

University of Alberta

Older Adults and Generativity: Developmental, Experimental, and Clinical Advances in Terror
Management Theory

by

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Abstract

Terror Management Theory (TMT) (Greenberg, Pyszczynski, & Solomon, 1986) offers an empirical framework to explore how human beings function despite their fear of death. TMT studies have shown that in order to buffer death anxiety, people strive to meet the standards of their cultural worldview. These studies have been conducted almost exclusively with younger participants. Preliminary research with older adults has indicated that seniors might not respond to TMT experimental manipulations in the same way as their younger counterparts (Maxfield et al., 2007). This dissertation is organized into three papers as well as an introduction and a conclusion. The goal of paper one was to provide a review of TMT research from a developmental perspective. One core theme that emerged from this review was the importance of developmental theory in TMT research when studying participants of various age groups, especially older adults. The purpose of the second paper was to test a developmentally relevant construct that may buffer death anxiety in later life, namely generativity. Drawing from Erikson's (1959) psychosocial stages of development, it was hypothesized that generativity may encompass unique death-denying properties for older adults. One hundred and seventy-nine seniors were recruited to determine if subtle mortality salience inductions would lead participants to rate both their generativity and their child/grandchild success higher than a blatant and control group. As expected, participants who were exposed to subtle death primes rated themselves as having significantly higher levels of generativity than the other two groups but this was not the case with child or grandchild success (with the exception of an item measuring common sense from the grandchild success measure). Explanations for these results are discussed in light of the literature on generativity and TMT. The results from paper two indicated that developmental considerations are integral to TMT design. Finally, in the third paper, the TMT

conceptualization of mental health as it relates to death anxiety was reviewed. The psychotherapy literature regarding the treatment of death anxiety was also described. Four areas for future investigation are proposed that offer possibilities for meaningful theoretical and clinical integration benefitting TMT researchers and psychotherapists alike.

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CHAPTER 1

INTRODUCTION

According to Statistics Canada (2006), due to longer life expectancy, low fertility numbers, and the impact of the generation of baby boomers, the population is aging at an accelerated pace. In fact, the number of seniors (individuals aged 65 and over) in this country increased from 2.4 million to 4.2 million between 1981 and 2005 and is expected to be approximately 9.8 million by the year 2036 (Statistics Canada). This increase in the older adult population is often perceived as problematic by Canadians who worry about the social, political, and economic adjustments that may be required (Northcott, 2005). While the discourse on how to remediate age-related “problems” continues, the wisdom that can be gleaned from this population of elders is often overlooked (Tornstam, 1992). The devastating result is that a growing population of individuals with an extended lifespan and vast life experience are not able to share their wisdom, while a younger population is not able to better understand issues that they themselves will eventually face. If explored in greater depth, age-related issues are likely to illuminate our present understanding of human nature from a more comprehensive, developmental perspective.

A meaningful and profound issue that has gone largely unexplored is how seniors are able to effectively manage what Yalom (2008) describes as the most ubiquitous human fear: the fear of death. Indeed, a number of empirical studies have provided evidence that older adults experience significantly less anxiety surrounding the issue of death than younger individuals despite their temporal propinquity to death (Bengtson, Cuellar, & Ragan, 1977; Fortner & Neimeyer, 1999; Gesser, Wong, & Reker, 1987-1988; Kalish & Reynolds, 1977, Kalish & Johnson, 1972; Rasmussen & Brems, 1996). These descriptive findings have the potential to

serve as an impetus for researchers wanting a deeper understanding of *how* human beings psychologically manage their death anxiety at different points in their development. More specifically, what helps to buffer one's death anxiety in later life? Although this question may appear too expansive to study empirically, a theoretical framework does exist that employs experimental methods to study existential questions about the fear of death. Terror Management Theory (Greenberg, Pyszczynski, & Solomon, 1986) offers a useful framework to explore the reduction in death anxiety in later life. TMT is particularly germane to the study of death anxiety because its basic tenets are rooted in existential philosophy.

Existentialism is a broad philosophical movement that focuses on both the tragic limitations and the possibilities of the human situation. While the philosophical minds that have shaped the movement have a variety of unique perspectives, all existentialists share an interest in how human beings make meaning of their physical and metaphysical world in light of their transient and mysterious existence (Pyszczynski, Greenberg, & Koole, 2004). In 1980, Yalom described four "givens" or "ultimate concerns" that are intrinsically connected to human existence. These four givens include death, freedom, isolation and meaninglessness. Yalom saw death as the "core existential conflict" that engenders overwhelming anxiety but also possibility for growth and creativity if its inevitability is eventually accepted (p. 8).

Cultural anthropologist Ernest Becker, a philosopher in his own right, also viewed death as the primary motivator in human behaviour. In his seminal work, *The Denial of Death*, Becker (1973) highlighted the plight of human beings who, unlike other animals, have the cognitive capacity for awareness regarding their inevitable demise. He argued that in order to function with this terrifying awareness, humans deny death by striving to live heroic, meaningful, and death-transcending lives. More than any other philosophical system, existentialism coupled with

Becker's theory seems to capture the fundamental human condition of transience and mortality (Solomon, Greenberg, & Pyszczynski, 2004). However, it has only been studied empirically since social psychology researchers, building on Becker's insights about the fear of death, developed a testable theory called Terror Management Theory (TMT) (Greenberg et al., 1986). This compelling theory has since been used to explain a range of behaviours including authoritarianism, attraction, nationalism, and prejudice (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994).

Based on Becker's ideas, TMT suggests that humans manage the existential terror surrounding the inevitability of death through two death anxiety buffers: the enhancement of their self-esteem and adherence to their cultural worldview. As a result, people believe their world has order, structure, and meaning (Solomon, Greenberg, Pyszczynski, 1991). Close romantic relationships have recently been established as a third possible death anxiety buffer (Mikulincer, Florian, & Hirschberger, 2004). In the majority of TMT studies, the "mortality salience hypothesis" is tested by having participants take time to consider either their own death or a control topic after which they are provided with an opportunity to defend a person or construct that supports their personal cultural worldview (Solomon et al., 2004). Individuals who have pondered their own demise are more likely to bolster that which enhances and supports their own worldview (or react more negatively towards that which undermines their own worldview) compared to individuals who have considered a neutral topic (Solomon et al., 2004). Through these innovative experimental manipulations, researchers have been able to use the idea of death to identify the primary meaning making systems for individuals based on their unique worldview.

Rationale For This Research

Lifespan Development Considerations

The majority of TMT research to date has been conducted at universities with an age demographic of 18-24 (McCoy, Pyszczynski, Solomon, & Greenberg, 2000). Due to this restricted range in age, identifying developmental trends across the lifespan in TMT has not been commonplace (McCoy et al.). The few studies that have explored age as a primary variable, however, yield results that strongly support the importance of including developmental theory in TMT. In fact, research indicates that after children reach a point in their cognitive development in which death is fully understood (approximately age 11), they respond to death reminders much in the same way as adults (Florian & Mikulincer, 1998). Furthermore, viewing the existing TMT literature through an Eriksonian lens indicates that TMT research with adolescents engenders themes related to Erikson's (1959) conceptualization of identity (e.g. Dechesne, Greenberg, Arndt, & Schimel, 2000; Hirschberger, Florian, Mikulincer, Goldenberg, & Pyszczynski, 2002; Taubman-Ben-Ari, Eherenfreund-Hager, & Findler, 2011; Taubman-Ben-Ari & Findler, 2006) while Eriksonian (1959) themes of intimacy emerge from TMT research with emerging adults (e.g. Florian et al., 2002; Hirschberger, Florian, & Mikulincer, 2002; Hirschberger, Florian, & Mikulincer, 2003; Mikulincer, Florian, Birnbaum, & Malishkevich, 2002; Mikulincer, Florian, & Hirschberger, 2003; Taubman-Ben-Ari, Findler, & Mikulincer, 2002). While Erikson's psychosocial stages are clearly present within TMT literature, research design, execution, and interpretation do not explicitly include developmental theory. Intentional use of developmental theories such as Erikson's is essential to identifying relevant death anxiety buffers across the lifespan. This approach would be particularly useful with an older adult demographic since results with this population seem particularly perplexing.

Including Seniors in TMT Research

Applying TMT methods to an older demographic would allow researchers insight into what brings meaning, purpose, and effective death denial in later life. However, only a handful of studies have included older adults in order to examine the unique responses of seniors to basic TMT manipulations. Prior to these studies, TMT researchers had predicted that TMT processes would vary across the lifespan (McCoy et al, 2000). These predictions appear to be accurate based on preliminary research with older adults (e.g., Bashir, 2007; Bassett and Sonntag, 2010; Bozo, Tunca, and Şimşek, 2009; Fessler and Navarrete, 2005; Maxfield et al., 2007; Taubman-Ben-Ari and Findler, 2005). In general, these studies have revealed unusual results indicating that older adults simply do not respond to TMT manipulations in the same way as their younger counterparts.

Maxfield et al.'s (2007) TMT study with seniors was particularly important as it revealed two important and very challenging findings for future researchers to consider. First, unlike the typical blatant reminders of death that are employed with young adults, subtle reminders of death were found to be more likely to engender worldview defense in older adults. Second, older adults who were exposed to subtle death reminders were significantly more *lenient* towards those who opposed their worldview than those in a control condition. These findings were in stark contrast to the younger adults in Maxfield et al.'s study who responded to both blatant and subtle death reminders in the typical pattern revealed in TMT research: by harsh judgments against those who undermined their worldview.

In trying to make sense of these results, Maxfield et al. (2007) echoed McCoy et al.'s (2000) contention that while younger individuals find solace from death from within the cultural worldview, this youth-oriented worldview becomes increasingly obsolete for older individuals.

The solution for seniors may be to expand their social identity to include generative acts that involve caring for future generations. Perhaps, reasoned Maxfield et al., the tolerance displayed by seniors in their study reflects the increasing importance of legacy and caring for others in later life. According to Maxfield et al., exploring how these developmental changes that occur with age relate to reminders of death should take precedence in future TMT studies.

Psychotherapeutic Implications of TMT

Along with the lack of a developmental theory in TMT research, implications of terror management for mental health professionals also remains vague at best. Despite a growing TMT literature on the conceptualization of various psychological disorders, clinical treatment recommendations for psychotherapists lack much substance or insight. This unfortunate situation is exacerbated by the dichotomy that has formed in the literature regarding whether good mental health rests on one's ability to effectively deny death or courageously explore it head on (Martin et al., 2004). While this debate has supporters on both sides, few have explored ways in which these two camps can be mutually informative, moving beyond an "either/or" argument. One way to facilitate this process would be to examine how existing literature on the clinical treatment of death anxiety both supports and contradicts TMT theory. From this analysis, new insights for future empirical investigations can arise, benefiting both social scientists and psychotherapists alike.

Dissertation Format

This dissertation is a paper format including five chapters. Chapter 1 provides a general introduction to the content explored within the dissertation. It includes a brief review of the literature outlining the relevance of psychosocial theory, aging and psychotherapy to TMT. Chapter 2 reviews TMT research to identify how developmental constructs across the lifespan

have been viewed and studied within this literature. This review illustrates how a developmental perspective can enhance TMT research conceptualization and interpretation. It also highlights the importance of including seniors in TMT research that integrates traditional TMT empirical design with developmental theory.

Based on the recommendations from Chapter 2, Chapter 3 describes such an empirical study in which 179 seniors from several senior centres in Edmonton, Alberta participated. This study addresses what is being called a “glaring omission” in TMT literature (Maxfield et al., 2007) by being among the first to empirically examine older adults’ response to TMT manipulations. Beyond simply including seniors in TMT research, however, this study also addresses McCoy et al. (2000) and Maxfield et al.’s (2007) recommendation to consider Erik Erikson’s psychosocial construct of generativity when conducting TMT research with seniors. Besides its developmental relevance to an older population, generativity is a particularly germane construct for TMT. Specifically, generativity is intimately connected to several important concepts in TMT including symbolic immortality (Kotre, 1984), culture (McAdams, Hart, & Maruna, 1998), and Ernest Becker’s (1973) conceptualization of heroism (McAdams, 1988). Thus, this empirical paper is devoted to the challenge of integrating Erikson’s construct of generativity into a traditional TMT design to see if theoretical consideration of a populations’ psychosocial development corroborates TMT theory.

Chapter 4 explores the current conceptualization of TMT with regards to mental health, challenging the notion that individuals must either confront death or deny it in order to maintain psychological equilibrium. The goal of this paper is to bring psychotherapy literature and TMT together to enrich and substantiate the clinical implications that can be derived from TMT

findings. Finally, in Chapter 5, a summary of both the empirical results and the theoretical insights from the project as a whole are reviewed.

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CHAPTER 2

TERROR MANAGEMENT THEORY AND THE PSYCHOSOCIAL DEVELOPMENT OF DEATH ANXIETY BUFFERS

“The question of human life is: on what level of illusion does one live? This question poses an absolutely new question for the science of mental health, namely: What is the ‘best’ illusion under which to live? Or, what is the most legitimate foolishness? If you are going to talk about life-enhancing illusion, then you can truly try to answer the question of which is ‘best.’ You will have to define ‘best’ in terms that are directly meaningful to man, related to his basic condition and his needs. I think the whole question would be answered in terms of how much freedom, dignity, and hope a given illusion provides. These three things absorb the problem of natural neurosis and turn it to creative living.”

~ Becker, 1973, p. 202

Introduction

In his seminal book *The Denial of Death*, cultural anthropologist Ernest Becker (1973) sought to illustrate how human beings move effectively through life despite their awareness of their own impending death. According to Becker (1973), the illusions we create as human beings are necessary cognitive constructions that work to convince us that we are important members of a meaningful universe. These illusions not only provide a sense of existential purpose and meaning, but they also protect us from the debilitating realization that death is inevitable and that “man is a worm and food for worms” (Becker, 1978, p. 26). From Becker’s detailed analysis of death denial emerged a highly persuasive program of empirical research within social psychology called terror management theory (TMT) (Greenberg, Pyszczynski, & Solomon, 1986). Within the purview of what they referred to as *experimental existentialism*, TMT researchers distilled Becker’s complex theories into testable hypotheses in order to determine which “illusions” seem to be most effective in buffering people’s inherent anxiety regarding death (Pyszczynski, Greenberg, & Koole, 2004).

Despite the impressive advances TMT has made in illustrating how death awareness impacts human behavior, the prevalence of university-aged populations in TMT research calls into question the generalizability of the results to all age groups. Given the extensive contributions of developmental psychology, it would be naive to assume that TMT processes are uniform across all age groups (McCoy, Pyszczynski, Solomon, & Greenberg, 2000). The purposes of this paper are twofold. First, I will review examples of TMT research in which children, adolescents, and young adults were included. Based on these studies, I illustrate how developmental themes have emerged from this research that can serve to contextualize and expand upon existing theoretical components of TMT. Second, given a lack of developmental theory in TMT research with seniors, I describe how using Erikson's psychosocial model can provide a map to guide researchers in designing, executing, and interpreting results with this population in particular. Based on this developmental review, I conclude that death anxiety buffers may undergo psychosocial development over time. This assertion provides researchers with areas for future exploration so that they can begin to identify the "best illusion under which to live" (Becker, 1978, p. 202) given one's position on the psychosocial spectrum.

Terror Management Theory

Drawing from Becker's insights, TMT theorists proposed that human beings face a unique quandary. Unlike other species, humans have undergone evolutionary adaptation in which their vast intelligence allows for heightened self-awareness (Solomon, Greenberg, Pyszczynski, 2004). Although self-awareness contributes to effective functioning both personally and socially, it also comes with the realization that all living animals, including humans, will eventually die (Solomon, et al., 2004). Thus, having both a self-preservation instinct as well as the cognitive capacity for awareness of their inevitable death creates a

cognitive dilemma for humans resulting in death anxiety (Greenberg et al., 1993). According to TMT, the way in which human beings manage to function despite the anxiety that comes from this cognitive dilemma is through the creation of cultural worldviews. Cultural worldviews are shared constructed beliefs about reality that imbue one's existence with a sense of meaning, structure, order, and permanence (Greenberg et al., 1986). By offering an explanation regarding the origin of the universe, prescribing appropriate behaviours and conduct in society, and promising eternal safety and security to those who adhere to religious doctrines, cultural worldviews imbue people with a strong sense of meaning (Solomon et al., 2004). Furthermore, according to TMT, cultural worldview adherence successfully mitigates death concerns by enhancing an individual's self-esteem, the primary psychological indicator that one is successfully contributing to a meaningful existence (Solomon et al., 2004). Thus, according to this theory, effectively managing the terror of death requires two death anxiety buffers, including faith in a meaningful cultural worldview and the belief that one is living up to the standards of value delineated by that worldview (which results in high self-esteem).

In order to attain evidence that self-esteem is associated with a reduction in death anxiety, TMT researchers designed studies to test what they called the *anxiety buffer hypothesis* (Solomon et al., 2004). They reasoned that if self-esteem truly buffers death anxiety, then individuals with higher self-esteem (either innately higher or experimentally manipulated) should have less death anxiety when faced with reminders of death (Solomon et al., 2004). Indeed, results from these studies provided support for this hypothesis as well as compelling insights as to why human beings are so motivated to achieve and maintain self-esteem (e.g., Greenberg et al., 1993; Greenberg et al., 1992).

To further investigate the primary tenets of TMT, researchers also tested the *mortality salience hypothesis* that if enhanced self-esteem and cultural worldview adherence reduce death anxiety, then having people consider their own death (via a mortality salience induction) should increase people's needs for the values and beliefs that protect them as well as increase their need to derogate those who disagree (Solomon et al., 2004). Mortality salience effects have been demonstrated in over 160 experimental studies showing that death reminders (usually having participants write a paragraph on their thoughts, feelings, and predictions regarding their own death) impact a range of feelings, thoughts and behaviors such as aggression, stereotyping, disgust, and conformity (Solomon et al., 2004).

More recently, Schimel, Hayes, Williams, and Jahrig (2007) proposed the *death-thought accessibility hypothesis*, that if a psychological construct protects individuals from death thoughts, then undermining this construct should cause death thoughts to be more accessible. Support has begun to accumulate regarding this third hypothesis as well. For example, a series of studies by Hayes, Schimel, Faucher, and Williams (2008) have demonstrated that threats to self-esteem (via fabricated negative feedback regarding their intelligence, career pursuits, or ability to give a speech to their peers) increased death thoughts. Other studies testing this hypothesis have indicated that when participants were asked to consider separation from a romantic partner (Florian, Mikulincer, & Hirschberger, 2002; Mikulincer, Florian, Birnbaum, & Malishkevich, 2002) they experienced an increase in death thoughts. Notably, results from the studies threatening romantic relationships were so compelling that researchers have urged TMT theorists to consider relationships as a separate and distinct death anxiety buffer from self-esteem and cultural worldview (e.g., Mikulincer, Florian, & Hirschberger, 2003; Wisman & Koole, 2003).

TMT Mechanisms Across the Lifespan

While evidence supporting these specific hypotheses is accumulating, research investigating how TMT mechanisms work at different points of human development is still in its infancy. Despite a dearth of empirical research examining the development of TMT mechanisms across the lifespan, TMT researchers have begun to conceptualize theoretically how death anxiety buffers develop over time. Specifically, Greenberg, Solomon, and Pyszczynski (1997) asserted that all human beings are born with basic unreflective animalistic needs but over time increasingly ground their life in the conviction that they hold value in a universe that is meaningful. This reliance grows stronger as cultural values outlined by influential others (parents, peers, teachers, media) embed the child within a socially constructed world of symbolic meanings. Children gradually learn that in order to feel safe, secure, and valuable, they must live up to their parents' standards, and eventually, the larger culture's standards. This learned association between safety and cultural worldview adherence motivates individuals to continue striving to attain self-esteem by meeting prescribed cultural standards. The result of such striving is psychological equanimity and a reduced level of death anxiety, leading TMT theorists to conclude that self-esteem is a "basic human need" for healthy psychological functioning (Greenberg, Solomon, & Pyszczynski, 1997, p. 69).

TMT Research with Children

From a theoretical perspective, TMT researchers align theoretically with existential philosopher Karl Jaspers's (1994) provocative statement, "Death changes with me" (p. 229), meaning that the understanding of death and its impact must change over the course of a human life cycle. Greenberg, Solomon, and Pyszczynski (1997) urged future researchers to examine how the anxiety-buffering function of self-esteem and cultural worldviews change over time so

that a developmental conceptualization of TMT could be constructed. While there are no longitudinal studies examining TMT's developmental theory to date, there have been some TMT studies that have included participants outside of the university age range. The advantage of such research is that it contributes to an understanding in the field as to whether or not TMT mechanisms depend on how people of various ages conceptualize death.

For example, Florian and Mikulincer (1998) included children in a TMT study to examine whether the cognitive maturation that occurs from ages 7 to 11 results in different responses to death reminders. Drawing on Piaget's (1955) theory of cognitive development, they argued that the critical age for true death understanding to develop occurs during the concrete operational thinking stage (ages 7 through 11). They also drew from Speece and Brent's (1992) research that showed that children must be at least 10 years old in order to grasp all three of the key components of death conceptualization (that death is universal, irreversible, and nonfunctional). Thus, Florian and Mikulincer hypothesized that TMT mechanisms would only be activated by the older children who fully understood the meaning of death.

Using a methodology commonly used with adults, Florian and Mikulincer (1998) had Israeli participants aged 7 or 11 exposed to either a death salient or nonsalient condition and then asked how ready these children felt to interact with other children from either an in-group (Israeli-born) or an out-group (Russian newcomers). They also assessed the potential moderating effects of participants' self-esteem and their mothers' level of dogmatism. While adults in mortality salience conditions tend to value those whose beliefs and behaviors substantiate their own worldview (see Castano, Yzerbyt, Paladino, & Sacchi, 2002), Florian and Mikulincer were curious if this effect occurs prior to a complete cognitive understanding of death (at age 7) or if it only occurs after individuals incur a fuller, more comprehensive understanding

of death (at age 11). The results revealed that 7 year olds in the mortality salience condition showed less acceptance towards both ingroup and outgroup children than those in the control condition. Among the 11 year olds in the mortality salience condition, the typical TMT responses were shown by stronger acceptance of ingroup children and stronger rejection of outgroup children. For both the 7 year olds and the 11 year olds, these effects were mostly found among children with low self-esteem and those whose mothers have high levels of dogmatism. The researchers concluded that children approaching the formal abstract operational stage had an enhanced conceptualization of death and therefore showed reactions to death that were similar to adults. The researchers suggest that the lack of differentiated reactions among the 7 year olds (who rejected both the ingroup and the outgroup) may have reflected an immature conceptualization of death in which avoidance of social interactions altogether are thought to serve a protective function. Thus, according to Florian and Mikulincer, their results implied a sequence in the development of death denial that gradually evolves from concrete to more symbolic TMT mechanisms.

