($M = 68.49$, $SE = .75$) as compared with those with low self-esteem ($M = 61.18$, $SE = 1.41$).

There were no other significant main effects or interaction effects on WIS-I based on the ANOVA results. Yet, simple main effects tests showed the predicted effect of the self-esteem boost on willingness to intervene, $F(1, 474) = 3.85$, $p < .05$. For low self-esteem participants in the mortality salience condition, the self-esteem boost resulted in significantly more dollars allocated to a suicide prevention organization ($M = 65.15$, $SE = 2.52$) as compared to the no self-esteem condition ($M = 57.69$, $SE = 2.84$).

Donation Allocation. Results of the ANOVA revealed a significant main effect for mortality salience on the amount of money donated to a suicide prevention organization, $F(1, 483) = 5.18$, $p < .05$. Participants in the MS condition allocated less money to a suicide cause ($M = 57.75$, $SE = 4.56$) than those in the control condition ($M = 71.90$, $SE = 4.23$). This finding is consistent with the MS hypothesis but inconsistent with the self-esteem boost hypothesis as there was no effect on the donation allocation as indicated by the ANOVA results. However, follow-up simple main effects revealed a nearly significant effect of self-esteem boost, $F(1, 476) = 3.75$, $p = .053$, indicating a large difference in the amount of dollars donated to a suicide prevention cause between participants who received a self-esteem boost in the MS condition ($M = 65.93$, $SE = 5.71$) and those who didn't received a self-esteem boost in the MS condition ($M = 49.56$, $SE = 6.24$). Additionally,

there was a significant simple main effect for MS and low self-esteem participants, $F(1, 476) = 4.52, p < .05$. That is, for low self-esteem participants, the mortality salience lead to significantly less dollars donated ($M = 58.46, SE = 7.39$) as compared to the control condition ($M = 81.85, SE = 8.14$).

Discussion

The mitigating effects of enhanced self-esteem on death-related anxiety is one of TMT's core assumptions, such that worldview defense in light of morality salience is reduced when one feels a bolster sense of self-worth (Pyszczynski, Greenberg, & Solomon, 1999). Previous studies have not only found that individuals with high self-esteem have decreased defensive reactions to mortality salience, but also that temporarily boosting self-esteem can dampen the MS effect and promote prosocial behavior (Schmeichel et al., 2009; Solomon, Greenberg, & Pyszczynski, 2004). Using TMT as the guiding framework, the present study attempted to replicate the findings of previous studies by applying the anxiety-buffering hypothesis to suicide attitudes and testing an intervention to bolster participants' explicit self-esteem via positive feedback to increase the likelihood of prosocial intentions and behavior. It was expected that participants who responded to the death prompt and received positive feedback would have similar ratings on the dependent measures as participants in the control condition and greater prosocial tendencies, as compared to participants in the mortality salience condition who did not receive any feedback.

The overall findings of the present work provided some inconclusive support for the TMT hypotheses as the effects of MS and self-esteem boost were only found in certain analyses. The most consistent findings for the self-esteem boost hypothesis were

for the interaction effects of MS and self-esteem boost for the donation allocation task and the WIS-I – although somewhat unreliably as the significant interactions were not identified by the ANOVA results, but by the individual pairwise comparisons. While there was a significant main effect for MS on the amount of dollars participants were willing to donate to a suicide prevention cause (i.e., death prompt led to less money allocated to prevention), the simple main effects showed that for participants who were reminded of death, the self-esteem boost intervention mitigated the negative impact of MS on donation behavior (i.e., an average difference of \$16.37 between the boost vs no-boost groups). Regarding the results of the ANOVA test on WIS-I, although the only significant main effect found was for baseline self-esteem on willingness to intervene against suicide (i.e., high self-esteem associated with greater willingness), results from the simple main effects still indicated some support for the self-esteem boost hypothesis. That is, for low self-esteem participant in the MS condition, positive feedback led to increased willingness to intervene against suicide as compared to participants who received no feedback. Taken together, these findings provide some promising potential for the self-esteem enhancement intervention to attenuate defensive reactions to suicide and increase the likelihood of prosocial intentions and behaviors. It is critical to note that these findings should be interpreted with some caution as the pairwise comparisons were somewhat incompatible with the non-significant ANOVA tests and can only be generalized to the present sample as it is not fully representative of the broader U.S. population.

The significant interaction between MS and self-esteem boost for the Isolation/Depression factor produced a surprising finding because there was no specific

directional hypothesis for this subscale (i.e., unclear whether endorsing isolation as being attributed to suicide as a negative, positive, or neutral position). ANOVA results indicated that, under the mortality salience condition, participants who received positive feedback had significantly lower attribution of suicide to isolation as compared to those who received no feedback. For participants who received positive feedback, morality salience also led to less attribution of suicide to isolation than those in the control condition. Although there is ample evidence to suggest that mental illness is associated with persistent stigma (Fitzpatrick, 2015; Lai, Hong & Chee, 2001), associating suicide with isolation does not seem to be necessarily or directly related to perceptions of mental illness – particularly because the SOSS-SF Isolation/Depression subscale only includes four items from the full 58-item SOSS, all of which are descriptors consistent with the construct of isolation rather than depression (i.e., Disconnected, Isolated, Lonely, and Lost). In this way, higher scores on the short-form of the Isolation/Depression subscale would be more indicative of perceptions of a suicide decedent being an outsider rather than emotionally perturbed as the original author of the SOSS had described (Batterham et al., 2013a). If this interpretation is correct, then weaker associations of suicide decedent as being an outsider following mortality salience and self-esteem boost could be evidence of reduced worldview defense in the form of decreased “otherness” that would be expected if a suicide decedent was negatively perceived. Said in another way, the fact that the self-esteem boost under the MS condition resulted in a reduced connection between perceptions of suicide decedents as outsiders in this study could be considered evidence for the self-esteem enhancement hypothesis. Again, these results should be

considered as only generalizable to the present sample and not to the greater U.S. population.

Limitations and Future Directions

The fact that the ANOVA tests revealed no significant main effects or interaction effects for MS and self-esteem boost on the Stigma and Glorification/Normalization subscales, as well as the WIS-I scale, is puzzling. However, these null findings could potentially be explained by a number of the limitations for this study. First, using a factorial ANOVA with three independent variable greatly contributed to the imbalance in comparison group sizes. This uneven distribution of samples in each subgroup could have contributed to undetected differences between groups. Using a web-based study also reduces the ability of the researcher to maintain experimental control. While online studies present a convenient method for recruiting large samples, they also make it possible for participants to become distracted by other stimuli or activities and decrease focus on the procedure and questions in the study. Moreover, there was no manipulation check for the self-esteem boost intervention, which made it impossible to determine whether the participants' self-esteem was reliably enhanced by the positive feedback and not some other extraneous factor.