Erikson's Psychosocial Model of Lifelong Development

While Florian and Mikulincer's (1998) study was an important first step in exploring the developmental aspects of TMT mechanisms, it focuses on Piaget's (1955) stages of cognitive development. In this model, the formal operational stage is the final stage and therefore limits future exploration of developmental variation between ages beyond age 11. Furthermore, as a cognitive theory, Piaget's stages do not consider the social or cultural influences on human development, which are key components of TMT. Florian and Mikulincer (1998) addressed this concern briefly by stating that subsequent to attaining abstract thinking, "the terror of death may stem from fundamentally different concerns in different people, each one reflecting the most

important goals and aspirations that a person pursues in life and that aspect of identity that defines him or her” (p. 1111). It is important, then, that TMT researchers use theories that span the entirety of human development when constructing their hypotheses, models that encompass biology and culture and that consider the dangers and opportunities faced at every stage of the life cycle.

The first developmental theory to include human development from birth to death was created in 1950 when Erik Erikson proposed a psychosocial model emphasizing human development as a lifelong process of ego development (Hunt, 2007). Despite the numerous stage theories that followed, Erikson’s theory is considered to be the most consistent, comprehensive, and well-integrated psychosocial framework to date (Bradley, 1997). In fact, researchers have been encouraged to stay within Erikson’s model when conducting empirical research as it allows for a consistent investigation of both individual and social factors that evolve across the lifespan (Bradley, 1997).

While a comprehensive description of Erikson’s theory is beyond the scope of this paper, it is necessary and important to review some of the fundamental components of his theory. First, Erikson (1998) considered his model to be “epigenetic,” (p. 27) meaning that just as in the case of embryonic development, there are critical periods in personality development that must occur within limited windows of opportunity at certain points in time or else both that part of the personality and the system as a whole is adversely impacted. Erikson’s theory involves eight stages, each of which includes two opposing tensions that are syntonic (i.e. positive) and dystonic (i.e. negative) (Erikson, Erikson, & Kivnick, 1986). They range from infancy to late adulthood and include (1) basic trust vs. basic mistrust, (2) autonomy vs. shame and doubt, (3) initiative vs. guilt, (4) industry vs. inferiority, (5) identity vs. role confusion, (6) intimacy vs.

isolation, (7) generativity vs. stagnation, and (8) ego integrity vs. despair (Erikson, 1963).

According to his theory, attaining a balance between the two opposing tensions is necessary for healthy functioning of the ego (Erikson et al., 1986). Individuals who successfully achieve this balance are thought to have psychosocial strengths or virtues that correspond to each of the eight stages, which include (1) hope, (2) will, (3) purpose, (4) competence (5) fidelity, (6) love (7), care, and (8) wisdom (Erikson, 1998). Despite seeing an orderly sequence of stages occurring at an approximate age range, Erikson made clear that earlier stages are not replaced with later stages but become reintegrated into the ego identity in more age-appropriate ways (Erikson et al., 1986).

Beyond Childhood: Themes of Identity and Intimacy in Younger Populations

Erikson's developmental theory is perhaps the best example of an appropriate model for TMT to derive hypotheses regarding the ways in which people cope with death anxiety at every stage of the life cycle. Nevertheless, researchers have not used it for this purpose. In fact, with the exception of Florian and Mikulincer's (1998) study with children, using developmental theory to inform TMT research has not been done in practice. There have been some programs of TMT research that, without overtly mentioning Erikson's theory, have explored some of the developmental themes that were age-appropriate (based on Erikson's model) for the study's sample. Examples of this include TMT studies that explore identity-related themes in adolescents (Erikson's identity vs. role confusion stage) and TMT studies that explore intimacy-related themes in young adults (Erikson's intimacy vs. isolation stage). While these are only a few examples out of hundreds of TMT studies, they do follow the trajectory of human development from a psychosocial perspective. Thus, outlined below are the ways in which TMT has examined developmental themes of identity and intimacy without explicitly relating their

findings to Eriksonian theory. A program of research with seniors is then proposed so that hypotheses can be directly derived from Erikson's psychosocial model. The importance of including a developmental framework when exploring TMT mechanisms across the lifespan is then discussed as well as implications for future research.

TMT Research with Adolescents

Erikson's (1959) conceptualization of the adolescent stage of identity vs. role confusion parallels TMT theory regarding the development of TMT mechanisms throughout childhood. According to Erikson, in the formation of ego identity, individuals undergo a transition in which an emphasis on parental influence shifts to an emphasis on societal influence in identity formation. Erikson argued that this shift in focus from parents to society during adolescence results in an individual who is preoccupied with the perceptions and social judgments of peers. Due to an enhanced desire to "fit in," adolescents wish to feel that they are being successful in a way that is similar to their peers. This results in a sense of belonging, and, ultimately, self-esteem. Erikson believed that self-esteem confirms for individuals that they can find a place within their social milieu and have a meaningful future. This is very similar to the view of self-esteem in TMT.

Although this parallel between TMT and Eriksonian theory has not been explicitly outlined in TMT research, the concept of identity often emerges in the TMT studies that focus on adolescents. Dechesne, Greenberg, Arndt, and Schimel (2000) explored how sports contribute to a sense of social identity and positive self-image in adolescents and young adults. Results from a study of 53 Dutch high school students showed that subsequent to thinking about death, the participants predicted more wins for their team than a control group. This study was replicated in a study with first year American psychology university students when a loss of a favourite

team led participants in a mortality salience condition to feel less optimism for that team and to actually shift their interest to a more successful team. The authors concluded that these findings indicated that identifying with a successful sports team may actually enhance self-esteem, thereby facilitating a reduction in death anxiety.

Hirschberger, Florian, Mikulincer, Goldenberg, and Pyszczynski (2002) explored the paradoxical notion that social status and recognition is so integral to the attenuation of death anxiety, that individuals would even put their life at risk to achieve the symbolic immortality that can arise from risk taking. These researchers were interested in whether mortality salience inductions led Israeli high school students to have higher willingness to engage in the risk-taking behavior of illicit drug use in various situational contexts (drugs offered in a university study, by a stranger at a party, or by a friend). They were also interested to see if the adolescent's self-esteem moderated the relationship between death thoughts and higher risk-taking (as would be predicted by TMT). They found that reminders of death did increase risk-taking appeal for the male participants but had little impact on the female participants. Furthermore, they found that self-esteem was only relevant for male participants in the "drugs offered by a friend" scenario in which participants' social status was at risk. In this scenario, those with low self-esteem appeared to be more defenseless against this kind of threat and therefore responded by more readily giving in to peer pressure when reminded of their own death. Once again, social identity takes precedence with this age group and appears to act as a death anxiety buffer.

Just as risk-taking may be more socially accepted and even sought after by adolescent males, through similar socialization processes, females are often encouraged to be more socially accepting of others. In a recent study by Taubman-Ben-Ari, Eherenfreund-Hager, and Findler (2011), the authors were interested in teen-age attitudes towards other teenagers both with and

without physical disabilities. Participants were assigned to the typical mortality salience condition, a control condition, or a positive affect manipulation (i.e., participants were asked to describe an event that brought happiness and the associated emotions). Results showed that in general, adolescents demonstrated more favourable attitudes towards their peers with a disability than their peers without a disability. Furthermore, girls were found to be more accepting of both disabled and nondisabled peers than their male counterparts. Finally, both the typical mortality salience condition and the new positive affect manipulation led participants to have more favourable attitudes towards people with and without a disability than the control group (although this effect was particularly strong for those in the mortality salience condition). In their discussion, the authors drew from research outlining the process of socialization in which parents encourage girls to foster interpersonal relationships while boys are taught to be both competitive and independent (e.g., Nabors & Larson, 2002). The authors also referred to the tendency for adolescents to conform to social conventions (Hargie, Dickson, & Rainey, 2002), which may have contributed to the fact that participants from all three conditions had more favourable attitudes towards the teenager with a disability.

Finally, in a study by Taubman-Ben-Ari and Findler (2006), the importance of fitting into the general worldview of one's society amongst male Israel high school students was assessed. The researchers were curious to see if a mortality salience manipulation would cause participants to have higher motivational levels for military service as well as higher anticipation levels of the physical hardships associated with serving. As predicted, results revealed that participants who received reminders of death had higher levels of motivation to serve as well as higher levels of anticipation of physical hardships than those in a control condition. However, these effects were only found among individuals with high-self esteem. The authors stated that contrary to

previous findings that self-esteem reduces the need to defend against death concerns, their research suggested that death reminders can also affect individuals with high-self esteem if their reaction contributes to the further enhancement of their self-esteem. They asserted that high self-esteem may not actually shield individuals from death awareness so much as it channels defenses in a variety of ways. Taubman-Ben-Ari and Findler briefly mentioned the possibility of using Erikson's (1963) theory of ego development in facilitating a deeper understanding of their results but quickly dismissed this idea stating that it "could not easily account for the differences found in this study between the mortality salience and control conditions" (p. 157). Indeed, failure to initially derive hypotheses from an integration of TMT and developmental theory and then making post hoc references to Eriksonian theory would likely result in ill-defined conclusions. However, as will be argued herein, Taubman-Ben-Ari and Findler's suggestion to inform TMT results via developmental theory would certainly elucidate and substantiate complex research findings if theoretical integration occurred prior to research design.

TMT Research with Emerging Adults

Just as Eriksonian themes related to identity have emerged in TMT research with adolescents, issues relating to intimacy and isolation (Erikson's sixth stage) have been the focus in several TMT studies with emerging adults. The developmental period of emerging adulthood occurs between adolescence and adulthood (ages 18 – 25) and was coined by Arnett (2000) who built upon the work of Erikson and other developmental theorists. Echoing Erikson's psychosocial theory, Arnett argued that during this period, individuals begin to seek a more long-term and meaningful kind of intimacy. The majority of TMT research has been conducted with university samples within the 18–24 age range (McCoy et al., 2000) and therefore an impressive variety of psychological constructs including relationships have been examined within this age

range (see Solomon et al., 2004 for a review). While a focus on romantic relationships is only one of the many diverse programs of research in TMT, it has established a degree of prominence because of the importance of its findings. In fact, a review of TMT literature that highlights relationships concluded that “close relationships serve as a fundamental buffer of existential anxieties” (Mikulincer, Florian, & Hirschberger, 2004, p. 301). Could it be that TMT studies examining close relationships engender particularly compelling results because most TMT studies involve emerging adults and intimacy is integral to this age demographic? Before reviewing the TMT relationship literature, it is necessary to explore Erikson’s conceptualization of intimacy at this point in the lifespan.

According to Erikson (1959) identity formation is a prerequisite for interpersonal intimacy. As individuals become increasingly sure of themselves and their identity, they naturally begin to seek intimacy with another person. Intimacy strivings become problematic, however, when the fusion between two people results in an individual losing his or her identity. Conversely, just as one can become lost in the fusion with another, Erikson (1998) also describes the difficulty that occurs when one fails to achieve intimacy during this stage. Erikson (1998) defined this problem of isolation as the “core pathology” in early adulthood as it involves the fear of being so separate that one feels he or she is “unrecognized” (p. 70). Thus, from a psychosocial perspective, a balance between one’s own individuality and the connection with another becomes essential for young adults.

Although Erikson (1998) clearly viewed intimacy as essential to human development, he did not fully explain *why* young adults so desperately seek partnership. TMT has sought to answer this question. Drawing from evolutionary theory, TMT notes that close relationships served to protect primates from the attack of a predator, helped them to gather food, and

increased reproduction (Mikulincer et al., 2003). TMT has also been promising in providing an explanatory framework as to why human beings so desperately strive to achieve anxiety-buffering constructs such as self-esteem (Solomon et al., 2004) and intimacy (Mikulincer et al., 2004). As the theoretical impetus for TMT, Becker (1973) believed that striving towards a heroic existence helps human beings feel as though they stand out, that they are special, and most importantly, that they somehow transcend death. Becker saw the Judeo-Christian religion as particularly helpful in giving people the security of being part of a greater whole or divine project in which one's purpose in life and means to immortality are carefully explicated. As religion became increasingly obsolete in secular Western societies, Becker (1973) believed that people began to seek spiritual transcendence and redemption via the "romantic solution" (p. 160). This "solution," claimed Becker, is not without its flaws. Becker argued that as people become increasingly immersed in romantic love, they are at risk of viewing their partners as the measure of whether or not they themselves are "good" or "bad." This results in the individual losing him or herself and becoming a simply a reflex of another human being. This is not unlike Erikson's (1959) view that without "firm self-delineation" (p. 194) in the development of one's identity, an individual is at risk of losing their sense of self in relationship. Thus, both Erikson and Becker viewed intimacy as highly important to human beings but it is Becker who believed the importance of intimacy comes from its ability to facilitate death denial.

In order to test Becker's (1973) theory regarding romantic love and death denial, TMT researchers have recently explored close relationships as a third possible death anxiety buffer (Mikulincer et al., 2004). Building on Becker's theory, Mikulincer, Florian, and Hirschberger (2003) noted that since romantic relationships can result in procreation, human beings have a sense of symbolic permanence and death transcendence by living through their children. Also,

as Mikulincer et al. (2004) explained, individuals in romantic relationships feel as though they are a special part of a social custom that results in feelings of aliveness and ecstasy. While it could be argued that close relationships are simply part of previously established death anxiety buffers (i.e., cultural worldview and self-esteem), Wisman and Koole (2003) found that when participants were faced with the decision to sit alone and defend their worldviews or sit with a group of other people and attack their own worldviews, they chose to sit with the group. The authors stated that since relationships were preferred over worldview defense, it is important to view them as a distinct death anxiety buffer from cultural worldview and self-esteem.

Building on the premise that relationships are indeed a separate death anxiety buffer, Taubman-Ben-Ari, Findler, and Mikulincer (2002) found that reminders of death increased participant's willingness to initiate social interactions and to give more positive evaluations of their own interpersonal competence. With regards to romantic relationships, Mikulincer, Florian, Birnbaum, and Malishkevich (2002) had participants consider either the death of their relationship partner, separation from this partner, or a neutral theme. They found that thoughts relating to both the death of one's partner and separation from one's partner resulted in significantly higher death thoughts than the control condition. A follow-up study compared thoughts of separation from an acquaintance, thoughts of separation from a relationship partner, and thoughts of academic failure. Results from this study indicated that thoughts of separation from participants' close relationship partner resulted in a higher number of death thoughts than thoughts of separation from a mere acquaintance or thoughts of academic failure. Their final study showed that the longer the imagined separation from the close relationship partner, the higher levels of death-thought accessibility became. In all three studies, the impact of separation reminders on the level of death-thought accessibility was moderated by attachment anxiety

scores. Thus, those participants who scored higher on attachment anxiety had particularly strong death-thought accessibility after receiving the separation reminders.

In another study examining romantic relationships among young adults, Florian, Mikulincer, and Hirschberger (2002) found that participants who were exposed to mortality salience inductions reported higher levels of commitment to their partner than those exposed to thoughts of physical pain or neutral (watching television) conditions. They also found that having participants contemplate their romantic commitment to their partner (i.e. focusing on the relationship buffer) caused them to rely less on their worldview defense mechanism, which usually causes harsher judgments of social transgressions. Finally, Florian et al. found that threatening the romantic relationship death-anxiety buffer led to higher death thought accessibility than a control condition.

Hirschberger, Florian, and Mikulincer (2002) found that relationship strivings appear to be so strong that individuals are actually willing to compromise their standards in finding a partner. Specifically, they found that when participants were reminded of death, they were more willing to compromise what they had previously described as their mate selection standards. In another study, Hirschberger, Florian, and Mikulincer (2003) found that when mortality was not made salient, participants strived for intimacy the most when they thought about their partner praising them. Levels of intimacy strivings were the second highest subsequent to thinking about their partner's complaints. Not surprisingly, participants' intimacy strivings were the lowest if they were asked to think about their partner criticizing them. However, participants in a mortality salience condition had equal levels of intimacy striving in the praise, complaint, and criticism conditions. Relationships seem to be so powerful in buffering death anxiety, claimed the researchers, that it appears as though individuals will strive for closeness with their partner,

even if it means being chastised. Given the compelling TMT research on intimacy and relationship striving among populations comprised of young adults, one can conclude that Erikson's psychosocial stage of intimacy vs. isolation during emerging adulthood is also a central component of TMT.

Older Adulthood

Inspired by the work of Erikson, psychosocial theorist McAdams (2000) stated that adults must first figure out how they fit into society. Next, they must commit themselves to others through friendships and marriage. Finally, they reach the psychosocial stage where they can spend much of their time contributing to the wellbeing of future generations. As described thus far, TMT research has also reflected Erikson's developmental trajectory by exploring themes of identity formation with adolescent populations. In the same sense, TMT research with emerging adults has highlighted the central importance of committing to relationships with others, especially to an intimate romantic relationship with a special partner. Surprisingly, despite the fact that the generativity vs. stagnation conflict spans almost the entirety of human beings' adult years (Frager & Fadiman, 1998), a specific program of research that focuses on the generativity construct in mid to late adulthood has not yet been established in TMT. Given Erikson's assertion that generativity is a sign of psychological health and maturity and that several scholars have linked generativity to symbolic immortality (McAdams & Logan, 2004), this line of research would be particularly useful to TMT's overarching goal of illustrating how human beings strive for psychological equanimity and death transcendence despite their mortality awareness. Furthermore, TMT researchers themselves have advocated for future TMT research that incorporates generativity in later life (Maxfield et al., 2007; McCoy et al., 2000). Before reviewing the existing TMT research with older adults and the benefits of incorporating

psychosocial theory, older adulthood is defined in order to demonstrate why it is particularly important to study this demographic within the TMT framework.

There is no set age that determines when an individual is considered to be an older adult although the age of 65 is often considered the age of entry into this stage of life (Erber, 2010). In regards to studying this age demographic in psychology, there has been resistance in the field. Specifically, it has been a longstanding assumption that after adulthood is reached, developmental growth and change no longer occurs (Erber). According to Schroots (1996), until fairly recently, developmental psychologists have viewed human development as peaking in young adulthood and then gradually declining with age. The life-span developmental perspective, however, suggests that the individual and the environment continue to influence and shape one another throughout life (Erber).

Age-related Strengths

Cross-sectional research demonstrating the relative strengths in the aging process is accumulating. For example, Diehl, Coyle, and Labouvie-Vief (1996) found that older adults were better able to utilize coping and defense strategies in stressful situations than younger adults. Lennings (2000) found that seniors are more likely to live in the present than their younger counterparts. Brandtstädter and Greve (1994) argued that seniors undergo adaptive compensatory activities in order to prevent losses in domains considered to be important to their self-concept. Heckhausen (1997) found that previous goals that have become associated with developmental loss are replaced with more satisfying age-appropriate goals in later life. Gross, Carstensen, Pasupathi, & Tsai (1997) found that seniors report less negative emotional experiences than younger individuals while Heckhausen and Krueger (1993) found that older adults have higher levels of optimism and developmental expectations than those who are

younger. Tornstam's (2005) theory of gerotranscendence suggests that seniors become less self-occupied and more attuned to past generations and the sense of universality and cosmic connectedness. In conclusion, the accumulating literature in the area suggests that younger individuals would benefit from learning from seniors who seem to display advanced wisdom, particularly in psychosocial realms (Tomer & Eliason, 2000).

There appear to be age-related strengths in regards the TMT concept of death anxiety as well. Several empirical studies have indicated that older adults experience less death anxiety than younger individuals (Bengtson, Cuellar, & Ragan, 1977; Fortner & Neimeyer, 1999; Gesser, Wong, & Reker, 1987-88; Kalish & Reynolds, 1977, Kalish & Johnson, 1972; Rasmussen & Brems, 1996). These paradoxical findings that older adults appear to be less terrified of death than their younger counterparts despite being closer to death themselves continues to fascinate researchers. This fascination is further heightened given that older people tend to think about their own death significantly more than younger individuals (e.g. Kalish & Reynolds, 1977). Based on these intriguing results regarding death anxiety, one would assume that the TMT community would be particularly interested in studying this age demographic using their sophisticated methodologies.

Ageism and a Growing Population

Beyond theoretical relevance between TMT and aging issues, another reason to pursue further inquiry with older adults is the significant increase in older adults in developed countries. While population aging seems like an important reason to conduct even *more* research with seniors, it may be that the increase in older adults is viewed as more of a problem than an opportunity. Population aging has been described as a new type of ageism in which older people are viewed as a burden to Canadian society, resulting in higher costs for health care, pensions,

and ultimately, economic collapse (Novak & Campbell, 2006). Despite substantial research that indicates that the majority of older adults are happy, healthy, and living independently, aging continues to be viewed as a “social problem” (Northcott, 2005, p. 14). In fact, ninety-one percent of Canadians admitted to demonstrating at least one act of ageism (Palmore, 2004). This startling statistic provides support for those who have suggested that stereotypes perpetuating ageist behaviour have become deeply ingrained in human perceptions (e.g. Angus & Reeve, 2006).

Not surprisingly, the terror management perspective conceptualizes ageist behaviour as being related to an unconscious, underlying, and ever-present fear of death. For example, Greenberg, Schimel, and Martens (2002) drew upon Susanne Langer’s (1982) insight that people convince themselves that they can somehow avoid deadly situations such as natural disasters, car accidents, and plane crashes but since age is inevitable, elderly people represent the most threatening reminder of the inevitability of death (Greenberg et al.). Thus, this intimate connection to seniors is unlike any other connection to an out-group and results in a uniquely heightened sense of death awareness (Martens, Greenberg, Schimel, & Landau, 2004). According to Greenberg et al., resulting behaviour includes proximal defenses such as avoidance of seniors through physical distance, removal from the workplace, and placement into retirement and nursing communities. Distal defenses may also occur such as enhancing one’s self-esteem through deprecating comments and downward social comparison with the older “other.” In this way, the younger individual can convince him or herself that older people are much different from themselves and their worldview.

Research designed to test these ideas have supported the concept of ageism with the TMT framework. Benton, Christopher, and Walter (2007) found that concern with physical

appearance among individuals aged 18 to 86 predicted tangible death anxiety while the fear of loss associated with aging predicted both tangible and existential death anxiety. Martens et al. (2004) not only provided evidence that people between 18 and 21 years old associate seniors with death, but also that a reminder of death will result in the participants viewing seniors less positively to the degree that they will exaggerate the attitudinal differences between themselves and the elderly.

Including Older Adults in Scientific Research

According to Erber (2010), three reasons for studying older adults include scientific, personal, and practical rationales. Each of these components has significant relevance to TMT research in particular. In regards to science, Erber argued that information regarding adult development has been based primarily on findings with younger populations. As will be described later, this is indeed the case in TMT where only a handful of studies out of over 400 have included seniors. Personal reasons, claim Erber, include the importance of providing younger generations with insight in regards to the developmental changes they themselves can expect to experience. From a TMT perspective, managing one's anxiety regarding death is essential to mental health (Pyszczynski, Solomon, & Greenberg, 2003) and a substantial amount of research has indicated that death anxiety decreases with age (Fortner & Neimeyer, 1999). Thus, identifying how seniors effectively buffer their own death anxiety will undoubtedly assist younger generations in identifying how to facilitate this in themselves both in their present and in their future. Finally, Erber stated that the practical importance of including older adults in research can no longer be overlooked when considering the rapid growth in the older adult population. TMT researchers too must consider that continuing to generalize results from younger populations to a growing older demographic will inhibit the possibility of deciphering

issues that are of particular importance to a vast number of seniors. Next, studies in which older adults were included within the TMT paradigm are described.