Despite these limitations and somewhat inconsistent findings, there are a substantial number of studies in support of the self-esteem boost and MS hypothesis (Burke et al., 2010; Schmeichel et al., 2009; Sullivan & Greenberg, 2013). Future studies should address the present limitations in order to gain a more in-depth understand of the relationship between mortality salience, self-esteem enhancement, and suicide attitudes. It would be advised that subsequent studies testing TMT hypotheses on the SOSS use the

long-form of the scale to examine the relationship between MS, self-esteem boost and the Isolation/Depression factor, as the present study could only reasonably interpret the scores on this factor as attributing suicide to isolation, but not mental illness or emotional disturbance. Ultimately, while this study does provide some support for the self-esteem intervention, future studies should implement methods to examine whether the intervention indeed raises participants' self-esteem by use of manipulation checks. Additionally, given the present study sought to narrowly examine the impact of MS and self-esteem enhancement on suicide attitudes and prosocial behavior, additional research is needed to test whether other variables would moderate the effects of mortality salience and self-esteem. Improved sampling strategies to obtain a more representative sample would also help the generalizability of the findings. Overall, this research provides some interesting insights into the relevance of death-related anxiety on stigma and the potential for strengthening self-esteem to impact prosocial behaviors and mitigate the stigmatization processes that have such harmful consequences for individuals affected by suicide.

Table 4.1

Multifactor ANOVA with mortality salience, baseline self-esteem, and self-esteem boost condition

	Stig		I/D		G/N		WIS-I		Donation Allocation	
	M (SE)	F (p)	M (SE)	F (p)	M (SE)	F (p)	M (SE)	F (p)	M (SE)	F (p)
Mortality		0.66		2.68		0.08		0.01		5.18
Salience (MS)		(.42)		(.10)		(.78)		(.91)		(.02)*
	12.93		12.72		5.80		64.93		57.75	
MS	(.57)		(.23)		(.26)		(1.09)		(4.23)	
	12.25		13.27		5.91		64.76		71.90	
Control	(.62)		(.25)		(.28)		(1.17)		(4.56)	
Baseline Self-esteem		7.25		0.05		28.17		20.87		2.94
		(.00)*		(.81)		(.00)*		(.00)*		(.09)
	13.72		12.96		4.84		68.49		59.49	
High	(.39)		(2.9)		(.18)		(.75)		(2.90)	
	11.45		12.94		6.87		61.18		70.15	
Low	(.75)		(3.58)		(.34)		(1.41)		(5.50)	
Self-esteem boost		0.22		0.16		0.03		0.56		1.69
		(.64)		(.69)		(.87)		(.46)		(.19)
	12.39		12.93		5.82		65.44		68.87	
Boost	(.59)		(.24)		(.27)		(1.12)		(4.34)	
	12.78		13.06		5.89		64.24		60.78	
No boost	(.61)		(.24)		(.27)		(1.15)		(4.45)	
		0.08		6.01		0.80		1.58		1.77
MS*Boost		(.77)		(.01)*		(.37)		(.21)		(.18)
MS*Self-esteem		2.27		1.92		1.16		1.59		0.48
esteem*Boost		(.13)		(.17)		(.28)		(.21)		(.49)

Note. Stig: stigma factor; I/D: isolation/depression factor; G/N: glorification/normalization; * $p < .05$

Chapter 5: Conclusion

Research has long considered the role of stigma in the health and social interactions of individuals associated with stigmatized groups (Newheiser & Barreto, 2014). Being marked with a stigmatized identity can be detrimental for an individual's sense of belonging. Hence, the purpose of this dissertation project was to gain a more nuanced understanding of suicide attitudes through comparative analysis and theory testing. More specifically, I sought to answer three research questions: (1) do attitudes toward suicide differ from unintentional opioid overdose deaths – another type of stigmatized death?; (2) are suicide attitudes influenced by existential terror and self-esteem?; and (3) can the negative effects of death anxiety on suicide stigma be mitigated through self-esteem enhancement?

The first study found evidence of particularities in suicide attitudes as compared to unintentional opioid overdose attitudes. Results indicated that participants had similar perceptions of suicide and opioid overdose decedents as being shallow, immoral, cowardly, and vengeful; however, there was significantly greater endorsement of opioid overdose decedents as being pathetic, irresponsible, stupid, and as an embarrassment. Furthermore, participants attributed suicide deaths to isolation and loneliness more so than for opioid overdose decedents and were more willing to intervene against suicide as compared to overdose. These findings echo previous research that demonstrated that, not only is stigma illness specific (Angermeyer & Matschinger, 2003; Link et al., 1999), but also that substance use may be more stigmatized than other mental health conditions (Schomerus et al., 2011). While suicide is not technically a psychiatric condition, there is a common public perception that it is associated with a mental illness (Anderson &

Standen, 2007; Batterham et al., 2013a). Attitudes toward suicide and opioid overdose also differed based on participant characteristics, with the most novel finding being that personal exposure to substance use and drug overdose had a significant association with suicide attitudes but that exposure to suicide did not influence attitudes toward fatal opioid overdose. The explanation for this discrepancy could be attributed to the assumption that, for participants in this study, contact with substance dependent individuals struggling with addiction and personal history of drug use leads to a greater understanding that these individuals are motivated to use drugs as a way to manage emotional pain and escape reality; and therefore, hold more compassionate views of suicide decedents for similar reasons. Future research should investigate this possibility.

The second study used terror management theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986) to test the hypothesis that mortality salience (MS) leads to more hostile attitudes toward suicide, but that this effect would be moderated by self-esteem. The findings of this study provided some support for this hypothesis: when reminded of death, participants endorsement more stigmatized attitudes toward suicide decedents but that this effect was only found among those with relatively low self-esteem. The finding of increased worldview defense among low self-esteem participants in this study is consistent with TMT's theoretical basis that self-esteem functions to buffer against existential anxiety (Pyszczynski, Greenberg, & Solomon, 1999). Providing partial support for the present hypothesis, this study also found that participants donated significantly fewer dollars to a suicide prevention cause when death-related thoughts were highly accessible (average difference of \$22.43). However, the results for the remaining measures were inconsistent with the TMT hypothesis in that the only

significant predictor of glorified/normalized attitudes and willingness to intervene was the participant's baseline self-esteem. Specifically, participants with low self-esteem had more accepting views of suicide decedents but high self-esteem participants were more willing to intervene. While mortality salience had no effect on these measures, these findings still support TMT's claim that self-esteem is relevant to worldviews and cultural belief systems (Greenberg & Arndt, 2011).

The mitigating effects of enhanced self-esteem on death-related anxiety is one of TMT's core assumptions, such that worldview defense in light of morality salience is reduced when one feels a bolster sense of self-worth (Pyszczynski, Greenberg, & Solomon, 1999). Thus, the third study extended the TMT hypothesis to test whether the effects of MS could be reversed or dampened by providing participants positive feedback to boost self-esteem. While the overall findings of this study were somewhat inconclusive, the hypothesis that self-esteem enhancement leads to less defensive reactions was supported for the dependent measures of donation behavior to a suicide prevention cause and willingness to intervene against suicide – however, in some analyses, this was only true for participants with low self-esteem. In other words, when participants received positive feedback following mortality salience, they donated more dollars to a suicide prevention cause and were more willing to intervene against suicide – although the latter was only true for low self-esteem participants. There was also the unexpected finding related to perceptions of suicide being attributed to isolation, such that under the MS condition, participants who received positive feedback had significantly lower scores on the Isolation/Depression scale as compared to those who received no feedback. It is possible that, for the present sample, weaker associations

between suicide and isolation could be indicative of decreased “otherness,” which one could reasonably assume to true for suicide decedents had the scores on the Isolation/Depression factor were higher.

For Study 3, the lack of significance for the main effects of MS and self-esteem boost or interaction effects on the Stigma and Glorification/Normalization subscales is somewhat puzzling – especially because Study 2 supported the MS and self-esteem hypothesis for the Stigma subscale. These null findings could maybe be explained by the limitations of the study: (1) low experimental control for web-based studies, (2) no direct way to evaluate whether the self-esteem boost intervention worked, and (3) imbalanced comparison group sizes that may have contributed to undetected differences. Nevertheless, there is substantial evidence from past TMT research in support of the self-esteem boost hypothesis (Burke, Martens, & Faucher, 2010; Schmeichel et al., 2009; Sullivan & Greenberg, 2013); and thus, replication studies of the present research would do well to address these limitations. Furthermore, additional research is needed to determine whether the MS and self-esteem hypotheses are moderated by personal exposure to suicide, as these potentially life-changing experiences bear the possibility of altering an individual’s worldviews.

Implications

First and foremost, the findings from this dissertation could only be appropriately generalized to the present sample. Even so, these three studies have important implications for how we understand the psychological underpinnings of suicide stigma and contribute to the growing body of evidence of the role of existential mortality concerns in hostile attitudes and discriminatory behavior. Not only are we confronted

with death reminders in our everyday lives, the topic of suicide is inherently a reminder of death – making the problem of death anxiety even more relevant and unavoidable. These findings expand our understanding of how cultural worldview and self-esteem are relevant to mitigating death anxiety, and the relationship between death anxiety and suicide. This dissertation highlights the need for increased death education for suicide researchers, clinicians, and others who work with individuals at-risk for suicide or dealing with the aftermath of suicide.

Appendix A

Demographic Survey

1. What is your current age? _____ years old
2. Are you:
 - a. Male
 - b. Female
 - c. Other (please specify): _____
 - d. Prefer not to answer
3. Are you:
 - a. Black or African-American (non-Hispanic)
 - b. White (non-Hispanic)
 - c. Latino or Hispanic
 - d. Asian-American
 - e. Other (please specify): _____
4. What is the highest degree or level of education you have completed?
 - a. High school graduate/GED or less
 - b. Some college credit but no degree
 - c. Associates or Bachelors degree
 - d. Graduate or Professional degree
 - e. Other (please specify): _____
5. How do you describe your religion, spiritual practice, or existential worldview?
 - a. Christian
 - b. Jewish
 - c. Muslim
 - d. Buddhist
 - e. Hindu
 - f. Spiritual but not committed to a particular faith
 - g. Agnostic (You are not sure if there is a God)
 - h. Atheist (You believe there is no God)
 - i. Don't give religious things much thought
 - j. Other (please specify): _____
 - k. Prefer not to answer

Suicide Exposure History

6. Do you know anyone who has died by suicide?
 - a. Yes
 - b. No
 - c. Prefer not to answer

1. Do you know anyone who has attempted suicide?
 - a. Yes
 - b. No
 - c. Prefer not to answer
2. Have you ever had any previous thoughts about suicide?
 - a. Yes
 - b. No
3. Have you ever attempted suicide?
 - a. Yes
 - b. No

Drug Overdose Exposure History

1. Do you personally know of anyone with a current or past drug addiction?
 - a. Yes
 - b. No
 - c. Prefer not to answer
2. Do you know anyone who has survived an unintentional drug overdose?
 - a. Yes
 - b. No
 - c. Prefer not to answer
3. Do you know anyone who has died by unintentional drug overdose?
 - a. Yes
 - b. No
 - c. Prefer not to answer
4. Have you ever sought medical attention for a drug-related issue?
 - a. Yes
 - b. No

If Yes, please provide any additional information you would like: _____

5. Have you ever unintentionally overdosed on drugs?
 - a. Yes
 - b. No

If Yes, please provide any additional information you would like: _____

Stigma of Suicide Scale Short Form (SOSS-SF)

The following items are descriptors of a “typical” person who has died by suicide. For each item, indicate whether you *strongly agree* (1), *agree* (2), *neutral* (3), *disagree* (4), or *strongly disagree* (5)

Stigma of Drug Overdose Scale (SODOS) (Study 1 only)

The following items are descriptors of a “typical” person who has died from unintentional opioid overdose (opioids such as heroin, methadone, morphine, oxycodone, tramadol, fentanyl or codeine), where the underlying cause is illicit drug misuse or dependence. For each item, indicate whether you *strongly agree* (1), *agree* (2), *neutral* (3), *disagree* (4), or *strongly disagree* (5)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. Brave	1	2	3	4	5
2. Cowardly	1	2	3	4	5
3. Dedicated	1	2	3	4	5
4. Disconnected	1	2	3	4	5
5. An embarrassment	1	2	3	4	5
6. Immoral	1	2	3	4	5
7. Irresponsible	1	2	3	4	5
8. Isolated	1	2	3	4	5
9. Lonely	1	2	3	4	5
10. Lost	1	2	3	4	5
11. Noble	1	2	3	4	5
12. Pathetic	1	2	3	4	5
13. Shallow	1	2	3	4	5
14. Strong	1	2	3	4	5
15. Stupid	1	2	3	4	5
16. Vengeful	1	2	3	4	5

17. Open-ended: Are there any other words or ways in which you would describe this person?

Willingness to Intervene against Suicide (Intention Subscale)

The following survey items concern your intent to intervene with someone who is suicidal. Please indicate how likely you would be to engage in the following behaviors in each of the statements listed below. Please rate the following statements on a scale from 1 (Not likely at all) to 5 (Extremely likely).

1 – Not likely at all

2 – Not very likely

3 – Somewhat likely

4 – Very likely

5 – Extremely likely

1. Express my concern for someone who is suicidal to others.
2. Talk to a friend about my concern for someone who is suicidal.
3. Contact the family of someone who is suicidal about my concern.
4. Express my concern for someone who is suicidal to a professional.
5. Tell someone who is suicidal I am concerned about him or her.
6. Call a crisis hotline for help for someone who is suicidal.
7. Talk to a professional for help regarding someone who is suicidal.
8. Find someone to talk to the person who is suicidal who feels more comfortable talking about suicide than me.
9. Seek help from a webpage about suicide prevention.
10. Tell an RA or other campus authority about the person who is suicidal.
11. I would intervene in some way.
12. Do nothing; it is none of my business.
13. Encourage the person who is suicidal to seek help from a professional.
14. Encourage the person who is suicidal to seek help from a suicide crisis hotline.
15. Encourage the person who is suicidal to talk to an RA or other campus authority.
16. Tell the person who is suicidal to seek help from a suicide prevention webpage.
17. Encourage the person to talk to his or her family.
18. Tell the person to stop being so dramatic.
19. Ignore the situation.
20. Give the person space. He or she is sad and needs alone time to heal.
21. Ignore the subject of suicide unless the person who is suicidal brings it up first.
22. Ask the person who is suicidal if anything is wrong.

Willingness to Intervene against Overdose (Intention Subscale) (Study 1 only)

The following survey items concern your intent to intervene with someone who is dependent on opioids, including those dependent on prescription opioids, and at high risk for fatal opioid overdose. Please indicate how likely you would be to engage in the following behaviors in each of the statements listed below. Please rate the following statements on a scale from 1 (Not likely at all) to 5 (Extremely likely).