TMT Research and Older Adults

Despite strong arguments for the inclusion of seniors in research, only a few published TMT studies that have included older adults. Topics of exploration have included judgments of moral transgressors (Bashir, 2007; Maxfield et al., 2007), health seeking behaviors (Bozo, Tunca, & Şimşek, 2009; Taubman-Ben-Ari & Findler, 2005), and death disgust (Bassett & Sonntag, 2010; Fessler & Navarrete, 2005). Studies have also been conducted regarding old age as a death reminder to both young and old adults (Benton, Christopher, & Walter, 2007; Martens, Greenberg, Schimel, & Landau, 2004). Before the research mentioned above had been conducted with older adults, McCoy et al. (2000) concluded from their preliminary research with seniors that the defensive buffers that are used by people in their early to mid-life may be less effective in managing death anxiety in older adults. They argued that the worldviews of older adults becoming increasingly challenged and are gradually replaced with newer, modern ideas. This makes deriving self-esteem from an increasingly obsolete worldview next to impossible for seniors. However, McCoy et al. (2000) argued that a kind of “psychological reorganization” (p. 46) occurs for older adults that offer new ways for self-esteem attainment and dealing with death awareness. One way they believed seniors do this is by lessening their dependence on social validation, broadening their existing worldview, and shifting their concern to the wellbeing of others.

Research to date supports McCoy et al.’s (2000) theory that seniors use different terror management mechanisms than younger adults. This makes sense since TMT is a theory explaining management of death anxiety and a substantial body of research has indicated that

older adults experience less death anxiety than younger individuals (Bengtson, Cuellar, & Ragan, 1977; Fortner & Neimeyer, 1999; Gesser, Wong, & Reker, 1987–1988; Kalish & Reynolds, 1977; Kalish & Johnson, 1972; Rasmussen & Brems, 1996). Perhaps, as Maxfield et al. (2007) suggested, seniors have habituated to the thought of their own demise, resulting in less fear when faced with death reminders. Thus, it may be due to the reduced levels of death anxiety in older adults that much of the TMT research with older adults has engendered results that run counter to patterns often seen in younger participants.

For example, Bozo, Tunca, and Şimşek (2009) found that older adults responded to blatant death reminders with fewer health-promoting behaviors than younger adults despite the deterioration in health that comes with aging. Similarly, Taubman-Ben-Ari and Findler (2005) explored health-seeking behaviors across the lifespan and found that when in a proximal mode of defense (consciously attempting to remove death thoughts through distraction or cognitive reasoning), both young and middle-aged adults responded to death reminders with higher levels of health promotion than a control group. In contrast, older adults in a mortality salience condition were less inclined to pursue health-promoting behaviors than older adults in a control condition. When in an unconscious distal defense mode (symbolically conceptualizing oneself via the cultural worldview to facilitate death denial), middle-aged adults in the mortality condition showed an increase in desire for health promotion compared to a control group, while younger adults showed no difference between groups. Older adults in the mortality salience condition who had high self-esteem were unaffected by death reminders whereas those with low self esteem did show higher levels of health promotion than the control group. Fessler and Navarrete (2005) found that disgust sensitivity regarding death declines with age and Bassett and Sonntag (2010) corroborated these findings as young adults in their study had higher levels of

disgust than an older adults group and a mortuary students group. Finally, a dissertation by Bashir (2007) and a published study by Maxfield et al. (2007) found that unlike the common pattern with young adults, older adults do not respond to a fictional moral transgressor with harsher judgments after a blatant death reminder. As Maxfield et al. discovered in a follow-up study, more subtle reminders of death seem to engender a TMT response in seniors, albeit not the kind of response that would be expected. Whereas a young adult comparison group responded to subtle death responses with the expected harsher judgments towards moral transgressors, older adults had a significantly more lenient response than a control group. Thus, it appears as though existing TMT research with seniors has produced results that do not appear consistent with those results commonly found with younger populations.

Designing TMT Research With Seniors Through a Developmental Lens

The accumulating research with TMT and seniors is providing compelling support for McCoy et al.'s (2000) conceptualization of aging as a reorganization of the self over time. It is not surprising that seniors are responding to TMT manipulations differently than younger participants since older adults cannot easily derive self-esteem from a youth-focused cultural worldview (Maxfield et al., 2007). Even romantic relationships have likely evolved to a different kind of mature, companionate relationship in which feelings of ecstasy and self-transcendence are not as common. Although older adults' cultural worldview may be increasingly obsolete in modern society, it does not mean that they do not work to uphold the cultural worldview of younger generations. In fact, one could argue that viewed from the perspective of Erikson's psychosocial theory, the psychological reorganization that occurs for seniors shifts their focus from self to future generations with their contribution to others resulting in enhanced self-esteem and reduced death anxiety. If TMT researchers seek to truly capture the

nature and function of the death anxiety buffer over time, they must not only include individuals of all ages but also strongly consider developmental theory.

Older Adults and Generativity

According to Erikson, Erikson, and Kivnick (1986), it is the very essence of generativity that makes of the stages of development a life *cycle* whereby each generation is connected to the generation that provided it life as well as the generation whose life it is responsible for. If one gives up on this responsibility (which sometimes happens when certain activities are no longer feasible in old age), Erikson et al. believed the individual is left with feelings of stagnation. However, if an individual is able to resolve the inner conflict between generativity and stagnation, the elder may be able to express what Erikson et al. (1986) called “grand-generativity” (p. 74). This form of caring transcends direct responsibility for sustaining the world and includes a more global concern for generations of the present and future as well as the world. Grand-generativity provides a sense of immortality for those closer to end of life when it properly integrates abstract, more global concern with direct concern for one’s loved ones (Erikson et al., 1986).

In order to explore the construct of generativity within the TMT framework, a study with older adults is proposed to determine if this population truly differs from younger people in their response to TMT manipulations *or* if previous studies with seniors have simply not incorporated key developmental constructs that are germane to this age group. In choosing a construct, it is important that it be both embedded in developmental theory and age-relevant. As was the case with *identity* in adolescents and *intimacy* in emerging adults, it is also necessary that the construct have death-denying features based on the fundamental principles of TMT. Specifically, the construct would have to provide the individual with a sense of belonging within

a meaningful cultural worldview as well as a sense that he or she is a valuable and important member of that worldview. As Solomon, Greenberg, and Pyszczynski (1991) made clear, “No adequate explanation of culture and/or of human behavior can be complete without recognition of its death-denying symbolic qualities” (p. 22). Following the trajectory of Eriksonian theory, generativity is considered an important construct to investigate within the context of a TMT study with older adults. Unlike intelligence or personality traits, generativity is believed to “improve” as one ages and is multifaceted in terms of how it is conceptualized and assessed (McAdams, de St. Aubin, & Logan, 1993, p. 221). Thus, researchers who have built empirical programs of research based on Erikson’s theory have described his construct of generativity as one of the richest developmental constructs ever catalogued in adult personality development (McAdams et al., 1993). Based on these insights, it is necessary to conduct research in which a construct that is considered developmentally relevant for seniors such as generativity is integrated into a TMT research design.

The Psychosocial Development of Death Anxiety Buffers: A New Frontier in TMT

In this review we outlined the importance of considering developmental theory in the design, execution, and interpretation of research studies based on Terror Management Theory. While age is a variable that is included in the majority of TMT research, as Neugarten (1977) argued, age alone is an “empty variable” (p. 633) that does not clearly capture the biological and social events that occur over time and result in a change in an individual’s personality. It has been over a decade since prominent figures in TMT have urged the next generation of researchers in this area to explore “the developmental processes through which self-esteem and cultural worldviews acquire their anxiety-buffering function, and how this function may evolve across the lifespan” (Greenberg et al., 1997). While several studies have incorporated age-

appropriate Eriksonian themes in examining TMT mechanisms, future researchers need to be more intentional in the incorporation of developmental theory into research design. Along with a study that includes Erikson's construct of generativity with an older adult sample, further exploration of lifespan development through cross-sectional and longitudinal research would allow the TMT community to empirically test some of their primary theoretical assumptions, particularly those regarding TMT mechanisms across the lifespan.

While Erikson's psychosocial model may appear simplistic with its eight carefully outlined stages, a deeper understanding of his expansive theoretical developments reveals a highly sophisticated theory in which a variety of TMT hypotheses may be derived. In fact, Erikson's theory is so comprehensive that striking parallels can be drawn between his model and TMT. For example, TMT researchers have described the self as involving two motivational systems: the TMT, defensive system and the "growth enrichment system" (Greenberg et al., 1997, p. 129) which involves striving to adapt and change throughout the lifespan in ways that provide pleasure and engagement. While one system emphasizes controlling terror and the other emphasizes expansion and growth, these two systems are both necessary for successful adaptation and work in conjunction to guide human behaviour and development. According to Greenberg et al. (1997), an emphasis on one system over the other is considered to be ultimately maladaptive for the organism. Similarly, Erikson's syntonic and dystonic dispositions are two contrasting tendencies from which psychosocial strengths emerge (Erikson et al., 1986). Just as with the motivational systems in TMT, vital involvement depends on a balance between the two opposing poles but Erikson's model is much more specific regarding which contrasting elements of psychosocial development occur at certain points across the lifespan. Thus, TMT researchers

interested in exploring motivational systems over time would benefit from integrating Erikson's model of psychosocial development.

Another parallel between TMT and Eriksonian theory is the immortality strivings embedded within each of Erikson's stages, particularly generativity. According to Erikson et al. (1986), as the older individual reviews past experiences and engages in continuous reintegration of previous stages into their sense of self, an existential identity emerges that allows one to more easily face death. As Erikson (1963) stated, "In such final consolidation, death loses its sting" (p. 268). This statement reflects the empirical research describing the decline in death anxiety with age (e.g., Fortner & Neimeyer, 1999). It also reflects the powerful concept of generativity and Becker's (1973) concluding statement that "the most that any one of us can seem to do is to fashion something—an object or ourselves—and drop it into the confusion, make an offering of it, so to speak, to the life force" (p. 285). By integrating psychosocial development with terror management theory, future researchers may begin to view the developmental trajectory of death anxiety with greater clarity and insight in a way that benefits individuals across the lifespan.

Conclusion

The current investigation provided a review of TMT research with populations of various age groups including children, adolescents, emerging adults, and older adults. Based on the research of Florian and Mikulincer (1998), who included children in their TMT design, it appears as though human beings must first fully conceptualize death (at approximately age 11) before symbolic TMT mechanisms are employed. By incorporating Piaget's (1955) theory of cognitive development, Florian and Mikulincer's influential study highlighted the importance of a) including participants from a demographic outside of early adulthood and b) the advantages of using development theory in both research design and interpretation. Moving ahead in the

lifespan, although studies were conducted with adolescents and emerging adults in TMT, the use of lifespan developmental theory was not employed. However, juxtaposing those studies with Erikson's psychosocial model revealed that the relevant Eriksonian stages arose in both adolescents and emerging adult populations. More specifically, themes of identity emerged from studies that included adolescents while themes of intimacy emerged from studies with young adults. It is argued that developing hypotheses that consider developmental theory would enhance research design as well as a more thorough understanding of the results. A review of the perplexing results with older adults strengthens this argument. The few research studies to date that have included seniors have engendered results that have led researchers to conclude that perhaps seniors don't respond to TMT manipulations like younger people. However, it was proposed herein that before drawing this conclusion, it is important to first design a study that incorporates a developmental construct that is meaningful to older adults specifically. Conducting a TMT study with older adults in which Erikson's construct of generativity is examined is considered an important next step in examining the psychosocial development of death anxiety buffers.

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CHAPTER 3

OLDER ADULTS AND GENERATIVITY IN TERROR MANAGEMENT THEORY

“The cogwheeling stages of childhood and adulthood are, as we can see in conclusion, truly a system of generation and regeneration—for into the system emerge those societal values to which the institutions and traditions of society attempt to give unity and permanence.”

~ Erik Erikson (1964, p. 152)

Introduction

Once all the baby boomers have reached the age of 65 in the year 2031, Canadian seniors are expected to represent 23 to 25% of the total population. In fact, within the next decade, seniors are projected to outnumber children aged 14 years old and younger for the first time in Canadian history (Statistics Canada, 2011). While the increase in the older adult population causes many Canadians to be concerned about the potential economic, social, and political adaptations that may be required, many seniors appear to thrive and maintain healthy lifestyles (Northcott, 2005). The majority of seniors aged 65 to 74 actually report having good health, engage in physical activities, and spend the largest portion of each day enjoying leisure activities (Statistics Canada, 2008). Furthermore, 6 out of 10 seniors in Canada report very little to no stress in their lives in comparison to 3 out of 10 individuals between the ages of 25 and 54 (Statistics Canada, 2008). Perhaps one of the most profound ways in which seniors are uniquely different from younger populations is the significant decrease in death anxiety for this population despite being in the final stages of their lifespan (Bengtson, Cuellar, & Ragan, 1977; Fortner & Neimeyer, 1999; Gesser, Wong, & Reker, 1987-1988; Kalish & Reynolds, 1977, Kalish & Johnson, 1972; Rasmussen & Brems, 1996). Terror Management Theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986) offers a useful framework to explore this counter-intuitive phenomenon.

According to TMT, humans manage existential terror surrounding the inevitability of death through two death anxiety buffers: self-esteem enhancement and cultural worldview adherence. These psychological structures enable people to believe their world has order, structure, and meaning. Studies have consistently shown that when people think about their own death, they become increasingly invested in attaining higher self-esteem and behave in ways that are consistent with their cultural worldview. However, these studies have been conducted primarily with young participants. Preliminary research with older adults has indicated that seniors do not respond to TMT manipulations in the same way as their younger counterparts (e.g. Maxfield et al., 2007; Taubman-Ben-Ari & Findler, 2005).

While younger individuals find solace from their inherent death anxiety by adhering to their cultural worldview, this youth-oriented worldview does not appear to have the same anxiety-buffering properties in later life. McCoy, Pyszczynski, Solomon, and Greenberg (2000) and Maxfield et al. (2007) noted this incongruence between what were once considered universal responses to death reminders and the perplexing responses of an older adult demographic. This anomaly led to the exploration of a range of developmentally relevant constructs in older adulthood that may provide a sense of death transcendence. The following study examines the proposition that Erik Erikson's (1963) psychosocial construct of generativity may explain unique death-denying strategies for older adults.

Terror Management Theory

Terror Management Theory was born out of the ideas of cultural anthropologist Ernest Becker (1973). At the heart of TMT theory lies Becker's existential contention that unlike other animals, human beings have an awareness of their inevitable death (Solomon, Greenberg, & Pyszczynski, 2004). According to TMT, it is the juxtaposition of an instinctive drive towards

self-preservation and the cognitive capacity for death awareness that engenders paralyzing fear and death anxiety in human beings (Greenberg et al., 1993). Thus, while enhanced cognitive capacities (particularly self-awareness) allows for high levels of planning and cooperation among human beings, these very cognitive abilities also render humans uniquely aware of their imminent death. In order to effectively preserve the benefits of self-conscious thought despite an ongoing fear of death, TMT researchers have argued that human beings *use* their advanced cognitive abilities to generate a symbolic construction of reality that provides them with a sense of order, permanence, and meaning in life (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). In essence, TMT posits that humans function with the terrifying awareness of death by strengthening their faith in the cultural worldview and enhancing their personal self-esteem by striving to meet the standards delineated by that worldview (Solomon et al., 2004). These two interconnected elements are referred to as the *primary death anxiety buffers* in TMT (Solomon, Greenberg, & Pyszczynski, 1991).

Over the past few decades, these intriguing ideas have led to extensive empirical research based on two fundamental hypotheses (Solomon et al., 2004). First, TMT theorists proposed the *self-esteem as an anxiety buffer hypothesis* that states: if self-esteem is effective in buffering an individual's death anxiety, high self-esteem should decrease the anxiety that occurs as a response to a threat (Solomon et al., 2004). This hypothesis has gained support in studies comparing participants with self-esteem that is dispositionally high (or is experimentally manipulated to be high) with control groups (e.g., Greenberg et al., 1992; Greenberg et al., 1993). For example, Greenberg et al. (1992) found that raising people's self-esteem via fabricated personality feedback resulted in less psychological anxiety in response to a graphic video on death compared to those whose self-esteem was not manipulated. In a follow-up study, Greenberg et al. (1992)

found that these results generalized to physiological arousal as well. Specifically, subjects who had experimentally increased self-esteem were unaffected in terms of their physiological arousal (as assessed by skin conductance) in response to a threat of physical shock. In contrast, participants in a neutral self-esteem group demonstrated clear increases in physiological arousal.

The second hypothesis is the *mortality salience hypothesis* which states that if self-esteem and cultural worldview beliefs function to reduce anxiety associated with death awareness, then having individuals think about their own death (employing a “mortality salience” or “MS” induction) should lead people to cling even more tightly to those anxiety reducing beliefs while rejecting dissimilar beliefs (Solomon et al., 2004). This line of research initially focused on how these basic tenets are expressed interpersonally through agreement with, and fondness for, those who uphold one’s beliefs and dislike for those who challenge them (e.g. Greenberg et al., 1990; Mikulincer & Florian, 1997; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989). Along with these attitudinal effects resulting from death reminders, behavioral changes have also been observed in participants (Solomon et al., 2004). For example, studies have shown that when compared to a control group, participants take longer to use cultural icons like an American flag or crucifix in a blasphemous way (Greenberg, Porteus, Simon, Pyszczynski, & Solomon, 1995) and administer more hot sauce to those thought to attack one’s political views (McGregor et al., 1998). Over 160 published studies in over 11 different countries to date have demonstrated the impact of MS on a range of human thoughts, feelings, behaviours, and activities (Solomon et al., 2004).

An extension of the MS hypothesis was recently developed when several studies confirmed that MS inductions increase self-esteem strivings in areas that are specifically valued by certain populations (Solomon et al., 2004). Examples include MS increasing risky driving

among participants whose driving ability contributes to their self-esteem (Taubman-Ben-Ari, Florian, and Mikulincer, 1999), MS increasing body identification among those with high body self-esteem (Goldenberg, McCoy, Pyszczynski, Greenberg, and Solomon, 2000), and MS even increasing physical strength as indicated on a hand dynamometer for individuals whose physical strength was a valued component of their self-esteem (Peters, Greenberg, Williams, and Schneider, 2005).

Finally, Schimel, Hayes, Williams, and Jahrig (2007) proposed the *death-thought accessibility hypothesis*. These authors reasoned that if a psychological construct such as self-esteem buffers individuals' death thoughts, then destabilizing this construct should result in heightened death thoughts. Initial support for this hypothesis has been demonstrated in a series of studies by Hayes, Schimel, Faucher, and Williams (2008) who found that threats to self-esteem such as fictitious negative feedback regarding intelligence, career pursuits, or public speaking ability resulted in heightened levels of death thoughts.

Becker's (1973) assertion that romance had replaced religion as a way of both transcending and denying death has also been studied within the purview of TMT. In fact, the research in this area has been so compelling that TMT researchers have concluded that romantic relationships are a death-anxiety buffer along with self-esteem strivings and cultural worldview adherence (Mikulincer, Florian, & Hirschberger, 2004). This makes intuitive sense because along with the feelings of ecstasy and aliveness that accompany passionate love (Mikulincer et al., 2004), close relationships often involve procreation, which generates a sense that one will live beyond death through one's children (Mikulincer, Florian, & Hirschberger, 2003). Support for a possible relationship buffer was described by Florian, Mikulincer, and Hirschberger (2002) who found that subsequent to MS inductions, participants reported higher levels of commitment

to their romantic partners than did those who were not asked to consider their own death.

Mikulincer, Florian, Birnbaum, and Mashlikovitz (2002) found that threatening a romantic relationship (the anxiety buffer) by having participants imagine a separation from their partner, heightened death-thought accessibility. Finally, Hirschberger, Florian, and Mikulincer (2003) discovered that thoughts of death motivated people to attain closeness in a relationship despite being chastised by their partner. They concluded that the cost of losing a mate in the face of mortality was too high for these individuals, even when their self-esteem and worldview were at stake.

Terror Management Theory and Older Adults

Very few TMT researchers have actually included older adults in their samples. Within this substantial body of research, the majority of TMT participant samples have included younger children, young adults, and middle-aged adults (Maxfield et al., 2007). Among the over 400 TMT studies existing to date, only a handful of studies were identified by the current researcher that isolated and placed importance on the variable of age using an older adult sample. In each of these studies, older adults did not show the same pattern of defenses against death awareness that have been found with younger participants.

For example, Taubman-Ben-Ari and Findler (2005) were interested in how death-denying psychological mechanisms influence health-seeking behaviours across the lifespan. They were particularly interested in what TMT researchers refer to as the dual process theory which states that people defend against conscious thoughts of death via proximal defenses (e.g., direct and logical attempts to remove death thoughts such as distracting oneself or reasoning that death is in the distant future) while unconscious thoughts of death are defended against via distal defenses (e.g., symbolic conceptualizations of one's self and reality that are designated by the cultural

worldview) (Pyszczynski, Greenberg, & Solomon, 1999). While proximal defenses occur directly after being exposed to death thoughts, distal defenses emerge after a delay, once the death thoughts fall below conscious awareness (Pyszczynski et al., 1999).

Using both proximal and distal modes in their investigation, Taubman-Ben-Ari and Findler (2005) examined how younger (18-35), middle-aged (36-50), and older adults (51-65), responded to a self-report scale measuring health-promoting behaviours after a MS or control induction. They found that when in the proximal mode (no distraction), the young and middle-aged adults responded to the MS condition by demonstrating a stronger desire to promote their health than those in the control condition. Surprisingly, older adults in the MS condition were less inclined to engage in health promoting behaviours than those in the control condition. When in the distal or unconscious mode, MS led the middle-aged adults to have increased desire for health promotion compared to the control condition but results did not reflect this effect with the younger adults. In the older adult age group, individuals with low self-esteem in the MS group had higher levels of health promotion than the control group. However, older adults with high self-esteem in the MS group were unaffected by death reminders and therefore their health promotion scores were not significantly different from the control group's. The researchers concluded that older adults (particularly those with higher self-esteem) were likely to be more comfortable with thoughts of death and may not have felt as much of a need to improve their health while those with less self-esteem were motivated to improve their health in order to symbolically buy more time and have more meaningful life experiences. In a related study by Bozo, Tunca, and Şimşek (2009), a young adult group and an older adult group were compared in their health-promoting responses to either a MS condition or control condition. Results indicated that younger adults in the MS condition reported higher levels of health-promoting

behaviors than the older adults in the MS condition. Young adults in the control condition reported less health promoting behaviors than the seniors in the control condition. Finally, there was no difference in health promoting behaviors between older adults in the experimental and control conditions.

In a study examining death disgust, Fessler and Navarrete (2005) found that instead of disgust sensitivity (in response to death related stimuli) increasing with age as one might predict, disgust regarding death actually declined with age. The researchers concluded that repeated exposure to death-related stimuli may cause habituation to such material with age. In a related study, Bassett and Sonntag (2010) were interested in the effects of mortality salience on university students, older adults, and mortuary students. Their findings reflected those of Fessler and Navarrete's as the younger university population reported higher levels of disgust than both the older adults and the mortuary students. The older adults and mortuary students did not significantly differ in disgust levels, again suggesting that exposure to death may be a key factor in the different responses between age groups.

In 2007, Bashir conducted doctoral research that attempted to replicate classic TMT findings in order to determine whether older adults respond to mortality salience manipulations by prescribing harsher judgments to fictitious moral transgressors than those in a control group. This finding is common in TMT studies with younger adults and supports a foundational TMT principle that reminders of death cause people to have more negative reactions to people who challenge their worldview than to people who support it. Bashir hypothesized that the effect death thoughts have on judgments will depend on both gender and age group (old-old and young-old). No significant judgment differences were found between the experimental and

control condition and neither gender nor age group moderated this relationship. Bashir concluded that evidence continues to be lacking that standard TMT hypotheses apply to older adults.

Maxfield et al. (2007) were similarly interested in whether seniors responded to moral transgressors differently than young adults after reminders of death. Like Bashir (2007), they implemented a standard TMT design that has consistently found that MS leads younger adults to provide harsher judgments when presented with a fictitious scenario of moral transgressions. Unlike Bashir, the researchers included undergraduates as a comparative sample. In their first of two studies, Maxfield et al. investigated the effect of MS on both younger and older adults' judgments of moral transgressions. As expected, when the younger adults were reminded of death, they displayed harsher judgments of the transgressions than when they were not reminded of death. As was found with Bashir, this significant increase in harsh judgments due to MS was not seen with the older adults. In the second study, the authors reasoned that more subtle reminders of death might be more likely to impact moral judgments in seniors than blatant reminders based on previous TMT research (see Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994). This seemed particularly fitting for seniors who are frequently consciously reminded of death and therefore, on a conscious level, may have habituated to the problem of death or somehow resolved it through other means (Maxfield et al., 2007). Results from this study were surprising. Whereas the young adults once again responded to subtle death reminders with harsher judgments, the older adults actually displayed significantly more lenient judgments than their neutral group when faced with the subtle death reminders. The authors concluded that despite older adults' ability to maintain lower levels of death anxiety on a conscious level, the terror of death appears to still influence their lives on a subtle, perhaps more unconscious level, albeit not in the direction expected.

In trying to explain why older adults responded to death reminders by being more *lenient* towards the moral transgressors, Maxfield et al. (2007) looked to previous literature and suggested that perhaps older adults tend to be more receptive to entities producing positive rather than negative affect in their older years (e.g., Mroczek & Kolarz, 1998). Another possibility is that older adults are more capable of making complex attributions that include situational factors (e.g., Blanchard-Fields, 1994). This ability might assist seniors in considering “mitigating circumstances” (Maxfield et al., 2007, p. 351) from which more lenient judgments can arise.

Developmental Changes in Later Life

TMT studies that have focused on older adults were inspired in part by an earlier speculative analysis by McCoy et al. (2000) who brought together TMT theory and relevant aging literature in order to provide unique insights on successful aging. Although they had limited data from which to draw conclusions, the authors hypothesized that TMT processes would be different across the lifespan. They further theorized that there are two factors that act as an impetus for seniors to engage in a kind of psychological reorganization that helps them to cope with their impending death and maintain self-esteem as a protective buffer. The first motivating factor involves an increase in the awareness that death is drawing near. The second is an age-related decrease in the success of previous coping mechanisms. Specifically, for a variety of age-related reasons, many seniors are unable to meet the standards that had previously imbued their existence with meaning. Others find that their cultural worldviews are becoming obsolete and are no longer valued by mainstream society.

Drawing from psychological literature, McCoy et al. (2000) maintained that a reinvention of self might occur in later life. This reinvention involves a variety of coping behaviours that fall under the purview of TMT. These behaviours include defending their existing worldview,

minimizing contact with those who have a conflicting worldview (i.e., socioemotional selectivity theory, Carstensen, 1991), adjusting previous standards so they are more attainable, and cognitive reframing (such as being more optimistic and engaging in downward comparisons). The authors also saw gaining independence from social validation and creating a more individualized worldview as contributing to a reorganization of the older self. Finally, they described psychological integration via life-review and broadening their social identity via generativity as essential to this transformative developmental process.

Shortly after the publication of McCoy et al.'s (2000) theoretical article, Cicirelli (2002) sought to examine TMT variables in relation to a fear of death measure with a population of older adults. Cicirelli found that death anxiety correlated significantly with several variables associated with cultural worldview. More specifically, death anxiety (particularly the fear of the unknown) was negatively related to social support, religiosity, high SES, self-esteem and externality. Interestingly, his TMT-inspired hypothesis that higher self-esteem would be related to less fear of death gleaned only partial support via a relatively weak correlation and was not substantiated as a significant predictor of death anxiety in a regression analysis. Drawing upon the insights of McCoy et al. (2000), Cicirelli reasoned that perhaps self-esteem is not an important variable in reducing death anxiety in older adults, at least not at the "level of immediate awareness" (p. 364).

The insights from McCoy et al. (2000) and Cicirelli (2002) as well as the subsequent empirical findings with older adult participants make it increasingly clear that continuing to apply TMT methods to samples of seniors without carefully accounting for their development in the lifespan will result in a "round hole-square peg" conflict that continues to engender peculiar results. It should not be surprising that a theory that rests on the assumption that death anxiety is

alleviated when one lives up to one's cultural worldview, engages in self-esteem enhancement, and invests in romantic relationships does not seem applicable to seniors. These individuals inhabit an ageist society in which their worldview beliefs have become obsolete and they likely struggle to live up to or generate self-esteem from the current worldview that values a youth-oriented ideology (Maxfield et al., 2007). Furthermore, the majority of seniors have transcended a "romantic" relationship and moved into a more companionate partnership with their spouse (that is, if their spouse is still living). Failing to view TMT through a developmental lens will continue to impede growth and understanding in an area that has great potential for important discoveries and future directions in related research.

The Psychosocial Construct of Generativity

In order to identify potential developmental factors that may play a role in the already existing studies related to TMT and older adults, it is necessary to identify a relevant developmental framework that is theoretically sound and allows for the possibility of empirical investigation. According to Tomer (1994), researchers interested in death anxiety would be particularly wise to incorporate Erikson's psychosocial theory in their investigations as the system provides important insights related to the self and basic human motivations. McCoy et al. (2000) and Maxfield et al. (2007) have both described Erik Erikson's theory as appropriate in the investigation of older adults' responses in TMT studies and emphasize the construct of generativity in particular. Indeed, many older adults work diligently (albeit indirectly) to support and uphold their worldview by nurturing the very people who will be left to maintain it: their children.

According to Erikson (1963), generativity is a drive that motivates adults to use their own experience to guide the next generation. Erikson, Erikson, & Kivnick's (1986) concept of

“grand-generativity” occurs in older adulthood and is a more global concern that extends the middle years’ emphasis on directly maintaining the world to focusing on people of all ages including the younger generations of today, those of tomorrow, and those who have yet to be born. Erikson and his colleagues noted that the generativity vs. stagnation stage has heightened significance in the psychosocial model since the stage determines if the life cycle is indeed a *cycle* whereby new beginnings are fostered and nurtured by those who created them (Erikson et al., 1986). Researchers since Erikson’s formulations have corroborated his claims stating that within the theoretical realm of adult personality and development, generativity is one of the richest constructs yet created (McAdams, de St. Aubin, & Logan, 1993).

It has been argued that the reason that generativity is so important is because of its role in perpetuating culture and maintaining social structures (Wakefield, 1998). The emphasis on generativity as a kind of “cultural reproduction” (Wakefield, 1998, p. 137) is central and this idea has become embedded in subsequent theories of generativity. One of the first scholars to extend Erikson’s construct of generativity was Kotre (1984). Elaborating on Erikson’s ideas, Kotre emphasized the importance of recognizing generativity as having various types including biological, parental, technical, and cultural. The latter form becomes more symbolic than the previous three that emphasized bearing, nurturing, and teaching offspring. Instead, the final type of cultural generativity moves individuals into more of a mentor role in which the goal is to provide disciples with a compelling vision of their potential as well as their culture’s potential.

Generativity and Symbolic Immortality

Tomer (1994) argued that death awareness is deeply embedded in Erikson’s (1963) generativity vs. stagnation stage in later life, and many seniors respond to this awareness by caring for their children, grandchildren, and society as a whole. Generativity has also been

theoretically linked with the idea of death transcendence. For example, Kotre (1984) was inspired by Lifton's (1974) concept of symbolic immortality and likened the desire for generativity to the desire to live forever. Erikson himself suggested that generativity works to reduce the fear of death and enhance a desire for immortality because it leads individuals to identify and connect with the culture they sought to contribute to and maintain (Wakefield, 1998). Unfortunately, most empirical studies that have investigated death anxiety in relation to Erikson's psychosocial stages have focused almost exclusively on the eighth stage of integrity vs. despair (e.g., Fishman, 1992; Fortner & Neimeyer, 1999) or on psychosocial maturity in general (e.g., Rasmussen & Brems, 1996), despite generativity's implicit connection to death transcendence through cultural means.

The theoretical connections between generativity, culture, and symbolic immortality have enormous implications for TMT researchers hoping to identify a developmental construct that is embedded in the cultural worldview, has death denying properties, and has theoretical relevance for older adults. In fact, McAdams (1988) further illuminated the relationship between these three constructs by revisiting Becker's (1973) ideas in conjunction with Erikson's theory of generativity. McAdams argued that Becker's book, *The Denial of Death*, is an enlightening discourse on generativity despite the fact that Becker never used the word *generativity* at all. McAdams drew upon Becker's concept of heroism and recalled his assertion that heroism is possible for humans because society's collection of symbolic constructs actively work to promote individuals who serve society in a "heroic" way. Thus, McAdams viewed heroism and generativity as essentially the same idea in that they both involve gaining immortality by sustaining culture through acts of creation and production.

Generativity Through Children and Grandchildren

Given the multidimensional nature of generativity (McAdams, Hart, & Maruna, 1998), it is possible that certain elements of the construct hold higher importance for seniors than others. According to Erikson (1963), although generativity involves productivity and creativity through a variety of means, none could replace what he deemed to be the fundamental generative drive: to bear offspring. Through his interviews with older adults, Erikson found that concern for one's children was at the forefront of his participants' minds when describing their involvement in caring and nurturance (Erikson et al., 1986). He described their eagerness to discuss their children's accomplishments in order to validate their own ability to successfully engage in the virtue of caring (Erikson et al., 1986). In fact, Kastenbaum (1974) found that approximately 90% of his participants believed "people who have children or grandchildren can face death more easily than people who have no descendents to carry on" (p. 72).

Indeed, one's progeny fosters a sense of generativity within an individual and is likely to decrease their fear of death. Erikson et al. (1986) saw grandparenting as serving a very similar, potentially more powerful function. Specifically, Erikson et al. (1986) stated that grandparenting offers older adults a "second chance" (p. 91) at generativity and research has indicated that the act of caring becomes more vigorous and less ambivalent with grandchildren than one's own children (Kivnick, 1982). Furthermore, Erikson et al. (1986) stated that for some older adults, bragging about their own children feels immodest whereas they are much more comfortable boasting about their grandchildren's successes.

Current Study

This study's purpose was to test the importance of integrating developmental constructs with TMT when studying older adults. TMT is examined experimentally in a sample of older

adults using Erikson's construct of generativity as a developmentally appropriate construct. Besides having psychosocial relevance in later life, the construct of generativity was considered particularly appropriate for TMT research as it has been theoretically linked to important TMT concepts including symbolic immortality (Kotre, 1984), cultural perpetuation (Wakefield, 1998), death anxiety reduction (Erikson (1963) and even Becker's concept of heroism (McAdams, 1988). It is expected that a sensitivity to life-span development through the use of the generativity construct may provide insight into results that might otherwise seem arbitrary or incompatible with foundational TMT tenets. Since constructs of interest in previous TMT research with seniors have not incorporated developmental theory, it is expected that this may have contributed to the pattern of perplexing results often found in the literature.

Thus, based on previous relevant research in TMT and Eriksonian theory in particular, three hypotheses were developed. First, based on Maxfield et al.'s (2007) findings that a subtle MS induction engenders TMT responses in older adults, seniors in the current study who are in the MS subtle condition are expected to report higher levels of generativity than those in both the blatant MS condition and a control condition.

Second, In order to test whether one's child's success was indeed a particularly salient component of generativity in later life, participants in the subtle MS condition were hypothesized to rate their children as having higher levels of success than those in the blatant MS condition and the control condition. Acknowledging that some seniors would have closer relationships with their children than others, it was also hypothesized that the effect of the subtle MS prime leading to higher levels of child success may be stronger for those with more secure attachments to their children.

Third, given the importance of grandchildren to older adults, the final hypothesis predicted that participants in the subtle MS condition would rate their grandchildren as having higher levels of success than those in the blatant MS condition and the control condition, particularly those with higher levels of secure attachment to their adult children.

Method

Participants

Participants were 179 older adults (57 males and 122 females) recruited from local senior recreation centers in Edmonton, Alberta, Canada, who received \$10 for their participation. Inclusion criteria for participation were (a) at least 60 years of age, (b) at least one adult child with whom they remain in contact (have spoken to within the past 6 months), (c) speaking, reading, *and* writing in the English language for at least 20 years, and (d) successfully passed the Cognistat (a screening tool to detect cognitive impairment). Participants ranged in age from 60 to 89 years old ($M = 72.18$, $SD = 6.78$). All but three participants lived in a home that they owned or rented. Those three participants lived in a seniors' lodge or assisted living. Psychological and demographic characteristics categorized by age can be found in Tables 1 and 2, respectively. Seven participants were removed from the original sample of 186 participants because five participants failed the cognitive screen (Cognistat), one participant revealed during the study that she did not have an adult child, and one participant did not want to complete the Cognistat.

Procedure and Materials

Participants completed measures in three sessions with a 5-minute break between sessions. Sessions took place in a quiet room in a senior centre. The primary researcher informed participants that she would remain in the room in order to answer any questions.

Participants were told that the purpose of the study was to try to understand how older adults differ on various measures as well as their emotions and insights in regards to the more meaningful aspects of their lives. Each session involved a packet of questionnaires; the final session also included an interactive cognitive exam (i.e. the Cognistat). Before the 5-minute breaks between sessions, participants were asked to avoid any cigarettes, food, or drink during the breaks that might affect their mental state. In order to standardize participants' interactions with the researcher, scripts were developed for introducing the study as well as for each of the three sessions and the debriefing (see Appendices R, S, and T). Participants all received the same packet of questionnaires with a few differences. Specifically, participants were randomly assigned to a control group, blatant MS group, or subtle MS group. Also, the Revised Generalized Expectancy for Success Scale measuring perceived child success (GESS-R) (Hale, Fiedler, & Cochran, 1992) and four items from the Self-Attributes Questionnaire measuring perceived grandchild success (SAQ) (Pelham & Swann, 1989) were counterbalanced with the Loyola Generativity Scale (LGS) (McAdams & de St. Aubin, 1992) to control for order effects. Additional information regarding these three dependent variables when categorized by condition can be found in Table 3. The questionnaire in its entirety can be found in Appendices A through N.

Session 1. In the first session, all participants completed pre-measures including a Self-Esteem Scale (SES) (Rosenberg, 1965), Long and Martin's (2000) adaptation of the Attachment Style Measure (Hazan & Shaver, 1987), and the Geriatric Depression Scale, Short Form (GDS15) (Sheikh & Yesavage, 1986). These pre-measures served mostly as fillers and distractions with the exception of the attachment style measure. The attachment style measure was included in order to account for the degree of secure attachment between participants' and

their children (which was expected to impact their ratings of their children's and grandchildren's success). Specifically, secure attachment was analysed as a moderating variable between the MS or control inductions and the child and grandchild success outcome variables.

In session one, participants' level of generativity was measured prior to the TMT manipulations that occurred in session two using the items representing the syntonic disposition of the seventh stage (i.e., generativity) in the Measures of Psychosocial Development (MPD) (Hawley, 1988). While it would have been more consistent to use the same generativity scale both prior and subsequent to the manipulation (and conduct a repeated-measures ANOVA), the short delay between sessions would have likely resulted in practice effects so two different (but conceptually similar) generativity measures were used, the post measure being the most general and comprehensive measure of generativity in the literature to date (Loyola Generativity Scale, LGS) (McAdams & de St. Aubin, 1992). By assessing pre-manipulation generativity levels with the MPD, we were able to assess the "noise" or "undesirable variance" (Tabachnick & Fidell, 2007, p. 380) in the post-manipulation dependent variable (LGS). In this way, above and beyond random assignment, an analysis of covariance with the MPD as the covariate and the LGS as the dependent variable could act as a "noise-reduction technique" (Miller & Chapman, 2001, p. 42) that also improves the power of the independent grouping variable (see Tabachnik & Fidell, 2007 for a complete description comparing ANCOVA and repeated-measures ANOVA as ways to increase power by assessing and removing variability from the error term that is related to differences amongst cases).

Session 2. The second session was comprised of the TMT manipulation, which included a blatant MS condition, control condition (e.g., Rosenblatt et al. 1989), *or* subtle MS condition (Maxfield et al., 2007). The session also included a distracter word-find task (Maxfield et al.,

2007), the Positive and Negative Affect Schedule expanded form (PANAS-X) (Watson & Clark, 1994), the Revised Generalized Expectancy for Success Scale (GESS-R) (Hale et al., 1992), four items from the Self-Attributes Questionnaire (SAQ) (Pelham & Swann, 1989) to assess participants' perceived grandchildren success, and the Loyola Generativity Scale (LGS) (McAdams & de St. Aubin, 1992).

Using a computer program random number generator, participants were allocated to one of three conditions by a research assistant so that the primary researcher was blind to condition. The three conditions were a basic mortality salience condition (MS Blatant), a control condition (Control), or a mortality salience subtle condition (MS Subtle). The first two conditions are used in TMT research to either evoke thoughts of death (mortality salience) or thoughts regarding a non-death related neutral event (control). These manipulations are reliable in causing individuals to defend worldview beliefs (Greenberg et al., 1990; Rosenblatt et al., 1989). The MS Blatant condition asks participants to “please briefly describe the emotions that the thought of your own death arouses in you. Jot down, as specifically as you can, what you think will happen to you as you physically die and once you are physically dead.” The same wording was used for the control condition questions but was related to dental pain and not death. The MS subtle induction is a word puzzle with instructions asking participants to find a number of neutral words from a matrix also containing numerous death words (e.g., death, burial, corpse) that participants were not asked to find.

These TMT manipulations were immediately followed by a neutral word-find and the PANAS-X, both of which served as a necessary delay (Maxfield personal correspondence, 2009). This delay was based on previous findings that MS effects occur when death thoughts are outside conscious awareness (Greenberg et al., 1994). A secondary purpose of the PANAS-X

was to determine whether the MS inductions impacted affect levels, which could then impact the dependent measures (i.e., mediation).

The dependent measures (counterbalanced to control order effects) assessed generativity specific to the participants' adult children and grandchildren (the Revised Generalized Expectancy for Success Scale) and a more global measure of generativity apart from one's offspring (the Loyola Generativity Scale). On both measures, participants were asked to respond on a 5-point scale with higher scores representing higher levels of perceived success and generativity. Four items from the Self-Attributes Questionnaire (SAQ) (Pelham & Swann, 1989) were included to assess participants' grandchild success (for those participants who had grandchildren) in regards to intellectual/academic ability, social skills/social competence, leadership ability, and common sense. These items were added to the end of the GESS-R and participants responded on a 10-point scale with higher scores indicating higher levels of perceived grandchild success. Since three items in the LGS contain the word "die," these items were slightly modified so that the word "die" was removed but the basic meaning of the item was preserved. Removing the word "die" ensured that the death thoughts evoked from the MS conditions (that were then suppressed by delays in order to initiate distal TMT defenses) were not re-evoked, causing participants to potentially respond to the items with proximal (i.e., more conscious) defenses. An item involving participants' volunteer behavior was also altered to ask about their *desire* to volunteer in order to better capture participants' intentions regarding volunteerism.

Session 3. The third and final session involved a brief word completion task (Schimmel, Hayes, Williams, & Jahrig, 2007) to measure remnants of death thought accessibility from the second session. It also included a mental status examination using the Cognistat (formerly

known as the Neurobehavioral Cognitive Status Examination or NCSE) (Kiernan, Mueller, Langston, & Van Dyke, 1987). The word completion task designed by Schimel, Hayes, Williams, and Jahrig (2007) is similar to the task used by Greenberg, Pyszczynski, Solomon, Simon, and Breus (1994) to tap death theme accessibility. Participants were asked to complete 20 word fragments with missing letters. Six of the 20 words were potential death-related words while the remaining 14 were neutral words. For example, the participants would see the letters GRA__ and complete the word with either *grain* (neutral) or *grave* (death related). Scoring this measure involves summing the number of death related words that were completed. The death related words include buried, dead, grave, killed, skull, and coffin. The Cognistat was included to screen for participants who may have not completed the various measures in the study properly due to cognitive impairment. Cut-offs appropriate for older adults were identified by Ames, Hendrickse, Bakshi, Lepage, and Keefe (2009) and were implemented in the study. Specifically, the sum of the 10 subscale raw scores were calculated and those participants with a score below 65 indicated marked cognitive decline and their data were not used.

A demographic questionnaire was filled out last and included age, gender, and education level (estimated total number of years including primary, secondary, college, university, technical, etc). Consistent with Maxfield et al.'s (2007) TMT study, a 7-point Likert item of current health (1 = *very poor* to 7 = *excellent*) was included. Participants were also asked whether they were married, common-law, separated, divorced, widowed, or never married as well as their number of children and grandchildren. Annual income information was also gathered on a seven-point scale of equal intervals ranging from below \$20,000.00 to above \$120,000.00. Three questions regarding religious behaviours (Markides, 1983) were included with one added question addressing level of spirituality. Specifically, participants were asked

how often they attend church, mosque, or temple on a 6-point item (every week, 6; two to three times a month, 5; once a month, 4; once every three months, 3; once or twice a year, 2; never, 1). Self-reported religiosity was based on a 4-point item (very religious, 4; somewhat religious, 3; not very religious, 2; or not at all religious, 1). A question regarding self-reported spirituality was added using the same 4-point scale as religiosity. Finally, private prayer was based on a 5-point item (indicating if the participant prays several times a day, 5; about once a day, 4; several times a week, 3; only on special occasions, 2; or almost never, 1). At the end of the study, participants were thanked, debriefed, and given \$10.00 for their participation.