1 – Not likely at all

2 – Not very likely

3 – Somewhat likely

4 – Very likely

5 – Extremely likely

1. Express my concern for someone who is at risk for fatal opioid overdose to others.
2. Talk to a friend about my concern for someone who is at risk for fatal opioid overdose.
3. Contact the family of someone who is at risk for fatal opioid overdose about my concern.
4. Express my concern for someone who is at risk for fatal opioid overdose to a professional.
5. Tell someone who is at risk for fatal opioid overdose I am concerned about him or her.
6. Call a crisis hotline for help for someone who is at risk for fatal opioid overdose
7. Talk to a professional for help regarding someone who is at risk for fatal opioid overdose.
8. Find someone to talk to the person who is at risk for fatal opioid overdose who feels more comfortable talking about drug addiction or dependence than me.
9. Seek help from a webpage about addiction treatment.
10. Tell a campus resident adviser or other campus authority about the person who is at risk for fatal opioid overdose – if he or she were in college
11. I would intervene in some way.
12. Do nothing; it is none of my business.
13. Encourage the person who is at risk for fatal opioid overdose to seek help from a professional.
14. Encourage the person who is at risk for fatal opioid overdose to seek help from an addiction or mental health crisis hotline.
15. Encourage the person who is at risk for fatal opioid overdose to talk to a campus resident adviser or other campus authority – if he or she were in college
16. Tell the person who is at risk for fatal opioid overdose to seek help from an addiction treatment webpage.
17. Encourage the person to talk to his or her family.
18. Tell the person to stop being so dramatic.

19. Ignore the situation.
20. Give the person space. He or she is sad and needs alone time to heal.
21. Ignore the subject of opioid dependence or treatment unless the person who is at risk for fatal opioid overdose brings it up first.
22. Ask the person who is at risk for fatal opioid overdose if anything is wrong.

Donation Allocation Task (Study 2 & 3 only)
Suicide Prevention

You are eligible to be entered into a lottery for a \$200 Amazon gift card. You can decide how much of your reward you would like to donate to a non-profit suicide prevention organization, the American Association of Suicidology. If you wish to donate some of your winnings, you may choose to donate as little or as much as you like.

If you should be selected to win the \$200 reward, how much of your winnings would you like to donate to the American Association of Suicidology. Please round to the nearest dollar.

Amount allocated for Amazon gift card: \$_____

Amount allocated for donation to the American Association of Suicidology: \$_____

Mortality Salience Questions (Study 2 & 3 only)

(Control Group: Projective Life Attitudes Personality Assessment)

(1) “Please briefly describe the emotions that the thought of experiencing intense dental pain arouses in you” and (2) “Jot down as specifically as you can what you think will happen to you as you experience intense dental pain and once you have experienced intense dental pain”

(Experimental Group)

(1) “Please briefly describe the emotions that the thought of your own death arouses in you” and (2) “Jot down as specifically as you can what you think will happen to you as you physically die and once you are physically dead”

Self-Esteem Manipulation (Study 3 only)

Based on your responses thus far, you have been identified as a high-quality participant in social science research. Before you complete the remainder of this study, we would like to thank you for your attention to detail and willingness to answer difficult questions. Your data will be accepted for further analysis in our study.

Rosenberg Self-Esteem Scale (Study 2 & 3 only)

Instructions

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree

	SA	A	D	SD
1. On the whole, I am satisfied with myself	1	2	3	4
2. At times I think I am no good at all	1	2	3	4
3. I feel that I have a number of good qualities	1	2	3	4
4. I am able to do things as well as most other people	1	2	3	4
5. I feel I do not have much to be proud of	1	2	3	4
6. I certainly feel useless at times	1	2	3	4
7. I feel that I'm a person of worth, at least on an equal plane with others	1	2	3	4
8. I wish I could have more respect for myself	1	2	3	4
9. All in all, I am inclined to feel that I am a failure	1	2	3	4
10. I take a positive attitude toward myself	1	2	3	4

Word Completion Task (Study 2 & 3 only)

We are simply pre-testing this questionnaire for future studies. 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. PLA _ _

3. _ _ OK

4. WAT _ _

5. DE _ _

6. MU _ _

7. _ _ NG

8. B _ T _ LE

9. M _ J _ R

10. P _ _ TURE

11. FL _ W _ R

12. GRA _ _

13. K _ _ GS

14. CHA _ _

15. KI _ _ ED

16. CL _ _ K

17. TAB _ _

18. W _ _ DOW

19. SK _ _ L

20. TR _ _

21. P _ P _ R

22. COFF _ _

23. _ O _ SE

24. POST _ _

25. R _ DI _

REFERENCES

- Ahmad, F. B., Rossen, L. M., Spencer, M. R., Warner, M., Sutton, P. (2018). Provisional drug overdose death counts. *National Center for Health Statistics*. Retrieved from <https://www.cdc.gov/nchs/nvss/vsrr/drug-overdose-data.htm>
- Ajzen, I. (1987). Attitudes, traits, and actions: Dispositional prediction of behavior in personality and social psychology. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 20, pp. 1-63). New York, NY: Academic Press.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211. doi:10.1016/0749-5978(91)90020-T
- Aldrich, R. (2017). Suicide prevention: College students' intention to intervene. *Archives of Suicide Research*, 21(3), 403-412. doi: 10.1080/13811118.2016.1211041
- Aldrich, R. S. (2015). Using the theory of planned behavior to predict college students' intention to intervene with a suicidal individual. *Crisis*, 36(5), 332-337. doi:10.1027=0227-5910=a000330
- Aldrich, R. S., Harrington, N. G., & Cerel, J. (2014). The Willingness to Intervene against Suicide questionnaire. *Death Studies*, 38(2), 1-9. doi:10.1080/07481187.2012.738763
- Anderson, M., & Standen, P. J. (2007). Attitudes towards suicide among nurses and doctors working with children and young people who self-harm. *Journal of Psychiatric & Mental Health Nursing*, 14(5), 470-477. doi:10.1111/j.1365-2850.2007.01106.x
- Andrews, M. (2014, February 18). Despite law, health plans refuse medical claims related to suicide. *National Public Radio (NPR)*. Retrieved from <https://www.npr.org/sections/health-shots/2014/02/18/279014945/despite-law-health-plans-refuse-medical-claims-related-to-suicide>
- Angermeyer, M. C., & Matschinger, H. (1996). Social distance of the population toward psychiatric patients. *Gesundheitswesen*, 58, 18-23.
- Angermeyer, M. C., & Matschinger, H. (1997). Social distance towards the mentally ill: Results of representative surveys in the Federal Republic of Germany. *Psychol Med*, 27, 131-41.
- Angermeyer, M. C., & Matschinger, H. (2003). The stigma of mental illness: Effects of labelling on public attitudes towards people with mental disorder. *Acta Psychiatrica Scandinavica*, 108(4), 304-09. doi:10.1034/j.1600-0447.2003.00150.x
- Arboleda-Florez, J. (2002). What causes stigma? *World Psychiatry*, 1(1), 25-26.
- Arnautovska, U., & Grad, O. (2010). Attitudes toward suicide in the adolescent population. *Crisis*, 31(1), 22-29. doi:10.1027/0227-5910/a000009
- Arndt, J., & Greenberg, J. (1999). The effects of a self-esteem boost and mortality salience on responses to boost relevant and irrelevant worldview threats. *Personality and Social Psychology Bulletin*, 25(11), 1331-1341. doi:10.1177/0146167299259001
- Arndt, J., Pyszczynski, T., & Solomon, S. (1997). Subliminal exposure to death-related stimuli increases defense of the cultural worldview. *Psychological Science*, 8(5), 379-385. doi:10.1111/j.1467-9280.1997.tb00429.x