Results

Preliminary Analyses

As a measure of reliability, Cronbach's alpha was calculated for each measure (see Table 4 for alpha values and number of items in each measure). Prior to hypothesis testing, the data were explored for missing data, outliers, and violations of statistical assumptions. One participant was excluded for a string of missing items on a dependent variable which was deemed to be missing not at random (MNAR) (Streiner, 2002). Outliers were not excluded from the analysis and were instead changed to the recommended mean plus or minus twice the standard deviation (Field, 2009). Data were also examined for violations of statistical assumptions. Histograms, box plots, and p-p plots were examined visually along with skew and kurtosis values to identify skewed distributions. Not surprisingly, this examination revealed that positive variables (self-esteem, positive psychosocial development in stages 7 and 8, the secure attachment scale, children/ grandchildren success, and Cognistat scores) were negatively skewed while negative variables (depression, negative psychosocial development in stages 7 and 8, anxious attachment, avoidant attachment, and negative affect) were positively skewed. Positive

affect, generativity, and total death words variables approximated normal distribution. The direction of the skewed distributions is what would be expected in the wider population of healthy seniors. They are consistent with the vibrant and positive nature of the sample in the study. In order to adjust for violations of the normality assumption, the bootstrap procedure (Efron & Tibshirani, 1994) was employed in the analyses of variables with substantially non-normal distributions. Bootstrapping was done by taking 1000 samples (with replacement) from the data set to produce approximated normal sampling distributions. The bootstrapping procedure provides confidence intervals (Field, 2009). Confidence intervals that do not include zero indicate a statistically significant mean difference (Wright & Field, 2009).

Individual Differences and Descriptive Information

One-way analyses of variance confirmed that randomization was successful on the chosen variables in the study as there were no statistically significant differences between conditions on any of the pre-measures or demographic variables. Randomization was particularly important in ensuring that the primary analysis (ANCOVA) did not violate the assumption of independence of the covariate and the treatment effect (Field, 2009). Independent t-tests revealed that those who completed the generativity measure before the child success measure did not have different scores on these variables than those who completed the generativity measure after the child success measure suggesting a successful counterbalancing procedure.

In regards to gender differences, the 57 males had higher annual income ($M = 3.32$, $SD = 1.27$) than the 122 females ($M = 2.87$, $SD = 1.35$) on the household income bracket (SES) item, $t(172) = 2.09$, $p = .038$, $d = .34$. While there were no gender differences in regards to levels of religiousness, women reported higher levels of spirituality ($M = 3.08$, $SD = 0.75$) than men ($M =$

2.82, $SD = 0.87$), $t(177) = -2.04$, $p = .043$, $d = 0.32$. A chi-square test was employed to test a relationship between gender and attendance at a religious institution (church, mosque, temple, etc.) as this particular question involved ordinal data and therefore required a non-parametric test. Given that several of the items had fewer responses than an expected frequency of five, groups were collapsed so that participants who attended a religious institution were compared to those who never attend. There was no statistically significant association between the participants' gender and whether or not they attend a religious institution $\chi^2(1) = 0.24$, $p = .623$, $V = 0.04$. Another chi-square test tested the association between gender and private prayer (which also involved ordinal data), collapsing groups into those who prayed privately and those who didn't. There was a statistically significant association between the participants' private prayer activity and their gender, $\chi^2(1) = 16.51$, $p < .001$, $V = .31$, indicating that women were more likely to pray privately than men (84.3% of women, 56.1% of men) and men were more likely to not pray privately at all than women (43.9% of men, 15.7% of women). Based on the odds ratio, the odds of praying privately were 4.20 times higher for women than for the men.

A chi-square test was also employed to test a relationship between gender and relationship status. Married, divorced, and widowed participants were included in this analysis as the common law, separated, and never married categories had fewer than an expected frequency of five. For ease of interpretation, divorced and widowed participants were collapsed into one category in order to see if there was a relationship between gender and having a spouse. There was a statistically significant association between the participants' relationship status and their gender, $\chi^2(1) = 6.89$, $p = .01$, $V = .20$, indicating that men were more likely to be married (67.9% of men, 46.6% of women) and women were more likely to be widowed or divorced

(53.4% of women, 32.1% of men). The odds of being married were 2.42 times higher for the men than for the women.

Dividing the participants into three age decades (see Table 1) revealed an effect of age on the level of cognitive functioning, $F(2, 80.43) = 5.73, p = .005, \eta^2 = .08$ (the Welch's F was reported due to the violation of the homogeneity of variance assumption that was identified via a statistically significant Levine's test). Post-hoc analyses using the Games-Howell procedure (appropriate for unequal variances *and* sample sizes) indicated that participants in their 80s ($M = 75.24, SD = 4.87$) had lower scores on the Cognistat than those participants in their 70s ($M = 77.67, SD = 3.63, p = .04$) (95% CI = 0.14 to 4.71). The bootstrapped 95% CI was from 0.65 to 4.34. Given the bootstrapped CI does not include zero, the bootstrapped results confirm the difference in Cognistat scores between participants in their 70's and 80's was statistically significant. Post-hoc analyses using the Games-Howell procedure also indicated that participants in their 80s also had lower scores on the Cognistat than participants in their 60s ($M = 78.49, SD = 3.76, p = .004$) (95% CI = 0.94 to 5.56). The bootstrapped bias corrected 95% CI was from 1.50 to 5.18, again confirming that the difference between participants in their 60's and 80's was statistically significant. There were no differences between participants in their 60s and those in their 70s ($p = .371$). There was also a statistically significant negative relationship between age and generativity, $r(176) = -.216, p = .004$; the older the participants, the less likely they were to view themselves as generative (see Table 5 for the complete correlation matrix).

Table 2 provides demographic data also divided into three decades. There was an effect of age on number of children, $F(2, 77.47) = 8.5, p < .001, \eta^2 = .08$ (Welch's F). Games-Howell post-hoc test indicated that individuals in their 80s ($M = 3.45, SD = 1.89$) had more children than those in their 60s ($M = 2.49, SD = 1.10, p = .024$). Those participants in their 70s

($M = 3.25$, $SD = 1.42$) also had more children than those in their 60s, ($p = .001$). There were no differences in number of children between those in their 70s and those in their 80s. A slightly different trend was seen with number of grandchildren. There was a statistically significant effect of age on number of grandchildren, $F(2, 80.90) = 4.17$, $p = .019$, $\eta^2 = .04$ (Welch's F). Games-Howell's post hoc test revealed that individuals in their 70s ($M = 5.51$, $SD = 4.50$) had more grandchildren than those in their 60s ($M = 4.00$, $SD = 2.43$), $p = .046$ with no differences between individuals in their 80s ($M = 5.44$, $SD = 3.22$) and those in their 60s ($p = .083$) or 70s ($p = .995$). No age differences were found in regards to the religion-related demographic items.

Differences in Generativity Levels Based on Condition

The primary objective of the study was to determine if participants in the subtle MS condition would score higher in generativity than those in the blatant MS condition and control condition. As described earlier, the positive psychosocial stage 7 subscale (i.e., generativity) of the Measures of Psychosocial Development (MPD) (Hawley, 1988) was used as a covariate in a one-way analysis of covariance examining differences between the three conditions (blatant, subtle, control) on the Loyola Generativity Scale (LGS) (McAdams & de St. Aubin, 1992) (see Figure 1). The adjusted means from this analysis will be reported. The assumptions of ANCOVA include (a) independence of the covariate and the treatment effect and (b) homogeneity of regression slopes. Since an analysis of variance confirmed no differences between the conditions on any of the pre-manipulation variables in this study including the covariates in the primary analysis, the assumption of independence of the covariate and the treatment effect was upheld. A statistical test of the assumption of homogeneity of regression slopes was conducted for the MPD covariate and LGS dependent variable to determine if the relationship between these two variables was the same in each of the treatment groups. The

interaction between the covariate and dependent variable was not statistically significant, indicating that the assumption was tenable, $F(2, 172) = .464, p = .63, \eta^2 = .005$.

Results from the ANCOVA revealed that the MPD covariate was related to the participants' levels on the LGS, $F(1, 174) = 190.94, p < .001, \eta^2 = .52$. More importantly, there was a trend toward a statistically significant effect of assigned condition on generativity levels after controlling for the effect of their generativity scores prior to the MS induction, $F(2, 174) = 2.59, p = .078, \eta^2 = .03$ (see Table 3). Furthermore, a Helmert contrast revealed a statistically significant difference between the subtle group and the blatant/control group, $t(174) = 2.08, p = .039, \eta^2 = .02, 95\% \text{ CI } [0.14, 5.37]$ indicating that those in the subtle condition had higher levels of generativity than those in the control and blatant conditions. The bootstrapped bias corrected 95% CI was from 0.22 to 5.32 indicating a statistically significant difference in means between the subtle group and blatant/control group (See Figure 1).

Differences in Child and Grandchild Success Levels Based on Condition

An analysis was employed using child success scores while considering participants' secure attachment to their children (see Figure 2). According to Cox (1957), blocking methods are preferable to analyses of covariance when the correlation between the dependent variable and the independent variable (i.e., potential covariate) is less than 0.6. Although the correlation between the two different generativity scores used in the previous analysis was $r = 0.71$ (therefore substantiating the use of ANCOVA), the low reliability of the secure attachment variable (see Table 4) likely contributed to the low correlation between secure attachment and child success measures ($r = 0.33$). Therefore, the secure attachment was dichotomized by the median into high and low secure attachment and a 3 (condition) X 2 (attachment) factorial analysis of variance was performed on participants' perceived child success. Although there was

a statistically non-significant main effect of condition on the participants' child success rating, $F(2, 171) = .031, p = .970, \eta^2 = .00$, there was a statistically significant main effect of the attachment level on the participants' child success rating, $F(1, 171) = 21.70, p < .001, \eta^2 = .11$. This indicated that individuals with high levels of secure attachment to their children ($M = 111.36, SD = 1.35, 95\% CI [108.68, 114.03]$) rated their children as being more successful than those with low levels of secure attachment to their children ($M = 102.84, SD = 1.23, 95\% CI [100.41, 105.26]$), regardless of which condition they were in. This finding was confirmed with bootstrapping procedure as the bootstrapped bias corrected 95% CI was 109.07 to 113.5 for those with high levels of secure attachment and 100.29 to 105.62 for those with low levels of secure attachment. There was no statistically significant interaction between attachment and condition, $F(2, 171) = .71, p = .495, \eta^2 = .01$.

The 3 (condition) \times 2 (attachment) analysis of variance analysis was repeated with grandchild success as the dependent variable (since the correlation between secure attachment and grandchild success was only $r = 0.19$) (see Table 5). Once again, there was a statistically non-significant main effect of condition on the participants' grandchild success rating, $F(2, 148) = 0.74, p = .478, \eta^2 = .01$, but a statistically significant main effect of attachment level on the participants' grandchild success rating, $F(1, 148) = .5.72, p = .018, \eta^2 = .04$. Thus, regardless of the condition, participants with high levels of secure attachment to their children ($M = 28.89, SD = 4.39, 95\% CI [27.81, 29.91]$) rated their grandchildren as being more successful than those with low levels of secure attachment to their children ($M = 27.18, SD = 4.23, 95\% CI [26.27, 28.09]$). The bootstrapped bias corrected 95% CI also indicated this finding as it was from 27.74 to 29.86 on those with high levels of secure attachment and 26.26 to 28.12 for those with low levels of secure attachment. As was the case with the child success measure, there was no

statistically significant interaction between attachment and condition, $F(2, 148) = .893, p = .412, \eta p^2 = .01$.

Jaccard and Guilamo-Ramos (2002) recommended applying contrasts if the F test for interaction is not found to be statistically significant, particularly if researchers can identify conceptually valuable contrasts. Thus, the 3 x 2 analysis of variance for child success as well as the 3 x 2 analysis of variance for grandchild success was followed up with interaction contrasts comparing subtle and blatant conditions and the subtle and control conditions. No statistically significant interaction contrasts were found.

A follow-up analysis was conducted in which each of the grandchild success items were examined individually. There was a statistically significant difference between conditions on one of the four grandchild success items. Specifically, the positive psychosocial stage 7 subscale (i.e., generativity) of the Measures of Psychosocial Development (MPD) (Hawley, 1988) was once again used as a covariate in a one-way analysis of covariance examining differences between the three conditions (blatant MS, subtle MS, control) on each of the four grandchild success items. Results from the ANCOVA revealed that the MPD covariate was related to the participants' levels on the grandchild common sense item, $F(1, 151) = 19.73, p < .001, \eta p^2 = .12$. There was also a statistically significant effect of assigned condition on the "common sense" item, $F(2, 151) = 3.66, p = .028, \eta p^2 = .05$. Planned contrasts revealed that subtle death reminders increased participants' belief that their grandchildren had higher levels of common sense compared to the control group, $t(151) = 2.08, p = .039, \eta p^2 = .03, 95\% \text{ CI } [0.03, 0.95]$. Similarly, blatant death reminders increased participants' belief that their grandchildren had common sense compared to the control group, $t(151) = 2.52, p = .013, \eta p^2 = .04, 95\% \text{ CI } [0.13, 1.04]$. This result was confirmed by the bootstrapped bias corrected 95% CI which was from

0.08 to 0.92 for the subtle group and from 0.17 to 0.99 for the blatant group. To address inflation of type 1 error, alpha was reduced to .01 and the analyses were rerun. The bootstrapped bias corrected 95% CI for this analysis also indicated a significant difference between the subtle group and the control group CI [0.04, 0.97] and the blatant group and control group CI [0.12, 1.08] (See Figure 4).

Residual Death Thought Accessibility

After the second session in which participants received one of the three conditions (blatant, subtle, control) and then their generativity and child/grandchild success levels were measured, participants took a 5-minute break and left the testing room. Upon returning, each participant was given a word completion task as a measure of death thought accessibility to see if there were any residual death thoughts for those with the blatant and subtle death primes when compared to the control group. There was no statistically significant effect of condition on death thought accessibility, $F(2, 176) = .090, p = .914, \eta p^2 = .00$, indicating that by the time the participants returned for the third session, the participants in the various conditions did not differ in regards to residual death thoughts.

Affect

Follow-up Helmert contrasts to the analysis of covariance described earlier indicated that participants' condition affected their generativity rating (when controlling for pre-manipulation scores on a psychosocial scale of generativity). Despite most findings in TMT indicating that affect does not mediate participants' responses to MS inductions, this possibility was tested with the older demographic in the current study. Thus, Barron and Kenny's (1986) steps to establish mediation were used. Since the control group and blatant group were collapsed into a single group in the Helmert contrast in order to test the hypothesis that the subtle group would produce

the highest generativity scores, data for the blatant and control groups were combined resulting in two groups: subtle and blatant/control. In order to accommodate categorical variables in this mediation analysis, one dummy variable was created (see Frazier, Tix, & Barron, 2004).

Therefore the variables used in the analysis included condition (independent variable), negative or positive affect (potential mediating variables), and generativity (dependent variable).

In step one of the analysis, the independent variable (condition) must affect the dependent variable (generativity). In step two, the independent variable (condition) must affect the mediator (negative affect). Thus, in order to complete steps one and two, two separate linear regressions were conducted to determine if participants' condition affected generativity levels and if the condition affected negative affect. The criteria for step one and two was not met because in step one there was not a statistically significant effect of condition on generativity, $b = .80$, $t(176) = .49$, $p = .627$, 95% CI [-2.44, 4.04]. The bootstrapped bias corrected 95% CI was -2.32 to 4.22. In regards to step two there was not a significant effect of condition on negative affect $b = -.35$, $t(175) = -.88$, $p = .383$, 95% CI [-1.13, 0.44]. The bootstrapped biased corrected 95% CI was -1.07 to 0.36. Step two was repeated for positive affect, and again, there was not a statistically significant effect of condition on positive affect $b = -1.41$, $t(175) = -1.37$, $p = .171$, 95% CI [-3.43, 0.62]. The bootstrapped biased corrected 95% CI was -3.39 to 0.39. Steps three and four were not conducted and the analysis was discontinued because step two in particular has been found to be an essential condition for mediation (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002).

Discussion

The results of this study supported the first hypothesis: that having older adults think about their death via a MS induction would lead them to higher ratings of generativity. As

predicted, this was only the case for participants who were assigned to a subtle MS induction group as designed by Maxfield et al. (2007) and not for those in the standard blatant MS and control conditions. The second hypothesis that the subtle MS induction would lead participants to rate their children as more successful than the blatant MS induction and control condition, (particularly for those with a secure attachment to their children) was not supported. The third hypothesis, that the subtle MS condition would lead participants to rate their grandchildren as more successful than the blatant MS condition and control condition was partially supported in an item analysis involving grandchildren's "common sense" in which both subtle and blatant primes led to higher levels of perceived common sense in grandchildren than the control group.

Together these findings provide evidence that qualifies and extends Maxfield et al.'s (2007) assertion that "older adults do not cope with reminders of their mortality in the same way that younger adults do" (p. 350). Indeed, Maxfield et al.'s study illustrated that including seniors in a TMT study that does not include developmentally relevant constructs will engender results that are inconsistent with those derived from younger populations. However, the current findings indicate that seniors appear to respond to subtle death reminders in much the same way that younger adults respond to blatant death reminders when a developmentally relevant construct such as generativity is introduced into the research design. While additional research is necessary to replicate and deepen these findings, this study provides new insights regarding the inclusion of older adults into TMT research as well as theoretical, developmental, and practical considerations in the areas of gerontology and TMT.

The efficacy of the subtle death reminders when compared with the blatant death reminders provides several insights for future research in this area. First, as Maxfield et al. (2007) suggested, due to their more frequent exposures to death reminders (e.g., funerals,

hospitals, aging, etc.) it may be that older adults have found ways to resolve the impact of death thoughts on a conscious level yet are still vulnerable to death thoughts on a more subtle, less conscious level. Future researchers within the TMT tradition are encouraged to continue to use Maxfield et al.'s (2007) subtle death prime to replicate findings with older adults. Beyond replication, however, it is necessary also to enhance the theoretical understanding of the cognitive processes involved in this particular manipulation and its unique impact on older participants.

Hayes, Schimel, Arndt, and Faucher (2010) described these cognitive processes in a review of Death Thought Accessibility (DTA) studies. They described four distinct categories of processes through which TMT researchers measure unconscious thoughts of death. These categories include (1) Mortality Salience DTA, (2) Death-Association DTA, (3) Anxiety-Buffer Threat DTA, and (4) Dispositional DTA. It can be argued that Maxfield et al.'s (2007) subtle death prime was associated with personal death and therefore followed a similar trajectory as the blatant death prime in the dual processing model. Specifically, in this study, participants were exposed to death-related words embedded within a word matrix and therefore it is likely that for most participants, death thoughts reached some degree of conscious awareness and associated thoughts of their own death were primed. Maxfield's subtle death prime should not be confused with subliminal death primes (e.g., Arndt, Greenberg, Pyszczynski, & Solomon, 1997) in which death thoughts are below conscious thresholds of awareness. According to Hayes et al.'s model, death-associated stimuli generate the same sequence of cognitive processes as the commonly employed MS manipulation when death thoughts are conscious. Specifically, in line with the model, it is possible that participants in the current study were exposed to a death-associated stimulus (embedded death words) and had controlled-processing resources available (i.e., low

cognitive load). This likely resulted in a proximal defense mechanism to remove death thoughts from conscious awareness. While this initial proximal defense mechanism worked to suppress death thoughts, the subsequent delay/distraction (neutral word find and PANAS) acted to release the suppression and engage the symbolic processing system. This engendered high death-thought accessibility and the ensuing distal defenses (worldview defense and self-esteem enhancement) as indicated by the heightened generativity scores. Interestingly, subsequent to the blatant, control, and subtle MS manipulations in the second session, when the participants returned for the third session there appeared to be no differences between groups in regards to residual death thoughts as indicated by the word completion task that measures death thought accessibility. It is possible that the duration of time between the manipulations and the word completion task (that included a 5-minute break to clear their head) was long enough to diffuse any remaining death thoughts. Nevertheless, continuing to examine whether the cognitive processes involved in Maxfield et al.'s *subtle* MS induction corroborates or contradicts the dual processing theory in TMT will be an important exercise for furthering a theoretical understanding of the cognitive processes of TMT in seniors.

While this model is useful in facilitating an understanding of the cognitive processes that may have occurred with the subtle MS induction, it remains unclear why the blatant MS induction did not engender a similar cognitive sequence for our older adult population. Perhaps the descriptors “blatant” and “subtle” need to be examined more closely. Maxfield et al. (2007) designed the subtle MS induction because it was thought that older participants have habituated to more blatant and direct reminders of death but are still influenced by the problem of death in subtler, less conscious ways. However, it may be that seniors are quite comfortable addressing questions regarding death such as the ones asked in the blatant MS condition and felt more

uneasy or even startled by the subtle MS induction where they unwittingly found words such as “dead,” “decay,” burial,” and “corpse” while looking for more innocuous words such as “baseball,” “monkey,” “computer,” and “pair.” While some participants in the current study expressed surprise upon finding the death words, other participants did not appear to notice. Since the principal researcher in the present study was unable to comment on the MS induction or discuss it with participants until after the study was completed (to maintain objectivity and uphold the standardized procedure), future researchers may want to explore participants’ reactions to the subtle MS induction through both quantitative and qualitative means.

Assuming Maxfield et al. (2007) were correct in their conjecture that the blatant MS induction was indeed a more “blatant” manipulation to engender death thoughts than was the subtle MS induction, it is possible that seniors have habituated to these more blatant death reminders. As has been the case in several previous studies with older adults (e.g., Corr, Nabe, & Corr, 1994), participants in the current study made several references to death without knowing that death anxiety was the main focus of the study. If seniors truly are desensitized to death content, the first step in the TMT cognitive model (conscious suppression of thoughts via proximal defenses) would be unnecessary for seniors, thus precluding subsequent processes. Based on their findings, Taubman-Ben-Ari and Findler (2005) suggested that death reminders for seniors might simply lead to a “recollection of processed issues” (p. 315) that have already been resolved. Another possibility is that seniors use entirely different proximal defenses than younger adults when considering their own death thoughts. As Hayes et al. (2010) pointed out, Wegner’s (1994) research on thought suppression indicated that active attempts to remove thoughts from conscious awareness causes an escalation in these unwanted thoughts. In fact,

Wenzlaff and Wegner (2000) concluded that not only is thought suppression ineffective, it is counterproductive and is a contributing factor in psychopathology.

Thus, it is possible that over time, seniors have “given up” on these counterproductive cognitive strategies and have even replaced them with more adaptive mechanisms. Humour regarding the topic of death, for example, was observed in many of the participants during the debriefing in the current study and may be an alternative to thought suppression, which only seems to exacerbate death thoughts. Vaillant (2002) viewed human development as evolving from immature and maladaptive coping mechanisms (e.g., passive aggression, acting out, projection) to more adaptive and “mature” (p. 62) defenses such as humour and altruism. He asserted that mature humour allows individuals to look directly at that which causes pain and express the corresponding emotion without causing as much discomfort to self or others. These conclusions were derived from the “Grant Study” of adult development at Harvard University (Heath, 1945) that showed a significant increase in both altruism and humour and a significant decrease in immature defenses over a 25-year period. Preliminary research examining aging and humour specifically has indicated that humour may be an adaptive coping mechanism to assist older adults in enhancing their quality of life and reducing stress associated with aging (Shammi & Stuss, 2003). Continuing to examine potential cognitive strategies employed by seniors such as humour as well as those strategies described by McCoy et al. (2000) (e.g., downward adjustment of standards, cognitive reframing, etc.) may be useful in determining how seniors appear to demonstrate some immunity to the death thought accessibility commonly produced by blatant death primes. Further research is needed to explore why subtle death primes seem to prompt the cognitive sequence needed to employ distal defenses in older adults whereas blatant death primes do not.

While the subtle MS condition produced heightened generativity scores, this condition did not result in heightened scores in overall child and grandchild success. This finding may challenge the idea that children and grandchildren facilitate death denial for their parents, or as Lifton (1974) stated, provide a sense of symbolic immortality. However, both methodological and theoretical issues must be considered as they may shed light on these unexpected results. In conducting research regarding the death attitude of seniors, it is important to consider the quality of the relationships between elders and their children (Cicirelli, 2002). It seemed reasonable to assume that participants' level of secure attachment to their children would moderate the relationship between the subtle MS induction and the child/grandchild success scores. The low reliability of the secure attachment subscale, however, made it difficult to assess possible moderating effects. Another methodological limitation was the challenge participants faced when rating their children and grandchildren's success when they had more than one child or grandchild (as was the case for most participants). Having to mentally "average" the success of their offspring proved to be a challenge for many individuals (as expressed out loud by several participants during this portion of the study) and this cognitive task may have disrupted their ability to respond to the MS induction with a gut-level, immediate reaction which is essential in TMT research (Hayes et al., 2010).

Due to the limitations described above, the attachment construct should continue to be investigated within the purview of TMT related to seniors and their children. Given the growing interest in attachment and TMT, it may be helpful to consider the results of relevant research in this area, particularly when choosing developmentally relevant constructs. For example, Mikulincer and Florian's (2000) findings that individuals with secure attachments respond to reminders of death with a heightened desire for intimate relationships whereas individuals with

insecure attachment styles are more inclined to rely more heavily on their cultural worldview may inform future methodological decisions. It is conceivable that since the child and grandchild success measures in the current study did not include items regarding the relationship between participants and their loved ones, those who were securely attached were not able to engage the relational defenses that naturally develop from reminders of death. Reliably categorizing participants into secure and insecure attachment styles, limiting possibility of cognitive load while completing the dependent measure, and providing seniors with opportunities to employ both relational and cultural defenses will assist researchers hoping to understand the unique defenses of seniors in regards to their children and their attachment patterns.

Along with methodological issues, the disparity in findings between the first and second hypothesis indicates that theoretical factors should be considered as well. The differences between the two dependent measures may provide insight as to their relative efficacy in producing typical TMT responses. The GESS-R required participants to rate their expectancy for their adult children's success in a variety of domains. This measure, along with the four-item grandchild measure, was included to see if death thoughts led participants to produce heightened scores related to their children's and grandchildren's success. Although there are arguments that the parenting component of generativity is particularly powerful (Erikson et al., 1986), it may be that the complex and multifaceted construct of generativity was better captured in the LGS than it was in the GESS-R. Identifying their children or grandchildren's success and having the implicit awareness that this success is reflective of their skill as a parent (which is only one of the many components of generativity) appeared to be less effective than having participants rate the various elements of their own generativity within one measure as was the case with the LGS.

In their development of the LGS, McAdams and de St. Aubin (1992) incorporated “many of the most salient ideas in the theoretical literature on generativity” (p. 1007). These ideas included passing knowledge and skills to others, making contributions to community, engaging in activities that create a lasting legacy, being creative and productive, and caring and taking care of others. These salient ideas within the LGS corroborate Erikson’s (1998) view of generativity that included procreativity, productivity, and creativity and Kotre’s (1984) understanding of generativity as comprising biological, parental, technical, and cultural components. Even Becker’s (1973) four levels of power (personal, social, secular, and sacred) parallel many of the theoretical components of generativity. Individual and cultural components of generativity are important aspects of both these frameworks, with the ultimate goal of the developmental process being a move beyond the self toward a more global sense of concern called grand-generativity (Erikson), cosmic heroism (Becker), or cultural connection (Kotre). Based on the common theoretical underpinnings of the generativity construct, it makes sense that the more global and multifaceted measure of generativity (the LGS) may have been better able to encapsulate the generativity construct as a kind of global immortality mechanism than the GESS-R (which focused primarily on the parenting component). Indeed, the LGS seems to include the cultural component of generativity and both Erikson (Wakefield, 1998) and Kotre (1984) have argued that it is this global form of generativity in particular that contributes to a sense of death transcendence. As expressed by Kotre (1984), “There is no way to outlive the self without the vehicle of culture” (p. 269).

Despite the apparent efficacy of a broader, more global construct in producing the hypothesized effect, a follow-up analysis did indicate that both blatant and subtle death reminders engendered significantly higher scores on the grandchildren’s “common sense item”

than the control group. It seems feasible that common sense is a quality that may be valued by older generations. In fact, Williams, Denney, and Schadler (1983) found that 76% of adults over 65 reported that their competence in solving practical, “everyday” problems (i.e. thinking, reasoning, and problem solving) has increased over time. This appears to have some real-world validity as Sternberg, Wagner, Williams, and Horvath (1995) have stated that research suggests that while the ability to solve academic problems declines from early adulthood to late adulthood, practical problem solving abilities is stable, and even increases through late adulthood. Thus, from a generativity standpoint, it is possible that a quality that seniors seem to value in themselves is one that they hope appears in future generations. Perhaps common sense stood out for the current participants more than the other three grandchild success items (intellectual/academic ability, social skills/social competence, and leadership) because it encapsulated an inherent skill that their grandchildren possess regardless of the opportunities provided to them. Certainly, for an age cohort that was not provided the same opportunities in education as children today, the idea of their grandchildren having higher levels of common sense, a skill that greatly benefited their own generation, may be a comforting one.

It also remains unclear why TMT responses were shown in regards to their grandchildren but not their children. It may be that it was more difficult for participants to project their generative hopes on their already fully developed children (whose success has already been greatly determined) than on their grandchildren who may have been perceived as more developmentally malleable since their strengths, talents, and identity had yet to be fully formed. Finally, the fact that both subtle and blatant death reminders elicited a TMT response regarding grandchildren’s common sense (when it was thought that only subtle death reminders engage TMT mechanisms with seniors) was also surprising. As mentioned earlier, perhaps subtle death

reminders in conjunction with thoughts of one's own legacy produce the expected TMT response (heightened desire to view oneself as generative) because seniors have habituated to thoughts of their own death. But in the case of one's grandchildren, it may be that subtle and blatant death reminders are equally effective when the dependent variable of interest is not about themselves, but about their progeny whose future is undefined. Future research would benefit from exploring the possibility that the "habituation" process that may be occurring when seniors consider their own death is somehow mitigated once thoughts of future generations arise.

Along with methodological and theoretical considerations, results from the current study have practical implications as well. Results indicated that seniors who were asked to consider the idea of death clung more tightly to the idea that they have lived a generative life than those who were asked a control (or blatant) question. TMT researchers have believed that strengthening clients' cultural anxiety buffers may be the most effective way to reduce concerns regarding mortality (Solomon et al., 1991). Thus, if generativity is an effective death anxiety buffer for older adults, TMT theory would suggest that enhancing generativity in later life would enhance psychological functioning as well. This is consistent with Erikson's theory as he himself believed generativity to be associated with well-being and psychological health (McAdams, 2000). In fact, based on a significant accumulation of data, scholars have recently concluded that there is very little doubt regarding the positive association between generativity and well-being (Huta & Zuroff, 2007). One way in which generative functioning can be enhanced is through life review therapies that incorporate Erikson's psychosocial stages (see Haight & Haight, 2007).

Social implications should also be considered in light of the results. Preliminary TMT research with older adults has suggested that when exposed to subtle reminders of death, seniors

(unlike younger adults) become significantly more lenient in their judgments towards moral transgressors (Maxfield et al., 2007) and strive to conceptualize themselves as having enhanced generativity (current study). In light of these findings, Freedman's (1997) description of seniors as a "natural resource" and aging as "an opportunity to be seized" (p. 249) (as opposed to viewing aging as a social problem) could not be more apt. Volunteerism in particular would facilitate generativity in seniors while benefiting society as a whole. Despite the fact that TMT's application to aging is in its infancy and both theory and method need to be refined, the results of this study provide compelling evidence that generativity serves an important function on both personal and societal levels.

Conclusion

Terror Management Theory offers intricate methodologies to shed light on expansive existential questions regarding how human beings function despite their cognitive capacity for death awareness. Empirical studies examining death attitudes in older adults originated in the mid-fifties (Feifel, 1956) and TMT studies with younger adults originated in the eighties (Greenberg, Pyszczynski, & Solomon, 1986). Only recently has the TMT research community considered examining how older adults would respond to their unique experimental manipulations that have highlighted important trends and implications for younger adults. The very little preliminary research in this area has suggested that in general, seniors do not appear to be affected by the blatant death primes that have historically made younger participants work to uphold their meaning making systems. Maxfield et al.'s (2007) contribution of the subtle death prime indicated that TMT manipulations should be explored on other levels of consciousness since subtle primes seemed to impact seniors more than blatant ones (albeit not in the ways that were predicted). This study also urges TMT researchers to include older adults in TMT but not

without considering what distinguishes seniors from younger adults *prior* to conducting this research. Incorporating developmental theory into TMT research with seniors and exploring what truly matters to this population is the first step in generating sound empirical results from which to derive meaningful implications. This study found that thoughts of death heighten the importance of generativity for seniors. This finding is one that makes conceptual sense from both a TMT and developmental standpoint. It provides some guidance about how seniors might effectively cope with end of life issues and validates initiatives such as psychotherapy and volunteerism that work to enhance generative functioning in later life.

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Table 1

Individual Differences in Primary Measures as a Function of Three Different Age Decades (N = 179)

Variable	Age Group						Total <i>N</i> = 179	
	Sexagenarian (60 - 69) <i>n</i> = 71		Septuagenarian (70 - 79) <i>n</i> = 75		Octogenarian (80 - 89) <i>n</i> = 33			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Self Esteem	25.06	4.43	23.68	4.82	23.73	4.75	24.23	4.67
Positive Psychosocial Stage 7 (MPD)	28.73	3.96	27.15	4.80	27.73	4.54	27.88	4.47
Secure Attachment	8.57	1.55	8.11	1.83	8.67	1.36	8.39	1.65
Depression	1.18	1.44	1.08	1.40	1.44	1.70	1.19	1.47
Negative Affect	11.97	2.66	11.68	2.25	12.21	2.67	11.89	2.49
Positive Affect	36.66	6.06	35.42	6.86	35.85	6.32	35.99	6.44
Generativity (LGS)	80.49	9.76	77.57	10.75	75.97	9.73	78.45	10.28
Child Success	109.63	10.86	104.86	14.05	104.39	12.25	106.68	12.69
Grandchild Success	28.71	3.43	27.67	4.82	27.06	4.71	27.92	4.37
Death Words	1.61	0.92	1.65	0.94	1.42	1.03	1.59	0.95
Cognistat**	78.49	3.76	77.67	3.63	75.24	4.87	77.55	4.08

Note. * $p < .05$ ** $p < .01$ using Welch's F

Table 2

Individual Differences in Demographics as a Function of Three Different Age Decades (N = 179)

Variable	Age Group						Total <i>N</i> = 179	
	Sexagenarian (60 - 69) <i>n</i> = 71		Septuagenarian (70 - 79) <i>n</i> = 75		Octogenarian (80 - 89) <i>n</i> = 33			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Education	14.11	3.01	14.10	3.70	13.72	3.89	14.04	3.46
Socioeconomic Status	3.1	1.31	3.01	1.29	2.84	1.51	3.02	1.34
Health	5.53	1.10	5.44	1.07	5.52	1.18	5.49	1.10
Number of Children**	2.49	1.10	3.25	1.42	3.45	1.89	2.99	1.46
Number of Grandchildren*	4.00	2.43	5.51	4.50	5.44	3.22	4.97	3.68
Attend Church/Mosque/Temple	2.59	1.74	3.16	2.04	4.21	2.04	3.13	2.00
Religious	2.54	0.88	2.68	0.89	2.76	0.90	2.64	0.88
Spiritual	3.08	0.75	3.01	0.80	2.79	0.86	3.00	0.79
Private Prayer	2.66	1.42	2.88	1.37	3.09	1.51	2.83	1.42

Note. * $p < .05$ ** $p < .01$ using Welch's F

Note. Age group differences in church/mosque/temple attendance (yes/no) and private prayer (yes/no) were explored using Chi-square tests as they are considered ordinal data. No significant differences were found.

Table 3

Individual Differences in Dependent Variables as a Function of Condition (N = 179)

Dependent Variable	Condition							
							Total <i>N</i> = 179	
	Blatant <i>n</i> = 60		Subtle <i>n</i> = 59		Control <i>n</i> = 60			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Generativity (LGS)	78.15	11.09	78.98	10.31	78.22	9.53	78.45	10.28
Generativity (LSG) ^a	77.74	-	80.19	-	77.44	-	-	-
Child Success (GESS-R)	106.27	11.69	107.02	13.60	106.76	12.93	106.68	12.69
Grandchild Success (LGS)	28.18	4.17	28.26	4.11	27.34	4.79	27.92	4.37
Grandchild Common Sense Item (LGS)	7.20	1.22	7.04	1.23	6.69	1.30	6.97	1.26

Note. * $p < .05$ ** $p < .01$

Note. LGS^a = adjusted means

Table 4

Cronbach's Alpha for Research Measures

Scale	Cronbach's Alpha	Items
Self Esteem	.86	10
Positive Psychosocial Stage 7 (MPD)	.82	7
Secure Attachment	.49	6
Depression	.72	15
Negative Affect	.84	10
Positive Affect	.87	10
Generativity (LGS)	.88	20
Child Success	.94	25
Grandchild Success	.90	4

Table 5

Correlations for Primary Measures and Demographic Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Self Esteem	—	.53**	.38**	-.51**	-.39**	.54**	.56**	.33**	.40**	-.04	.11	-.14	.20**	.09	.37**	-.04	.01	.07	.07	-.11	.06
2. Pos PS ^a		—	.26**	-.32**	-.17*	.44**	.71**	.32**	.33**	-.05	.04	-.12	.15*	.04	.17*	-.05	.06	.03	-.04	-.28**	-.18*
3. Secure			—	-.24**	-.27**	.17*	.29**	.33**	.19*	-.15*	.20**	-.21**	.14	.11	.19*	-.03	.06	.08	.03	-.13	.05
4. Depression				—	.42**	-.41**	-.34**	-.36**	-.39**	-.03	-.06	.07	.00	-.09	-.35**	-.15*	-.11	.03	-.08	.13	-.09
5. Neg Affect					—	-.13	-.19*	-.21**	-.24**	.01	-.19*	.03	-.06	-.07	-.21**	-.08	-.12	-.01	.00	.06	.04
6. Pos Affect						—	.47**	.26**	.28**	.04	.04	-.10	-.01	.06	.22**	-.08	-.04	.15*	.06	-.12	.01
7. Generativity							—	.39**	.48**	-.11	.13	-.22**	.18*	.11	.17*	-.06	.08	.08	.01	-.23**	-.10
8. Child Success								—	.51**	-.09	.13	-.14	.00	.06	.31**	-.08	-.03	.00	-.12	-.25**	-.08
9. GC Success									—	.03	.11	-.16	.09	.17*	.22**	-.03	-.04	.04	.06	-.07	.01
10. Death Words										—	-.11	-.08	-.12	.04	.10	.06	.04	.02	-.11	-.08	-.10
11. Cognistat											—	-.27**	.30**	.16*	.23**	-.15*	-.13	.21**	.11	-.01	.09
12. Age												—	-.09	-.17*	.00	.28**	.19*	-.32**	-.12	.11	-.16*
13. Education													—	.21**	.01	-.08	.03	.06	.15*	-.06	.05
14. SES														—	.10	-.11	.03	.01	.08	.08	.26**
15. Health															—	-.01	-.02	-.10	.03	.01	.07
16. # of C																—	.62**	-.34**	-.17*	.01	-.21**
17. # of GC																	—	-.31**	-.18*	-.08	-.27**
18. Attendance																		—	.48**	.24**	-.35**
19. Religious																			—	.44**	.46**
20. Spiritual																				—	-.51**
21. Pray Privately																					—

Note. * $p < .05$ ** $p < .01$

Note. Pos PS^a = Positive Psychosocial (Stage 7)

C = Children

GC = Grandchildren

Attendance = Attendance at Church/ Mosque/ Temple

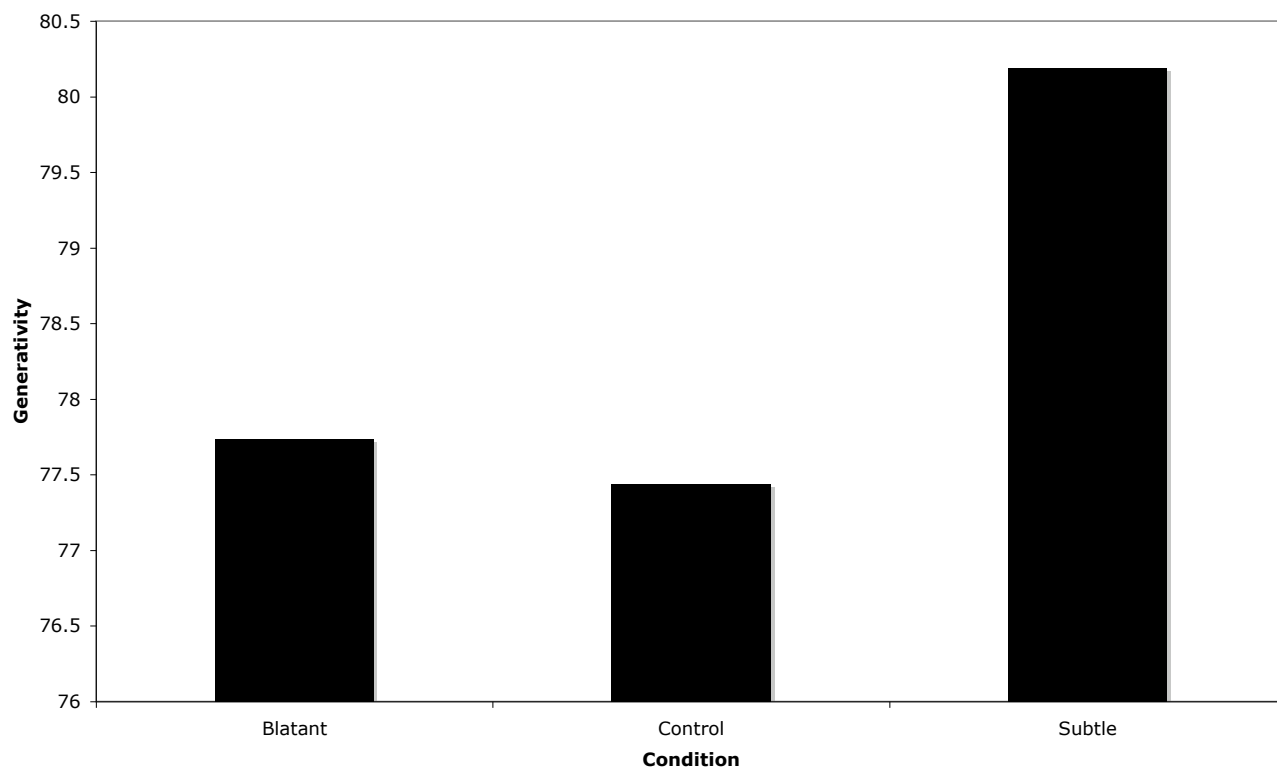


Figure 1. Condition differences in response to mortality salience on the Loyola Generativity Scale. Scale ranges from 20–100. Generativity scores represent the adjusted means of the ANCOVA.

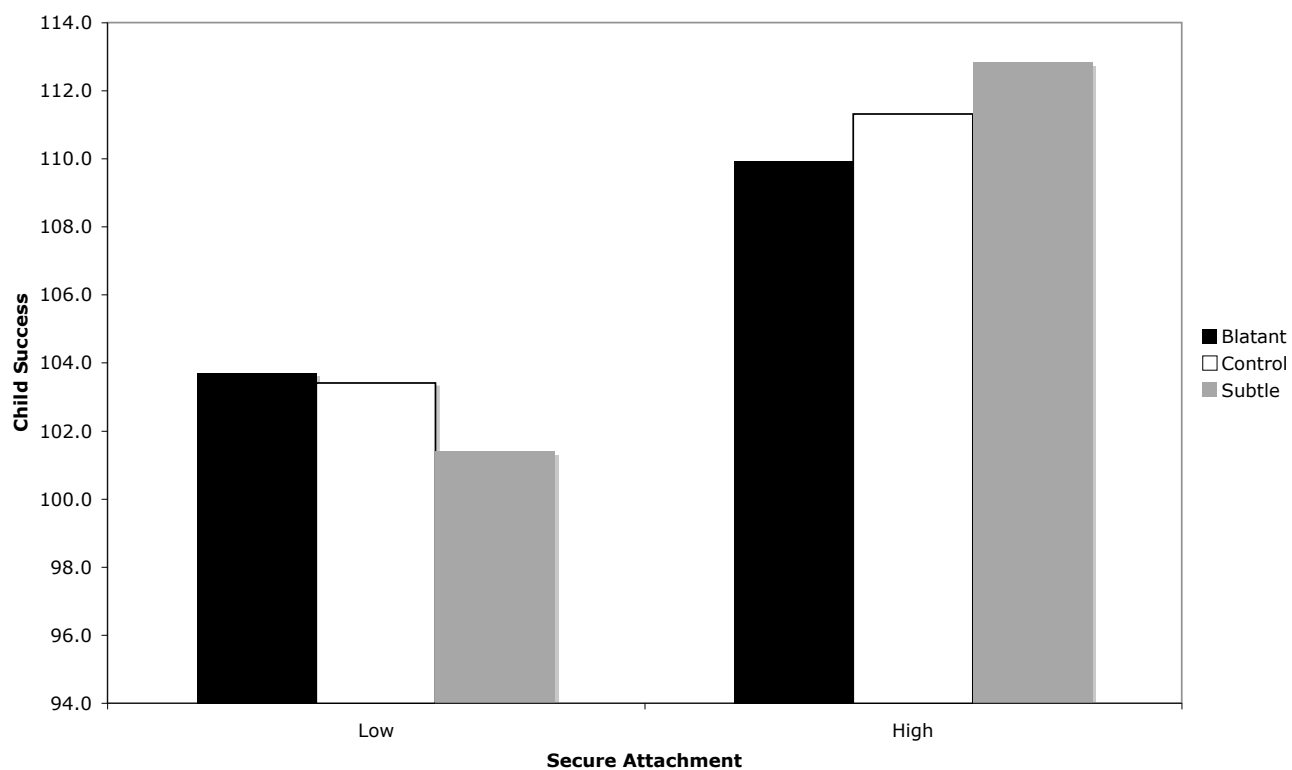


Figure 2. Condition and attachment differences in response to mortality salience on Revised Generalized Expectancy for Success Scale (GESS-R). Scale ranges from 25–125.