- Barry, C., McGinty, E., Pescosolido, B., & Goldman, H. (2014). Stigma, discrimination, treatment effectiveness, and policy: Public views about drug addiction and mental illness. *Psychiatric Services*, 65(10), 1269-1272. doi:10.1176/appi.ps.201400140
- Batterham, P. J., Cleave, A. L., & Christensen, H. (2013a). Correlates of suicide stigma and suicide literacy in the community. *Suicide & Life-Threatening Behavior*, 43(4), 406-417. doi:10.1111/sltb.12026
- Batterham, P., Cleave, A., & Christensen, H. (2013b). The stigma of suicide scale: Psychometric properties and correlates of the stigma of suicide. *Crisis*, 34(1), 13-21. doi: 10.1027/0227-5910/a000156
- Baumeister, R. F., Tice, D. M., & Hutton, D. G. (1989). Self-presentational motivations and personality differences in self-esteem. *Journal of Personality*, 57(3), 547-79. doi:10.1111/j.1467-6494.1989.tb02384.x
- Becker, E. (1973). *The Denial of Death*. New York: Academic Press.
- Bentley, F. R., Daskalova, N., & White, B. (2017). Comparing the reliability of Amazon Mechanical Turk and Survey Monkey to traditional market research surveys. *In Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems* (CHI '17). ACM, Denver, CO, USA. doi:10.1145/3027063.305333
- Bosson, J., Swann, W., Pennebaker, J., & Diener, Ed. (2000). Stalking the perfect measure of implicit self-esteem: The blind men and the elephant revisited? *Journal of Personality and Social Psychology*, 79(4), 631-643. doi:10.1037/0022-3514.79.4.631
- Burke, B., Martens, A., & Faucher, E. (2010). Two decades of terror management theory: A meta-analysis of mortality salience research. *Pers Soc Psychol Rev*, 14(2), 155-195. doi:10.1177/1088868309352321
- Carpiniello, B., & Pinna, F. (2017). The Reciprocal Relationship between Suicidality and Stigma. *Frontiers in Psychiatry*, 8, 35. doi:10.3389/fpsy.2017.00035
- Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. Accessed August 3, 2018.
- Cerel, J., Maple, M., DeVan Venne, J., Moore, M., Flaherty, C., & Brown, M. (2016). Exposure to suicide in the community: Prevalence and correlates in one US state. *Public Health Reports*, 131, 100-107. doi:10.1177/003335491613100116
- Chen, J. A., Chien-Chang Courtwright, A., & Wu, K. (2017). The role of stigma and denormalization in suicide-prevention laws in East Asia: A sociocultural, historical, and ethical perspective. *Harvard Review of Psychiatry*, 25(5), 229-40. doi:10.1097/HRP.0000000000000160
- Connery, H. (2018, May 23). Silent no more: Suicide is epidemic. *Harvard Health Publishing*. Retrieved from <https://blog.content.health.harvard.edu/blog/silent-no-more-suicide-is-epidemic/>
- Cottrell, C., Neuberg, S., & Dovidio, J. F. (2005). Different emotional reactions to different groups: A sociofunctional threat-based approach to "prejudice". *Journal of Personality and Social Psychology*, 88(5), 770-789. doi:10.1037/0022-3514.88.5.770
- Crump, M., McDonnell, J., & Gureckis, T. (2013). Evaluating Amazon's Mechanical Turk as a Tool for Experimental Behavioral Research. e57410. *PLoS ONE*, 8(3).

- Daley D. C. (2013). Family and social aspects of substance use disorders and treatment. *Journal of Food and Drug Analysis*, 21(4), S73–S76.
doi:10.1016/j.jfda.2013.09.038
- Darwin, C. (1859). *On the Origins of Species by Means of Natural Selection, or Preservation of Favoured Races in the Struggle for Life*. London, UK: John Murray
- Dragisic, T., Dickov, A., Dickov, V., & Mijatovic, V. (2015). Drug addiction as risk for suicide attempts. *Materia Socio-Medica*, 27(3), 188–191.
<http://doi.org/10.5455/msm.2015.27.188-191>
- Eaton, A. A., & Visser, P. S. (2008). Attitude importance: Understanding the causes and consequences of passionately held views. *Social & Personality Psychology Compass*, 2(4), 1719–1736. doi:10.1111/j.1751-9004.2008.00125.x
- Feigelman, W., Jordan, J., & Gorman, B. (2011). Parental grief after a child's drug death compared to other death causes: Investigating a greatly neglected bereavement population. *OMEGA - Journal of Death and Dying*, 63(4), 291–316.
doi:10.2190/OM.63.4.a
- Ferraro, R., Baba S., & James, B. R. (2005). Let us eat and drink, for tomorrow we shall die: Effects of mortality salience and self-esteem on self-regulation in consumer choice. *Journal of Consumer Research*, 32(1), 65–75. doi:10.1086/429601
- Finkelstein, Y., Macdonald, E. M., Hollands, S., Sivilotti, M. L., Hutson, J. R., Mamdani, M. M., Koren, G., Juurlink, D. N. (2015). Risk of suicide following deliberate self-poisoning. *JAMA Psychiatry*, 72(6), 570–575.
doi:10.1001/jamapsychiatry.2014.3188.
- Fitzpatrick, J. J. (2015). The continuing stigma of mental illness. *Archives of Psychiatric Nursing*, 29(3), 133. doi:10.1016/j.apnu.2015.04.001
- Florian, V., & Mikulincer, M. (1997). Fear of death and the judgment of social transgressions: A multidimensional test of terror management theory. *Journal of Personality and Social Psychology*, 73(2), 369–380. doi:10.1037/0022-3514.73.2.369
- Florian, V., Mikulincer, M., & Hirschberger, G. (2002). The anxiety-buffering function of close relationships: Evidence that relationship commitment acts as a terror management mechanism. *Journal of Personality and Social Psychology*, 82(4), 527–542. doi:10.1037/0022-3514.82.4.527
- Fox, A. S., & Shackman, A. J. (2017). The central extended amygdala in fear and anxiety: Closing the gap between mechanistic and neuroimaging research. *Neuroscience Letters*. doi:10.1016/j.neulet.2017.11.056
- Frey, L., & Hans, J. (2016). Attitudes toward Assisted Suicide: Does Family Context Matter? *Archives of Suicide Research*, 20(2), 250–264.
doi:10.1080/13811118.2015.1004477
- Galvin, G. (2016, November 9). Colorado overwhelmingly passes aid-in-dying law. *U.S. News & World Report*. Retrieved from
<https://www.usnews.com/news/politics/articles/2016-11-09/colorado-joins-5-states-to-allow-physician-aided-death-for-terminally-ill>

- Goldenberg, J. L., McCoy, S. K., Pyszczynski, T., Greenberg, J., Solomon, S., & Diener, E. (2000). The body as a source of self-esteem: The effect of mortality salience on identification with one's body, interest in sex, and appearance monitoring." *Journal of Personality and Social Psychology* 79(1), 118-30. doi: 10.1037/0022-3514.79.1.118
- Greenberg, J. & Arndt, J. (2011). Terror management theory. In Kruglanski, A., E. T. Higgins, & P. van Lange (Eds.), *Handbook of Theories of Social Psychology*, Vol. 1. (pp. 398-415). London: Sage Press.
- Greenberg, J., Arndt, J., Simon, L., Pyszczynski, T., & Solomon, S. (2000). Proximal and distal defenses in response to reminders of one's mortality: Evidence of a temporal sequence. *Personality and Social Psychology Bulletin*, 26(1), 91-99. doi:10.1177/0146167200261009
- Greenberg, J., Pyszczynski, T., & Solomon, S. (1986). The causes and consequences of a need for self-esteem: A terror management theory. In Baumeister R. F. (eds) *Public Self and Private Self*. Springer Series in Social Psychology. New York, NY: Springer.
- Greenberg, J., Pyszczynski, T., Solomon, S., Rosenblatt, A., Veeder, M., Kirkland, S., et al. (1990). Evidence of terror management theory II: The effects of mortality salience on reactions to those who threaten or bolster the cultural worldview. *Journal of Personality and Social Psychology*, 58, 308-318.
- Greenberg, J., Simon, L., Pyszczynski, T., Solomon, S., & Chatel, D. (1992). Terror management and tolerance: Does mortality salience always intensify negative reactions to others who threaten one's worldview? *Journal of Personality and Social Psychology*, 63, 212-220.
- Hazelden Foundation. (2009). *Results from the Fall 2008 national study of public attitudes toward addiction*. Center City, MN
- Hedegaard, H., Warner, M., & Miniño, A. M. (2017). Drug overdose deaths in the United States, 1999-2016. NCHS data brief, no 294. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics. <https://www.cdc.gov/nchs/data/databriefs/db294.pdf>
- Hirschberger, G. (2010). Compassionate callousness: A terror management perspective on prosocial behavior. In M. Mikulincer & P. R. Shaver (Eds.), *Prosocial motives, emotions, and behavior: The better angels of our nature* (pp. 201-219). Washington, DC, US: American Psychological Association. <http://dx.doi.org/10.1037/12061-011>
- Hirschberger, G., & Ein-Dor, T. (2006). Defenders of a lost cause: Terror management and violent resistance to the disengagement plan. *Personality and Social Psychology Bulletin*, 32(6), 761-769. doi:10.1177/0146167206286628
- Hirschberger, G., Ein-Dor, T., & Almakias, S. (2008). The self-protective altruist: Terror management and the ambivalent nature of prosocial behavior. *Personality and Social Psychology Bulletin*, 34(5), 666-678. doi:10.1177/0146167207313933
- Horton, J., Rand, J., & Zeckhauser, D. (2011). The online laboratory: Conducting experiments in a real labor market. *Experimental Economics*, 14(3), 399-425. doi:10.1007/s10683-011-9273-9

- Hosseinbor, M., Yassini Ardekani, S. M., Bakhshani, S., & Bakhshani, S. (2014). Emotional and social loneliness in individuals with and without substance dependence disorder. *International Journal of High-risk Behaviors & Addiction*, 3(3), e22688. doi:10.5812/ijhrba.22688
- Joiner, T. (2005). *Why people die by suicide*. Cambridge, MA: Harvard University Press.
- Jonas, E., Martens, A., Niesta, D., Fritsche, I., Sullivan, D., & Greenberg, J. (2008). Focus theory of normative conduct and terror management theory: The interactive impact of mortality salience and norm salience on social judgment. *Journal of Personality and Social Psychology*, 95(6), 1239–1251. doi:10.1037/a0013593
- Jonas, E., Schimel, J., Greenberg, J., & Pyszczynski, T. (2002). The Scrooge effect: Evidence that mortality salience increases prosocial attitudes and behavior. *Personality and Social Psychology Bulletin*, 28(10), 1342-1353. doi:10.1177/014616702236834
- Joszt, L. (2018, November 30). CDC Data: Life expectancy decreases as deaths from suicide, drug overdose increase. *American Journal of Managed Care (AJMC)*. Retrieved from <https://www.ajmc.com/focus-of-the-week/cdc-data-life-expectancy-decreases-as-deaths-from-suicide-drug-overdose-increase>
- Judge, T. A., Erez, A., Bono, J. E., Thoresen, C. J., & Diener, E. (2002). Are measures of self-esteem, neuroticism, locus of control, and generalized self-efficacy indicators of a common core construct?" *Journal of Personality and Social Psychology* 83(3), 693-710. doi:10.1037/0022-3514.83.3.693
- Kastenbaum, R. J. (2000). *The psychology of death* (3rd ed.). New York, NY: Springer Publishing Company.
- Kegler, S.R., Stone, D.M., Holland, K.M. (2017). Trends in Suicide by Level of Urbanization — United States, 1999–2015. *MMWR Morb Mortal Wkly Rep* 2017, (66), 270–273. doi: <http://dx.doi.org/10.15585/mmwr.mm6610a2>
- Kierkegaard, S., Thomte, R., & Anderson, A. (1980). *The concept of anxiety: A simple psychologically orienting deliberation on the dogmatic issue of hereditary sin*. Princeton, NJ: Princeton University Press.
- Kodaka, M., Postuvan, V., Inagaki, M., & Yamada, M. (2011). A systematic review of scales that measure attitudes toward suicide. *International Journal of Social Psychiatry*, 57(4), 338-361. doi:10.1177/0020764009357399
- Kubota, J. T., Banaji, M. R., & Phelps, E. A. (2012). The neuroscience of race. *Nature Neuroscience*, 15(7), 940-8. doi:10.1038/nn.3136
- Lai, Y. M., Hong, C. P., & Chee, C. Y. (2001). Stigma of mental illness. *Singapore Medical Journal*, 42(3), 111-14.
- Landau, M. J., Solomon, S., Pyszczynski, T., & Greenberg, J. (2007). On the compatibility of terror management theory and perspectives on human evolution. *Evolutionary Psychology*, 5(3). doi:10.1177/147470490700500303
- Link, B., Phelan, J., Bresnahan, M., Stueve, A., & Pescosolido, B. (1999). Public conceptions of mental illness: Labels, causes, dangerousness, and social distance. *American Journal of Public Health*, 89(9), 1328-33.