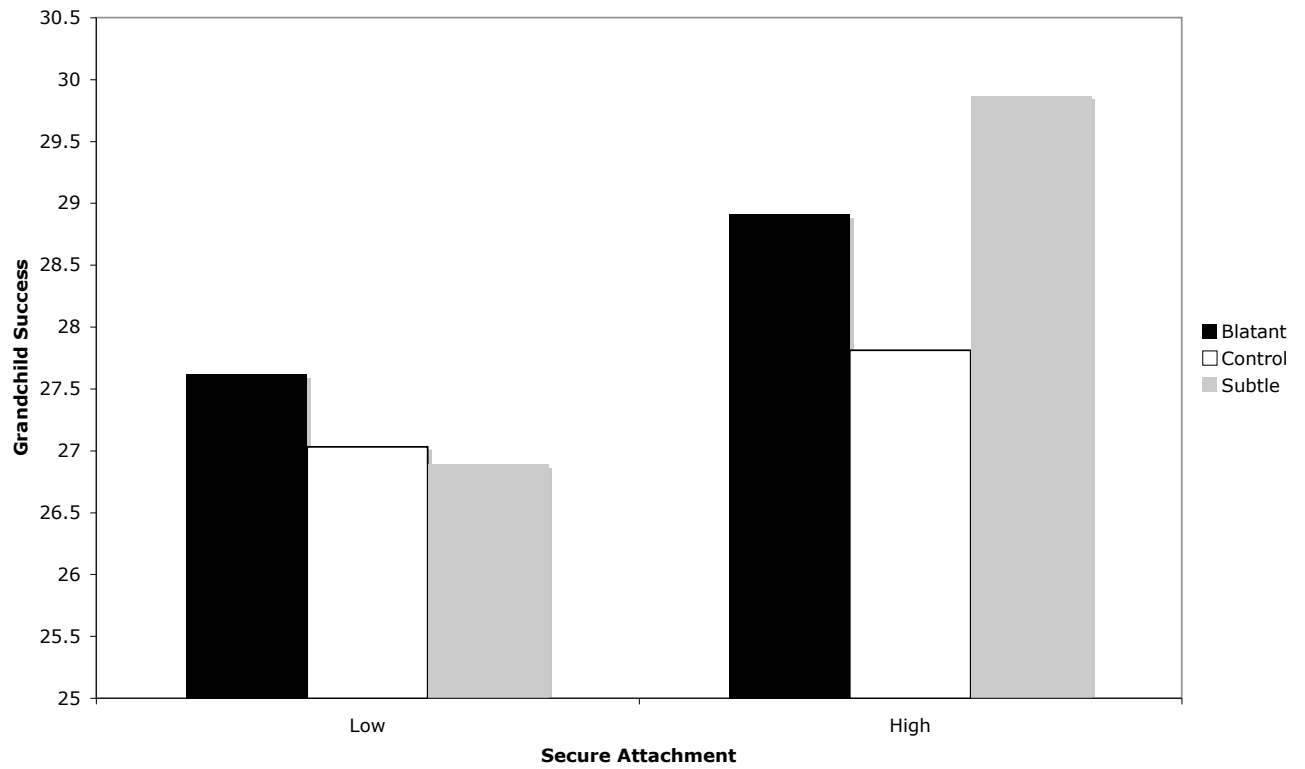


Figure 3. Condition and attachment differences in response to mortality salience on Grandchild Success. Scale ranges from 4–36.

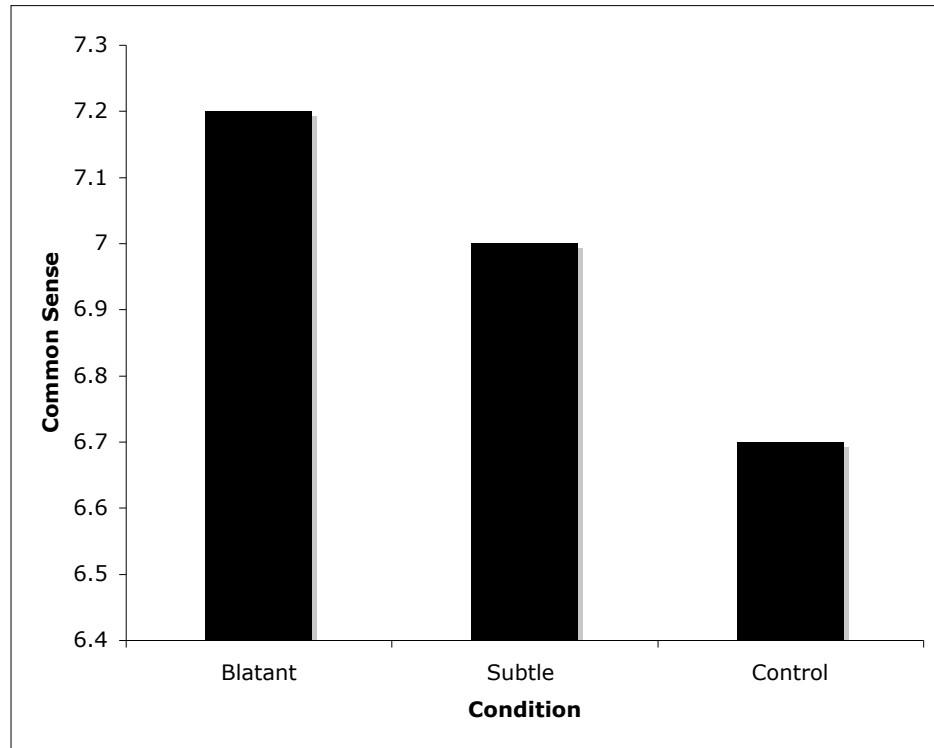


Figure 4. Condition differences in response to mortality salience on the Grandchildren's Common Sense Item. Scale ranges from 1 – 9. Common Sense scores represent the adjusted means of the ANCOVA.

CHAPTER 4

SECURE YOUR BUFFERS OR STARE AT THE SUN? IMPLICATIONS OF MERGING TERROR MANAGEMENT THEORY WITH INSIGHTS FROM PSYCHOTHERAPY

“That balance is not easily struck—the effort to find a way to feel real while at the same time not becoming overwhelmed by the existential pain of our awareness of death. . . . Within this challenge to live with eyes and heart wide open rests the ultimate goal: how to be fully human.”

~ Siegel, 2003, p. x

Introduction

Terror Management Theory (TMT) (Greenberg, Pyszczynski, & Solomon, 1986) is approaching its thirtieth anniversary of conducting empirical research that effectively illustrates the role of death anxiety in human beings’ predilection for self-esteem enhancement and cultural worldview construction. Researchers from around the world, from over 13 different countries, have conducted hundreds of studies providing powerful corroborating evidence that reminders of death impact a range of human thoughts, feelings, and behaviours (Strachan et al., 2007). As a result, this theoretical framework has significantly contributed to an enhanced conceptualization of several psychological constructs including in-group bias (Castano, Yzerbyt, Paladino, & Sacchi, 2002), nationalism (Castano, Yzerbyt, & Paladino, 2004), stereotyping (Schimel et al., 1999), attachment (Mikulincer & Florian, 2000), risk-taking (Miller & Mulligan, 2002), terrorism (Pyszczynski, Solomon, & Greenberg, 2003), religion (Vail et al., 2010), aggression (McGregor et al., 1998), prosocial attitudes and behavior (Jonas, Schimel, Greenberg, & Pyszczynski, 2002), prejudice (Webster & Saucier, 2011), and materialism (Arndt, Solomon, Kasser, & Sheldon, 2004), to name a few.

A recent meta-analysis examining 277 TMT experiments concluded that death does significantly impact human thought and behaviour outside of conscious awareness (Burke,

Martens, & Faucher, 2010). While the experimental findings have indeed been compelling, implications of these findings require further elaboration, particularly the implications for mental health. Although several investigators have alluded to the importance of the clinical implications of TMT in the treatment of psychopathology (e.g., Arndt & Vess, 2008; Martin, Campbell, & Henry, 2004; Pyszczynski et al., 2003; Routledge et al., 2010; Solomon, Greenberg, & Pyszczynski, 1991; Strachan, Pyszczynski, Greenberg, & Solomon, 2001), researchers have barely begun to investigate the mental health implications of this wide-ranging theory. Arndt, Routledge, Cox, and Goldenberg (2005) state that while TMT research converges to indicate that mortality concerns impact various facets of mental health, the ways in which psychotherapists can use these insights to ameliorate psychopathology remains unclear. Similarly, Greenberg (2008) described the potential of TMT in facilitating the advancement of mental health practice but acknowledged that recommendations thus far are simply a “pie in the sky” (p. 53). This article seeks to bridge the gap between TMT research and psychotherapy by first providing a comprehensive review regarding how TMT has thus far conceptualized mental health in general as well as a variety of specific psychological disorders. It is then argued that the next step in exploring the psychological implications of TMT must involve the existing psychotherapy treatment literature, particularly the literature outlining the clinical treatment of death anxiety. If all forms of psychopathology are, as both TMT researchers and existential psychotherapists claim, rooted in the universal fear of death, it would be beneficial to investigate current clinical research and literature on death anxiety intervention and treatment. In juxtaposing these two fields, it is expected that new areas for inquiry will emerge, particularly through an examination of their differences.

A prime example of these differences can be seen when considering how TMT researchers differ from psychotherapists in regards to whether or not death thoughts are helpful or harmful. For example, psychotherapist Irvin Yalom (2008) was highly influenced by the existential philosophical movement that encourages individuals to “stare the sun in the face” (p. 5) and confront death anxiety head-on in order to overcome the terror of death. Similarly, in their cognitive behavioural protocol for death anxiety treatment, Furer and Walker (2008) recommended exposure to death thoughts as integral to their treatment plan. In stark contrast, TMT researchers were influenced by the works of cultural anthropologist Ernest Becker (1973) who wrote, “When you get a person to look at the sun as it bakes down on the daily carnage taking place on earth . . . what comfort can you give him from a psychotherapeutic point of view?” (p. 58). The answer, according to Becker and his TMT successors, is that there is no comfort to be had from such an act. Instead, human beings must continue to effectively deny their death to maintain psychological equilibrium. However, a more in-depth analysis of TMT and current death anxiety treatment reveals that these two seemingly opposed areas share important commonalities and have the potential to be mutually informative. These differences and commonalities are explored in detail herein.

Terror Management Theory

TMT (Greenberg et al., 1986) is a conceptual framework that was inspired by the writings of Ernest Becker (1973), author of *The Denial of Death*. Becker outlined humans’ motivation to feel like valuable members within a socially contrived culture. He claimed that this self-esteem striving tendency is derived from enhanced cognitive abilities specific to the human species, who are uniquely capable of causal reasoning, considering past and future events, and personal reflection (Solomon et al., 1991). With the great fortune of superior intellect, self-

awareness, and foresight, also comes the problematic awareness of which other species are blissfully ignorant: that death is an inevitable fate for everyone (Solomon et al., 1991).

Drawing from Becker's insights, TMT theorists have maintained that human beings' instinctual drive towards self-preservation coupled with their unsettling awareness of the inevitability of death, raises the possibility of incapacitating terror (Greenberg et al., 1993). In order to maintain psychological equilibrium despite the terrifying realization that death is inescapable, humans use the very cognitive abilities that have created this internal conflict in an effort to resolve it (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994). Specifically, human beings use their cognitive abilities to effectively construct cultural worldviews that transform a frightening, chaotic, and unpredictable existence into a life of meaning, order, and permanence (Greenberg et al., 1986). Thus, cultural worldviews provide a shared reality comprised of religions, social norms, and values. Individuals who adhere to the "rules" delineated by that reality are rewarded with promises of symbolic or literal immortality (Solomon, Greenberg, & Pyszczynski, 2004). If one can maintain faith in the cultural worldview and perceive him or herself as being a meaningful member of that shared reality via self-esteem, psychological equanimity can be achieved (Solomon et al., 2004).

Empirical Support

In the early stages of TMT development in the mid 1980s, proponents of this theory felt Becker's insights were so provocative that they required no further analysis (Solomon et al., 2004). A push from the academic community, however, led to the development of testable empirical hypotheses that seemed to answer two fundamental questions that social psychology had not yet sufficiently addressed. Namely, (1) why do people so desperately seek self-esteem and (2) why do people cling so tightly to their cultural beliefs and lack tolerance towards those

whose beliefs are different (Solomon et al., 2004)? From these reflections, TMT researchers derived two hypotheses that have gained wide-ranging empirical support.

First, the *anxiety-buffer hypothesis* states that if a psychological construct protects human beings from anxiety, then if that construct is strengthened, it should decrease one's propensity for such anxiety (Pyszczynski, Greenberg, & Solomon, 2005). Several studies have supported the anxiety-buffer hypothesis. For example, Greenberg et al. (1992) found that subjects whose self-esteem was experimentally enhanced had lower anxiety levels in response to a graphic death-related video compared to subjects whose self-esteem was not manipulated. The other hypothesis, the *mortality salience (MS) hypothesis* states that if a psychological construct protects human beings from anxiety, reminding people of their mortality should cause them to cling even more tightly to that construct (Pyszczynski et al., 2005). Studies testing the mortality salience hypothesis typically have participants respond to open-ended questions regarding their own mortality. These studies have consistently shown that individuals tend to have positive responses towards those who uphold their worldview and negative responses to those who undermine it (Pyszczynski et al., 2005).

The mortality salience hypothesis in particular seems to effectively illustrate both the positive and negative aspects of human behaviour. While in many cases, reminders of death engender negative reactions towards dissimilar others such as an aversion to immigrants (Bassett & Connelly, 2011) and anti-Semitism (Cohen, Jussim, Harber, & Bhasin, 2009), death reminders can also instigate positive responses such as heightened intentions to achieve fitness (Arndt, Schimel, & Goldenberg, 2003) and prosocial behavior (Jonas et al., 2002). What is it that determines whether an individual engages in positive or negative responses to death? Research has consistently shown that people respond to MS in ways that align with the norms and

standards delineated by their worldview (Jonas et al., 2008). For example, Jonas et al.'s (2002) study on prosocial behavior showed that when reminded of their own death, American college students donated more money to American charities but not to foreign charities. This suggests that even positive behavior may need to fall within the confines of one's particular cultural preferences in order to be activated by death thoughts.

The Psychosocial Development of Terror Management

In their early formulations of TMT, Greenberg, Pyszczynski, and Solomon (1986) maintained that there is a longstanding need for self-esteem throughout one's development. They stated that from birth, children are provided with a sense of safety and security from their caregiver, which satisfies their basic need for survival and reduces their anxiety. As children grow older, they notice their parents' care becomes increasingly conditional, based on whether they are deemed to be "good" (and worthy of protection) or "bad" which may result in a serious danger or even annihilation. These ideas are not unlike Carl Rogers' (1959) description of conditions of worth that are developed after an infant begins to view him or herself from the perspective of the caregiver and begins to introject these values and act in accordance with them. Thus, an early association between self-worth and protection from death is formed and children begin to develop a vehement desire to enhance their self-esteem. Eventually, children realize that there are several events in which even their parents cannot protect them (especially death), and therefore they shift their focus and source of security from their parents to their culture in order to experience similar feelings of belonging, comfort, and a sense of immortality (Solomon et al., 1991). Thus, the psychological structures that allow for equanimity and mental health develop throughout childhood and depend a great deal on the child's ability to view the world as

secure and orderly and to view him or her self as making a meaningful contribution to that world (Pyszczynski et al., 2003).

The Development of Terror “Mismanagement”

While the development of self-esteem and self worth within the context of a secure and orderly worldview contributes to a healthy mental state, failure to shield oneself from death anxiety by not living up to the norms of the culture one belongs to is believed to result in psychopathology (Pyszczynski et al., 2003). According to TMT, because of a variety of possible factors (biochemical deficiencies, genetics, stress, family dysfunction, negative events, poverty, etc), many individuals lack the ability to effectively deny death and therefore react to their inherent existential anxiety in maladaptive ways, resulting in a range of psychological difficulties (Pyszczynski et al., 2003). While some individuals may struggle to sustain the idea that they themselves are valuable members of a meaningful world, others may be unwilling to accept the worldview they are presented as it contradicts their experience of reality (Pyszczynski et al., 2003). Although there is a great deal of theoretical and empirical work to be done in the TMT community regarding mental health, conceptualizations of psychopathology within the purview of TMT are beginning to emerge in the literature. There are also a few empirical TMT studies looking at specific psychological disorders. By comparing the defensive reactions to death reminders by those with and without a particular psychological disorder, researchers have begun to illustrate what is being called “terror mismanagement” (Arndt & Vess, 2008, p. 12). Insights from some of the more commonly discussed disorders in TMT literature will be described below.

Anxiety Disorders

Strachan et al. (2007) argued that most personality theorists and mental health experts believe that pathology is, at least in part, due to difficulties in the control of anxiety. While most

psychologists would describe anxiety disorders such as a phobia as an irrational fear that is excessive, a TMT perspective would argue that the fear isn't actually excessive and is instead an accurate manifestation of the ultimate fear of annihilation and nonexistence (Strachan et al., 2001). In essence, TMT theorists have argued that the phobic or obsessive compulsive behaviors characteristic of an anxiety disorder are simply ineffective modes of coping with the fear of death (Strachan et al., 2001). As Yalom (1980) explained, those who find themselves with a pathology have lost their ability to use "adaptive coping modes" (p. 111) to deal with death awareness such as denial, suppression, repression, and displacement as well as helpful belief systems such as religion, personal omnipotence, and symbolic immortality. While death is a nebulous and abstract concept that is difficult (if not impossible) to control, phobias convert the fear of death into a more tangible source of anxiety that is much easier to manage (e.g., spiders, germs, etc.) (Pyszczynski et al., 2003). Individuals with obsessions are similarly able to continuously hone in on more demarcated fears thus avoiding the larger, more existential concerns. The related compulsions result in magical rituals, also designed to reduce death anxiety (Pyszczynski et al., 2003).

In an empirical investigation exploring the effects of MS on anxiety-related behaviors, Strachan et al. (2007) designed three studies on the basic premise that since death is at the core of human fear and anxiety, reminders of death should intensify the manifestations of death anxiety such as phobias and compulsions. In their first study, results indicated that compared to a control condition, reminders of death exacerbated avoidance of spider stimuli and the perception of spiders as threatening but only among those participants meeting a DSM-IV criteria for a specific phobia of spiders. Results from their second study showed that compared to a control condition, reminders of death increased the length of time participants washed their

hands but only for those with higher scores on a compulsive hand washing measure. Finally, compared to a control condition, reminders of death appeared to increase behavioral avoidance of a group discussion among participants with higher levels of fear regarding social interaction. The researchers argued that the benefit of a TMT perspective on specific phobias and obsessive-compulsive tendencies is that seemingly arbitrary and inexplicable fears make conceptual sense if the fears are viewed as reminders of death, the ultimate fear for all human beings.

Another anxiety disorder that has been conceptualized through a TMT lens is post-traumatic stress disorder (PTSD). According to TMT theorists, in a manner similar to those with phobic and obsessive compulsive tendencies, individuals with PTSD are thought to have experienced a breakdown in their terror management system (Pyszczynski et al., 2003). In fact, criterion A of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2000) states that if an individual is to be diagnosed with PTSD, he or she must (a) have experienced or witnessed an event that threatens death or at least serious injury to self or others and (b) the individual's response to this frightening experience must involve a very intense fear, feelings of helplessness, or horror. These criteria directly parallel the proposed etiology of PTSD as conceptualized by TMT theorists. Specifically, according to TMT, when an event forces an individual to confront their death, the resulting terror challenges a commonly held worldview that one is safe and secure if he or she simply lives up to the expectations of that worldview (Pyszczynski et al., 2003). A TMT perspective on this disorder suggests that despite very rigid worldviews being particularly effective in normal conditions, these strongly defended belief systems cause greater problems for people when they are completely shattered by a traumatic event. The result of a broken worldview involves recurring bouts of anxiety and the symptoms of PTSD such as flashbacks, nightmares, intrusive thoughts, avoidance of traumatic

reminders, numbing, hyperarousal, and an exaggerated startle response (Kesebir, Luszczynska, Pyszczynski, & Benight, 2011). Thus, according to TMT, flexible and resilient death anxiety buffers should be adaptive and healthy characteristics that make it less likely that an individual will be diagnosed with PTSD (Pyszczynski et al., 2003).

This conceptualization of PTSD using a terror management perspective is so compelling that theorists have recently proposed the anxiety buffer disruption theory (ABDT) (Pyszczynski & Kesebir, 2011). This theory stems from TMT and states that PTSD is the result of an ineffective anxiety-buffer that fails to protect individuals from both anxiety in general and death anxiety specifically (Pyszczynski & Kesebir, 2011). Preliminary evidence for this theory was found in a recent study by Abdollahi, Pyszczynski, Maxfield, and Luszczynska (2011) with survivors of an Iranian earthquake. Results from their study indicated that individuals with PTSD do not appear to respond to death reminders in the same manner as those individuals without the disorder. Specifically, individuals with low levels of dissociation (a common feature in PTSD) responded to death reminders with increased negative attitudes towards foreigners as is expected and commonly seen in TMT research. Conversely, individuals with high levels of dissociation were unaffected by the MS manipulation. Furthermore, whereas death reminders do not usually impact affective responses in TMT research (positive or negative), the high dissociation group in the MS condition experienced increased negative affect and decreased positive affect compared to the low dissociation control group. A subsequent follow-up study indicated that two years after the traumatic event, participants were still not engaging in the typical worldview defenses. This study also found that the relationship between the dissociation found one month after the traumatic event and two years after the traumatic event was partially mediated by the disrupted anxiety-buffering mechanism.

Kesebir, Luszczynska, Pyszczynski, and Benight (2011) found similar results in a study with Polish women with a history of domestic partner violence. Those participants who did not meet the diagnostic criteria for PTSD showed the expected increase in worldview defense following reminders of death while those who did meet the diagnostic criteria for PTSD did not display the same worldview defense. This research also indicated that specific PTSD related variables such as dissociation and coping self-efficacy distinctively contributed to the disruption of the anxiety-buffer system. Exploring the ABDT from a different angle, Chatard et al. (2012) were interested in whether individuals with high levels of PTSD symptoms engaged in the usual suppression of death thoughts that is typically seen in TMT. As expected, reminders of death immediately led to heightened death thought accessibility among participants with high levels of PTSD. Conversely, participants with low levels of the PTSD symptoms did not have a significant increase in death thoughts subsequent to death reminders. This study illustrated how individuals with PTSD appear to lack the ability to suppress death thoughts compared to individuals who do not have the disorder. Thus, emerging research examining ABDR has indicated that individuals with PTSD symptomology appear to respond differently than those individuals without the disorder when faced with thoughts of their mortality.