- Mauri, M. C., Cerveri, G., Volonteri, L. S., Fiorentini, A., Colasanti, A., Manfré, S., ... Pannacciulli, E. (2005). Parasuicide and drug self-poisoning: analysis of the epidemiological and clinical variables of the patients admitted to the Poisoning Treatment Centre (CAV), Niguarda General Hospital, Milan. *Clinical practice and epidemiology in mental health: CP & EMH*, 1(1), 5. doi:10.1186/1745-0179-1-5
- McGregor, H. A., Lieberman, J. D., Greenberg, J., Solomon, S., Arndt, J., Simon, L., et al. (1998). Terror management and aggression: Evidence that mortality salience promotes aggression against worldview threatening others. *Journal of Personality and Social Psychology*, 74(3), 590-605. doi:10.1037/0022-3514.74.3.590
- Moisuc, A., Brauer, M., Fonseca, A., Chaurand, N., & Greitemeyer, T. (2018). Individual differences in social control: Who 'speaks up' when witnessing uncivil, discriminatory, and immoral behaviours? *British Journal of Social Psychology* 57(3), 524-46. doi:10.1111/bjso.12246
- Muraven, M., & Baumeister, R. (1997). Suicide, sex terror, paralysis, and other pitfalls of reductionist self-preservation theory. *Psychological Inquiry*, 8(1), 36-40. doi:10.1207/s15327965pli0801_7
- Mushtaq, R., Shoib, S., Shah, T., & Mushtaq, S. (2014). Relationship between loneliness, psychiatric disorders and physical health? A review on the psychological aspects of loneliness. *Journal of clinical and diagnostic research (JCDR)*, 8(9), WE01–WE4. doi:10.7860/JCDR/2014/10077.4828
- Neeleman, J. (1996). Suicide as a crime in the UK: Legal history, international comparisons and present implications. *Acta Psychiatrica Scandinavica*, 94(4), 252-257. doi:10.1111/j.1600-0447.1996.tb09857.x
- Newheiser, A., & Barreto, M. (2014). Hidden costs of hiding stigma: Ironical interpersonal consequences of concealing a stigmatized identity in social interactions. *Journal of Experimental Social Psychology*, 52(C) 58-70.
- Newman, B., & Newman, P. R. (1987). *Development through life: A psychosocial approach* (4th ed.). Chicago, Ill: Dorsey Press.
- Paolacci, G., Chandler, J., & Ipeirotis, P. G. (2010). Running experiments on Amazon Mechanical Turk. *Judgment and Decision Making*, 5(5), 411-419.
- Pierce, M., Hayhurst, K., Bird, S. M., Hickman, M., Seddon, T., Dunn, G., & Millar, T. (2017). Insights into the link between drug use and criminality: Lifetime offending of criminally-active opiate users. *Drug and alcohol dependence*, 179, 309–316. doi:10.1016/j.drugalcdep.2017.07.024
- Pitman, A. L., Stevenson, F., Osborn, D. P. & King, M. B. (2018). The stigma associated with bereavement by suicide and other sudden deaths: A qualitative interview study. *Social Science & Medicine*, 198(C), 121-129. doi:10.1016/j.socscimed.2017.12.035
- Pitman, A., Osborn, D., King, M., & Erlangsen, A. (2014). Effects of suicide bereavement on mental health and suicide risk. *The Lancet. Psychiatry*, 1(1), 86-94. doi:10.1016/S2215-0366(14)70224-X
- Pompili, M., Mancinelli, I., & Tatarelli, R. (2003). Stigma as a cause of suicide. *British Journal of Psychiatry*, 183, 173-174. doi:10.1192/bjp.183.2.173-a

- Pompili, M., Serafini, G., Innamorati, M., Dominici, G., Ferracuti, S., Kotzalidis, G. D., ... Lester, D. (2010). Suicidal behavior and alcohol abuse. *International Journal of Environmental Research and Public Health*, 7(4), 1392–1431. doi:10.3390/ijerph7041392
- Pyszczynski, T., Abdollahi, A., Solomon, S., Greenberg, J., Cohen, F., & Weise, D. (2006). Mortality salience, martyrdom, and military might: The Great Satan versus the axis of evil. *Personality and Social Psychology Bulletin*, 32(4), 525–537. doi:10.1177/0146167205282157
- Pyszczynski, T., Greenberg, J., & Solomon, S. (1999). A dual-process model of defense against conscious and unconscious death-related thoughts: An extension of terror management theory. *Psychological Review*, 106(4), 835–845.
- Pyszczynski, T., Greenberg, J., Solomon, S., Arndt, J., & Schimel, J. (2004). Why do people need self-esteem? A theoretical and empirical review. *Psychological Bulletin*, 130(3), 435–468. doi:10.1037/0033-2909.130.3.435
- Rank, O. (1945). *Will Therapy and truth and reality*. New York, NY: Knopf.
- Romer, J. D., & Jamieson, P. (2003). Introduction to special issue on youth and suicide. *American Behavioral Scientist*, 46, 1131–1135.
- Rosenberg, M. (1965). *Society and the Adolescent Self-Image*. Princeton, NJ: Princeton University Press.
- Rosenberg, M. (1979). *Conceiving the self*. New York, NY: Basic Books.
- Rosenblatt, A., Greenberg, J., Solomon, S., Pyszczynski, T., & Lyon, D. (1989). Evidence for terror management theory: I. The effects of mortality salience on reactions to those who violate or uphold cultural values. *Journal of Personality and Social Psychology*, 57(4), 681–690. doi:10.1037/0022-3514.57.4.681
- Rustad, R. A., Small, J. E., Jobes, D. A., Safer, M. A., & Peterson, R. J. (2003). The impact of rock videos and music with suicidal content on thoughts and attitudes about suicide. *Suicide & Life-Threatening Behavior*, 33(2), 120. doi:10.1521/suli.33.2.120.22776
- Schmeichel, B., Gailliot, M., Filardo, E., McGregor, I., Gitter, S., Baumeister, R., & Carver, C. S. (2009). Terror management theory and self-esteem revisited: The roles of implicit and explicit self-esteem in mortality salience effects. *Journal of Personality and Social Psychology*, 96(5), 1077–1087. doi:10.1037/a0015091
- Schomerus, G., Lucht, M., Holzinger, A., Matschinger, H., Carta, M. G., & Angermeyer, M. C. (2011). The stigma of alcohol dependence compared with other mental disorders: A review of population studies. *Alcohol and Alcoholism* 46(2), 105–12. doi:10.1093/alcalc/agq089
- Solomon, S., Greenberg, J., & Pyszczynski, T. (1991). A terror management theory of social behavior: The psychological functions of self-esteem and cultural worldviews. In L. Berkowitz (Ed), *Advances in experimental social psychology* (Vol. 24, pp. 93–159). New York: Academic Press.
- Solomon, S., Greenberg, J., & Pyszczynski, T. (2004). The cultural animal: Twenty years of terror management theory and research. In J. Greenberg, S. L. Koole, & T. Pyszczynski (Eds.), *Handbook of experimental existential psychology* (pp. 13–34). New York, NY: Guilford Press.
- Sprang, G., & McNeil, J. (1995). *The many faces of bereavement: The nature and treatment of natural, traumatic, and stigmatized grief*. New York: Brunner/Mazel.

- Strickland, J. C., & Smith, M. A. (2013). The effects of social contact on drug use: Behavioral mechanisms controlling drug intake. *Experimental and Clinical Psychopharmacology*, 22(1), 23–34. doi:10.1037/a0034669
- Substance Abuse and Mental Health Services Administration. (2017). *Key substance use and mental health indicators in the United States: Results from the 2016 National Survey on Drug Use and Health* (HHS Publication No. SMA 17-5044, NSDUH Series H-52). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data/>
- Sullivan, D. & Greenberg, J. (2013). *Death in classic and contemporary film: Fade to black*. New York, NY: Palgrave Macmillian.
- Tal-Young, I., Iglewicz, A., Glorioso, D., Lanouette, N., Seay, K., Ilapakurti, M., & Zisook, S. (2012). Suicide bereavement and complicated grief. *Dialogues in Clinical Neuroscience*, 14(2), 177-186.
- Taylor, R., Page, A., Wodak, A., Dudley, M., Munot, S., & Morrell, S. (2018). Confluence of suicide and drug overdose epidemics in young Australian males: Common causality? *BMC public health*, 18(1), 965. doi:10.1186/s12889-018-5875-x
- U.S Department of Justice, Office of Justice Programs. (2015). *Drug offenders in federal prison: Estimates of characteristics based on linked data*. Retrieved from <https://www.bjs.gov/content/pub/pdf/dofp12.pdf>
- U.S. Department of Health and Human Services, National Institute of Health. (2019). *Estimates of funding for various research, condition, and disease categories (RCDC)*. Retrieved from https://report.nih.gov/categorical_spending.aspx
- Vandekerckhove, L. (1998). The decriminalization of suicide in 18th-century Europe. *European Journal of Crime, Criminal Law and Criminal Justice*, 6(3), 252-266.
- Vivolo-Kantor, A. M., Seth, P., Gladden, R. M., Mattson, C. L., Baldwin, G. T., Kite-Powell, A., & Coletta, M. A. (2018). Vital signs: trends in emergency department visits for suspected opioid overdoses—United States, July 2016–September 2017. *Morbidity and Mortality Weekly Report*, 67(9), 279-285.
- Voss, W. D., Kaufman, E., O'Connor, S. S., Comtois, K. A., Connor, K. R., & Ries, R. K. (2013). Preventing addiction related suicide: A pilot study. *Journal of Substance Abuse Treatment*, 44(5), 565–569. <http://doi.org/10.1016/j.jsat.2012.10.006>
- Watson, D., & Clark, L. A. (1994). *The PANAS-X: Manual for the positive and negative affect schedule-expanded form*. Iowa City: University of Iowa. Retrieved from <http://www.psychology.uiowa.edu/Faculty/Watson/Watson.html>
- Weinstock, C. P. (2018, January 11). Drug-overdose suicides may be going undetected. *Reuters*. Retrieved from <https://www.reuters.com/article/us-health-suicide-drug-overdose/drug-overdose-suicides-may-be-going-undetected-idUSKBN1F0319>
- Williams, C. L., Cero, I., Gauthier, J. M., & Witte, T. (2018). Examination of the latent factor structure and construct validity of the stigma of suicide scale-short form. *Death Studies*, 42(10), 616-626. doi:10.1080/07481187.2017.1416431.
- Winterrowd, E., Canetto, S. S., & Benoit, K. (2017). Permissive beliefs and attitudes about older adult suicide: a suicide enabling script? *Aging & Mental Health*, 21(2), 173-181. doi:10.1080/13607863.2015.1099609

- Witte, T. K., Smith, A. R., & Joiner, J. E. (2010). Reason for cautious optimism? Two studies suggesting reduced stigma against suicide. *Journal of Clinical Psychology*, 66(6), 611-626. doi:10.1002/jclp.20691
- Wu, A., Wang, J. Y., & Jia, C. X. (2015). Religion and completed suicide: A meta-analysis. *PloS one*, 10(6), e0131715. doi:10.1371/journal.pone.0131715
- Young, J. (2002). Morals, suicide, and psychiatry: A view from Japan. *Bioethics*, 16, 412-424. doi:10.1111/1467-8519.00299
- Zhang, X., & Wu, L. T. (2014). Suicidal ideation and substance use among adolescents and young adults: A bidirectional relation? *Drug and Alcohol Dependence*, 142, 63–73. doi:10.1016/j.drugalcdep.2014.05.025

VITA

Athena Kheibari

EDUCATION

- July 2014 *Ball State University*
M.A. in Social Psychology
- May 2012 *University of Michigan-Dearborn*
B.A. in Psychology (with Honors and High Distinction)
- May 2009 *Schoolcraft College*
Associates in Arts

PEER-REVIEWED PUBLICATIONS

- Kheibari, A.**, Cerel, J., & Sanford, R. (2018). Attitudes about suicide ideation among suicide loss survivors: A vignette study. *Psychological Reports*.
<https://doi.org/10.1177/0033294118795882>
- Kheibari, A.**, Victor, G., Gutti, S. S., Gutti, S. N., Rao, S., Kitzman, P., & Dignan, M. (2018). Smoking and stroke in Appalachian Kentucky. *Journal of Neurology and Neurobiology*, 1(1), 1-4. doi:10.31487/j.NNB.2018.10.006
- Victor, G., **Kheibari, A.**, Staton-Tindall, M. & Oser, C. (2018). Appalachian women's use of substance abuse treatment: Examining the Behavioral Model for Vulnerable Populations. *Journal of Social Work Practice in Addictions*.
<https://doi.org/10.1080/1533256X.2018.1450264>
- Slovak, K., Pope, N.D., Giger, J.T., & **Kheibari, A.** (2018). An evaluation of the Counseling on Access to Lethal Means (CALM) training with an area agency on aging. *Journal of Gerontological Social Work*. <https://doi.org/10.1080/01634372.2018.1522410>
- Miller, J., Benner, K., **Kheibari, A.**, & Washington, E. (2017). Conceptualizing on-campus support programs for collegiate foster youth and alumni: A plan for action. *Children and Youth Services Review*, 83, 57-67. doi:10.1016/j.childyouth.2017.10.028
- Walker, J. R., Clark, J. J., Monahan, C. E., Shechet, A., Agharkar, B. S., **Kheibari, A.**, & Victor, G. (*In Press*). Can developmental impairments in moral reasoning be mitigating in criminal and capital cases? *Behavioral Sciences & the Law*.

PROFESSIONAL EXPERIENCE

2019-present	Instructor, University of Kentucky College of Social Work
2016-2019	Capital Mitigation Specialist, Kentucky Department of Public Advocacy
2017-2019	Graduate Assistant, University of Kentucky Transformative Learning Faculty Fellows Program
2015 – 2016	Graduate Research Assistant, University of Kentucky College of Social Work
2012-2014	Graduate Assistant, Ball State University, Office of Student Center Programs

HONORS AND AWARDS

2018	Dumez Research Scholarship, University of Kentucky
2015	College of Social Work Research Committee Travel Award, University of Kentucky
2015	Lyell Bussell Travel Award, Ball State University
2014	Aspire Student Travel Award, Ball State University
2014	Graduate Student Recognition Award, Ball State University
2012	Service Learning Certificate, University of Michigan-Dearborn
2012	Distinguished Students in the Department of Behavioral Science Award, University of Michigan-Dearborn
2011-2012	Psi Chi, National Honor Society in Psychology
2010-2011	Dean's List, University of Michigan-Dearborn
2010-2012	Psychology Honors Program, University of Michigan-Dearborn
2006-2008	Michigan Merit Scholarship
2005	Scholarship Competition in Communication Arts, Schoolcraft College