Mood Disorders

Depression has also been explored within the TMT paradigm. Pyszczynski, Solomon, and Greenberg (2003) argue that individuals experience depression when their lives become devoid of meaning or value resulting in a kind of paralysis, inactivity, and disillusionment in life. In the diagnostic criteria for a major depressive episode, individuals can experience feelings of worthlessness, inappropriate guilt, and thoughts of death (American Psychiatric Association, 2000). These criteria are explained by both a TMT and existential perspective in which an

ineffective death anxiety buffer leaves one vulnerable to low self-esteem, death thoughts, and existential guilt. As Simon, Greenberg, Harmon-Jones, Solomon, and Pyszczynski (1996) illustrated, empirical research on depressive symptoms has also aligned with TMT theory as it has indicated that individuals with depression struggle with the idea that life is meaningful (e.g., Crumbaugh, 1968; Emmons, 1992; Kunzendorf & Maguire, 1995).

According to Simon et al. (1996), it is the cultural worldview as it is conceptualized in TMT that provides the meaning necessary to protect individuals from depression. Thus, these theorists believed that individuals with depression lack the necessary faith in a protective cultural worldview and are therefore more vulnerable to death reminders. They reasoned that when depressed individuals are faced with thoughts of their own mortality, they are even more likely to cling desperately to what is left of their depleted meaning making system. To test this hypothesis, Simon et al. (1996) had both mildly depressed and nondepressed participants contemplate their own death or a control topic and then tested their level of worldview defense. Results supported their theory as the mildly depressed subjects engaged in higher levels of worldview defense than the nondepressed participants.

In a follow-up study, Simon, Arndt, Greenberg, Pyszczynski, and Solomon (1998) wanted to see if having mildly depressed participants defend their worldview in response to death reminders would indeed increase their perceptions that life is meaningful. In their study, both mildly depressed and nondepressed participants contemplated either their own death or a control topic, were either given an opportunity to defend their worldview or not defend it, and then all participants filled out a meaning scale. Results reflected previous research that mildly depressed participants had higher levels of worldview defense after contemplating their mortality than nondepressed participants. In addition, Simon et al. (1998) found that mildly depressed

participants who were provided with an opportunity to defend their worldview after contemplating their own death had higher scores in life meaning than those with mild depression who did not have a chance to defend their worldview (as well as those with mild depression who contemplated a control topic instead of death). In comparison to the nondepressed group, the participants with mild depression initially scored higher on the “no meaning” scale but this difference was eliminated when both death reminders and an opportunity for worldview defense were provided. The authors suggested that perhaps death reminders “jump start” the TMT system by reminding people of their need for death anxiety buffers in the form of protective worldviews that offer existential meaning.

In a more recent study, Johnson, Ballister, and Joiner (2005) investigated hypomania, a feature of bipolar disorder. They were interested in whether individuals who had a lifetime vulnerability to hypomania had higher levels of materialism (a component of Western cultural identification) than a control group after reminders of death. Their hypothesis was supported suggesting that as was the case with mildly depressed individuals, people vulnerable to bipolar disorder also engaged in defensive reactions when faced with thoughts of death. Based on the few studies exploring mood disorders and TMT, it appears as though individuals particularly prone to depressive and hypomanic symptoms have an even stronger need for the protective function of a cultural worldview than individuals who do not suffer from a mood disorder.

Eating Disorders

Since death anxiety is significantly reduced when individuals manage to uphold their place within the cultural worldview, then failure to meet some of the ideals of that worldview would likely result in mental health problems. One such ideal that has become an epidemic in Western society is the unrealistic pressure on women to be thin (Arndt, Goldenberg, Greenberg,

Pyszczynski, & Solomon, 2000). Goldenberg, Arndt, Hart, and Brown (2005) were interested in whether or not mortality concerns were related to restricted eating in women. They argued that TMT may offer some insight as to why many women so desperately try to match the cultural ideal of thinness even though it is unrealistic for most women. These researchers found that female (not male) participants who were primed with death thoughts ate less snack food than those in a control group regardless of their body mass index (BMI), level of body self-esteem, or personal importance placed on appearance. In a second study, the researchers repeated the procedures from study one in an all-female group setting that offered the opportunity for participants to compare themselves to each other while participating in the study. This time, BMI did appear to play a role in food restriction as only the women who were heavier than the others restricted their snack food intake subsequent to death primes. The researchers reasoned that through social comparison, thinner women felt more successful at attaining the cultural standard of thinness and therefore even when reminded of death, they did not need to engage in restricted eating. In their final study, Goldenberg et al. wanted to ensure that restricted eating was because participants realized they did not meet the cultural ideal. Thus, they tested participants' body perceptions subsequent to death reminders and found that the relationship between death reminders and food consumption was indeed moderated by participants' perceived failure to attain thinness. Since men did not restrict their eating after death reminders, the researchers concluded that the decreased food intake was not due to concerns about health but for concerns related to appearance and the need to conform to the dominant cultural worldview.

Based on Goldenberg et al.'s (2005) research, it appears that for those with eating disorders, it is not the worldview that has become shattered; it is one's perceived failure to meet

the standards of that worldview that leaves one defenseless against death thoughts and scrambling to meet the worldview through food restriction. Future research would benefit from including participants with and without eating disorders to replicate Goldenberg et al.'s findings with a clinical sample as well as explore other possible explanations for more psychopathological forms of restricted eating within a TMT framework.

Psychotic Disorders

Terror management theory research has never included individuals with psychotic disorders in studies examining mental health from a TMT perspective. While including this particular population would likely prove to be particularly challenging given the severe nature of psychotic disorders, Solomon, Greenberg, and Pyszczynski (1991) did briefly theoretically conceptualize schizophrenia from a TMT “mismanagement” perspective. According to Solomon et al., individuals with schizophrenia must create their own personal universe, as they simply do not see themselves fitting into the culturally constructed one that most people inhabit. According to Becker (1973), individuals with this disorder struggle to fit the mold because they experience the dread of finitude more deeply than others. Unable to build the necessary defenses required to deny death effectively, Becker viewed individuals with schizophrenia as lacking the “secure cultural programming” (pp. 63–64) required for mental health, causing them to see more clearly the true horrors of reality. As a result, people with this disorder must exhibit an extreme form of creativity so that they can live within a personally constructed reality (Becker, 1973).

Neuroticism

Neuroticism has been defined differently among theorists and clinicians (Strachan et al., 2001). TMT researchers have viewed neuroticism as a trait anxiety, a component of one's personality that indicates how well one has used self-esteem and cultural worldview adherence to

buffer death anxiety (Strachan et al., 2001). TMT theorists have argued that without anxiety-buffering mechanisms allowing for meaning making and death transcendence, all human beings would be classified as neurotic (Strachan et al., 2001). Thus, unlike mood and anxiety disorders, neurosis is viewed in TMT as a more entrenched, personality problem in which the developmental transition from a physical being in childhood to a cultural being in adulthood has been disrupted (Arndt et al., 2000). As a result, the necessary symbolic identity that works to effectively buffer death awareness has not properly developed (Arndt et al., 2000). The consequences include emotional instability and an increased risk for anxiety, depression, suicide, eating disorders, and addictions (Goldenberg et al., 2006).

Since TMT asserts that individuals with neurosis “see themselves as material beings, not properly dressed in the symbolic attire of cultural identity” (Arndt et al., 2000, p. 238), a program of research has tested this idea using classic TMT methodologies while exploring the neurotic perception of sex. Specifically, drawing upon Becker’s (1973) hypotheses, TMT believes sex is particularly problematic for neurotics as it an animal act and therefore serves as a reminder that like animals, humans will inevitably die (Arndt et al., 2000). Since individuals with neurosis lack a symbolic identity, viewing sex as a meaningful, romantic, transcendent, symbolic, “human” act should be particularly difficult, leaving them more vulnerable to death anxiety (Arndt et al., 2000).

In a study examining the relationship between sex, love, and neuroticism, Goldenberg, Pyszczynski, McCoy, Greenberg, and Solomon (1999) found that participants high in neuroticism who were reminded of death found the physical aspects of sex less appealing than those high in neuroticism who were reminded of a control topic. Conversely, low-neuroticism participants who were reminded of death rated the physical aspects of sex as having more appeal

than those with low levels of neuroticism who were reminded of a control topic. In order to confirm that physical sex was threatening to high neuroticism participants because of its connection to death, in a subsequent study, participants both high and low in neuroticism filled out a questionnaire regarding either the physical or romantic aspects of sex and their death thoughts were then measured with a word completion task. As hypothesized, individuals with high-neuroticism had more death thoughts after the physical sex prime than the romantic sex prime. In a final study, the researchers found that if they had high-neuroticism participants consider being in love after being reminded of physical sex, it resulted in less death thought accessibility than when they didn't consider being in love. Apparently, if individuals high in neuroticism are assisted in connecting sex to more symbolic constructs like love, their death anxiety may lessen. Taken together, these findings suggest that neuroticism is yet another result of terror mismanagement but remediation may be possible for these people.

TMT Recommendations for Mental Health

But is remediation truly possible? Given the psychological problems that death awareness engenders, what do terror management theorists and researchers propose people who have “mismanaged” their terror do to achieve psychological health? In an earlier formulation of TMT, Solomon et al. (1991) argued that mental health problems cannot be conceptualized without considering the social context in which those problems arose. They claimed that the social sciences as a whole should work towards developing and maintaining worldviews that provide the opportunity for enhanced self-esteem to as many people as possible. Along with the development and enhancement of more adaptive worldviews, Pyszczynski et al. (2003) recommended that helping professionals assist people in maximizing their self-esteem. They believed this could be achieved by helping people discover their positive qualities, be

complimentary and be more tolerant of those who fall short of worldview expectations, and by encouraging people to identify ways in which they can make the world a better place to live. This being said, Pyszczynski et al. also noted the dilemma facing modern society. Namely, according to TMT, the most secure cultural worldview is one with narrow and inflexible beliefs that provides a solid explanation of the afterlife. However, there are deep cultural changes occurring in several progressive countries around the world in which people are becoming increasingly secular, tolerant, and open to differences. While this is surely beneficial on a global scale, it leaves more freethinking people standing on unstable ground in regards to managing existential concerns.

A Contradiction in Views

While these ideas about how to effectively manage existential concerns are philosophically interesting, the practical implications for mental health professionals remain nebulous. Although self-esteem enhancement and meaning making via worldview exploration are undoubtedly goals of every psychotherapist, specific treatment plans or interventions based on TMT have yet to be suggested. Perhaps the depression studies described earlier by Simon et al. (1996; 1998) came the closest to providing specific recommendations for psychotherapy. These studies indicated that mildly depressed participants respond to reminders of death with significantly more worldview defense than their nondepressed counterparts (Simon et al., 1996). Furthermore, mildly depressed participants who were reminded of their death but were then given the opportunity to engage in worldview defense reported higher levels of meaning in life than those mildly depressed participants who did not have that opportunity (Simon et al., 1998). In both papers, the authors drew the logical conclusion that having depressed individuals contemplate their mortality may in fact stimulate their need for meaning from a protective

worldview, thus facilitating greater engagement in life. Simon et al. (1996) aptly connected these findings to the long-standing assertions of existential psychotherapists like Yalom (1980), that directly facing some of the more ultimate concerns of existence can be highly therapeutic.

Given these converging views between Simon et al. (1996) and those of existentialists like Yalom (1980), one might conclude that TMT researchers have recommended contemplating mortality as an effective therapeutic intervention with some populations. However, with the exception of Simon et al., TMT has a long-standing history of warning against the contemplation of death. In fact, it was Becker's (1973) fundamental theoretical premise that it is the awareness of death that brings forth paralyzing terror that then needs to be managed through symbolic social constructions and heroic strivings. As would be expected, TMT has shared Becker's view by warning against death awareness and arguing that since self-esteem itself is a social construction, it must be externally validated (Martin et al., 2004). Thus, according to TMT, it is necessary for clients to take on the ideals, behaviours, and roles endorsed by their cultural worldview in order to ensure social validation and the resulting self-esteem and protection from death awareness that this validation provides (Martin et al., 2004).

In contrast, the traditional perspective of existential psychotherapists is that the acknowledgement of one's mortality is not dangerous at all but is an important, life-affirming "wake-up call" (Martin et al., 2004, p. 431). In comparing TMT to existentialism, Martin et al. (2004) hearken back to existential philosophers such as Kierkegaard (1961, 1983) who emphasized the importance of taking a leap of faith into one's chosen subjective reality and belief system instead of adhering to widely shared worldviews that may not hold personal meaning or validity. Similarly, Heidegger (1927/1982) believed that awareness of personal death is necessary for authentic living as it shocks people into acknowledging themselves as

individuals apart from their dominant culture and provides an impetus for personal agency and positive change (Martin et al., 2004). Indeed, most existentialists would agree that instead of being debilitating and paralyzing, death anxiety is a powerful and important sign that one's life is not moving in a way that is personally meaningful (Martin et al., 2004). In their own analysis of existential philosophy as compared to TMT, Martin et al. concluded that contrary to the TMT assertion that death awareness must be constantly managed with symbolic constructions, it is time for experimental existentialists to acknowledge the personal growth that can occur by not only acknowledging one's inevitable death but also stepping outside of one's dominant cultural worldview.

Finding Common Ground

Discussions regarding whether individuals struggling with psychopathology need to *secure their buffers* (TMT recommendation) or *stare at the sun* (psychotherapy recommendation) usually conclude by attempting to make a strong argument for one side of this seemingly dichotomous issue (e.g., Martin et al., 2004; Solomon et al., 1991). While it would be highly informative to include psychotherapists' insights within TMT research, most TMT scholars have made only brief mention of the insights from earlier psychotherapists who have grappled with some of the more existential issues their patients faced (e.g., Arndt et al., 2000; Pyszczynski et al., 2003; Solomon et al., 1991). As the next step towards bringing together ideas from both TMT researchers and death anxiety clinicians, it is necessary to review where death anxiety and its treatment are situated in the mental health literature.

Beyond TMT: The Conceptualization of Death Anxiety in Mental Health

Before Becker and TMT researchers claimed death anxiety to be at the core of human motivation and behavior, the fear of death was being examined by many of the most prominent

figures in psychology. In a review of the conceptualization of death anxiety, Lonetto and Templer (1986) described the varying thoughts on the human psyche and its relationship to death anxiety. For example, Freud (1918) argued that the unconscious mind does not believe in its own death, whereas Jung (1933, 1959) saw the importance of preparing for life in the first half of the lifespan and then preparing for death in the second half. Klein (1948) was among the first to suggest that at the root of all anxiety is the fear of annihilation and death. Adler (1927) saw the fear of death as an excuse people use to avoid achievement (i.e. they claim that since life is short, everything is done in vain). As mentioned earlier, existential psychologists and psychiatrists have viewed death anxiety as an important conduit to living a more authentic and meaningful existence.

In regards to more modern day conceptualizations of death anxiety, Furer, Walker, and Stein (2007) argue that death anxiety must be considered when assessing and treating individuals with health anxiety. They note that the fear of death is commonly seen in people with hypochondriasis while others are diagnosed with a specific phobia of death and don't meet the criteria for hypochondriasis. Beyond seeing death anxiety within formal diagnoses, they argue that just as anxiety is a part of the human experience, death anxiety is also a "normal" phenomenon (p. 148). For those individuals who report extreme levels of death anxiety, however, Furer and colleagues provide a detailed assessment and treatment plan involving self-report questionnaires, clinical interview questions, psychoeducation, exposure protocols, and cognitive reappraisal interventions. Although they propose treatment within a cognitive behavioural framework, there are similarities in their treatment plan to existential psychotherapist Yalom (2008) regarding the types of questions, interventions, and cognitive reframes that are recommended for clients with excessive death anxiety. Similarities can also be

found in Morita therapy, a Japanese cognitive behavioral therapy. Morita therapy is based on the cognitive reframe that death anxiety is a sign that one has a particularly strong desire for health, social success, and productive living (Ishiyama, 1986). This is reminiscent of Yalom's (2008) statement that there is a "positive correlation between the fear of death and the sense of unlived life" (p. 49). In all of these cases, relaying to clients that their death anxiety is an opportunity for profound change can be highly therapeutic.

Even Ernest Becker (1973), whose ideas were the impetus for Terror Management Theory, saw death anxiety as an opportunity. Despite his strong assertion that human beings' behaviours are derived largely from an ongoing battle to deny their death, he also saw anxiety as inevitable. The solution, claimed Becker is to somehow use that inevitable anxiety for one's personal growth. Thus, exploring common therapeutic practice in the treatment of death anxiety that both contradicts and confirms elements of TMT, will make room for future exploration, discourse, and empirical study. Four such areas for further inquiry and exploration are described below.

The Integration of TMT and Psychotherapy

Assessing Death Anxiety Directly

A fundamental tenet of TMT is that in order to effectively function with death awareness, people must adhere to their cultural worldview and feel as though they are meaningful, contributing members of that worldview. How exactly does one accomplish this in a clinical setting? Since "cultural worldview" has become somewhat of a philosophical catch phrase in TMT, it may lack clinical meaning or specific direction for psychotherapists seeking to employ therapeutic interventions. In the treatment of psychological disorders, therapists typically take special care to assess the unique nature of their client's cognitions, emotions, and worldviews in

order to identify adaptive or maladaptive patterns. In working with death anxiety specifically, instead of the tenuous task of trying to facilitate stronger worldview adherence, it could be argued that most psychotherapists would opt for attaining more specifics about the presenting concern. For example, Yalom (2008) asks his clients with death anxiety questions regarding a) their first encounter with the idea of death, b) their first realization that they would ultimately die, and c) what it was about death they found particularly upsetting. Similarly, in a cognitive behavioral therapy (CBT) model for death anxiety, Furer and Walker (2008) conducted a clinical interview in which clients were asked several questions regarding their personal fears of death. Clients are also given self-report questionnaires in this model that assist therapists in deriving an appropriate case formulation and treatment plan (Furer & Walker, 2008).

From this in-depth analysis, clinicians may then identify components of their clients' worldviews that are maladaptive, self-defeating, or anxiety enhancing. Since both TMT researchers and existential psychotherapists have not generally believed that complete eradication of death anxiety is possible, an overarching goal in this process may be to, as Rollo May (1977) explained, reduce anxiety to levels that are more tolerable and then use the remaining anxiety in a constructive way. This initial step of anxiety reduction may occur by challenging client's belief systems and offering them new ways to conceptualize their unique concerns regarding death. These conceptualizations offered to clients may reflect elements of the dominant cultural worldview but may also be quite novel to clients and unfamiliar to the majority of society. Furer and Walker (2008), who identified and replaced clients' unrealistic beliefs regarding death within a CBT framework, referred to this process as "cognitive reappraisal" (p. 177). Similarly, Yalom (2008) first identified the source of anxiety for clients (e.g., punishment in the afterlife, the unknown, meaninglessness, etc.) and then used powerful

ideas from Greek philosophers, novelists, and his own clinical and personal experience in order to help clients “quell roiling thoughts about death” (p. 77).

Thus, it seems as though the TMT recommendation to facilitate worldview adherence as a way to bolster protective death anxiety buffers may need to be more fully explored in regards to its clinical application. Unlike the TMT proposal to help clients deny their death more effectively, many clinicians would argue that death anxiety needs to first be directly addressed in order to identify the nuanced and varied source of fear for each client. Through this approach, therapists can then carefully select interventions designed to reduce a client’s specific fears relating to death using ideas that may be consistent or inconsistent with their worldviews (depending on how helpful their original belief systems were). Thus, the common existential and therapeutic contention that clients need to “relinquish defenses” and “refuse to conform to familial and social standards” (Firestone, 1994, p. 237) may be just as unrealistic as Becker’s (1973) belief that “the individual has to repress *globally*, from the entire spectrum of his experience, if he wants to feel a warm sense of inner value and basic security” (p. 52). Perhaps the merger of these two fields indicates that one must deal directly with death *as well as* identify personally meaningful sources of relief from the harsh realities of existence.

Introducing New Therapeutic Worldviews

According to Becker (1973), in order to feel special about oneself and effectively buffer death, it is necessary to feel connected to a higher, transcendental meaning. As Becker made clear, this was possible for those who were living in the height of the Judeo-Christian worldview in which people were invited to be part of a greater meaning. This worldview was particularly effective because regardless of an individual’s status in society, he or she was capable of achieving immortality in the afterlife. As this religious worldview became increasingly obsolete

for many people, these individuals then sought out a new “thou” that offered the same opportunity for reverence and personal death transcendence (Becker, 1973, p. 161). They found this opportunity in the “romantic solution” (Becker, 1973, p. 160) in which one can achieve self-glorification and spiritual transcendence through another’s romantic love. While this may appear to be an appropriate replacement for religion in terms of death denial, Becker argued that this strategy ultimately fails since humans are flawed and are therefore limited in terms of enhancing their partner’s personal development. Conversely, God is ambiguous, abstract, and can serve as an ideal image without intervening in the events of the physical world. Thus, Becker argued that one cannot access spirituality from a physical being (which leaves society to find redemption elsewhere). Becker (1973) believed that this can only come from outside of a person since “absolution has to come from the absolute beyond” (p. 173).

Can psychotherapy facilitate this ambitious process? While therapists are encouraged to work diligently to identify their own theoretical worldview and therapeutic framework (see Truscott, 2010), it is not common practice to offer a transcendental framework to one’s clients (as understood by Becker [1973]). Indeed, specific maladaptive belief systems can be challenged, externalized, or reframed, but providing clients with a comprehensive worldview that buffers death and offers what Becker (1973) called “cosmic heroism” (p. 169) seems like a tall order. However, more recently, contemplative practices are beginning to offer such worldviews. It can be argued that Walsh’s (2011) description of contemplative practices (e.g., Eastern inspired contemplation, meditation, and yoga) provides some answers to the issues Becker described. Inspired by Wilber’s (2000) developmental framework, Walsh maintained that human development evolves from prepersonal, personal, to transpersonal. While we begin with a limited sense of self (prepersonal), Walsh argued that, with maturity, people begin to accept

their cultural worldview unquestioningly, avoid facing deeper questions about existence, and enter into the “personal stage” that Asian psychologies would call an “illusion” and existentialists would call “inauthentic” or “herd mentality” (p. 456). Only recently, claimed Walsh, has Western psychology begun to explore the possibility of “transpersonal” development. This final stage involves disidentifying with the fabrication of the self, and seems to parallel the personal transcendence that Becker believed was essential to overcoming the challenges of human existence. Just as Becker (1973) asserted that people need to be “healed by an all-embracing and all-justifying beyond” (p. 285) and achieve “cosmic heroism” (p. 169), Walsh argued that transpersonal experiences allow the self to expand beyond the personal, the world, and even the cosmos. By doing this, Walsh argued that existential concerns are more easily managed since much of the work in contemplative therapies is transcending from the suffering ego to a more transpersonal identity that results in individuals having a sense of purpose and meaning through a transcendent and global sense of interconnection.

One contemplative practice that is gaining increasing popularity and empirical support is *mindfulness*. Mindfulness has its roots in 2,500-year-old Buddhist teachings and can be translated to mean “attention,” “awareness,” and “remembering” (Siegel, 2010, p. 32). This practice is said to cultivate acceptance of what is, work to reduce preoccupations with the self, and facilitate experiencing the richness of life (Siegel, 2010). Empirical studies have shown that mindfulness has numerous benefits including improvement in affect regulation, emotional dysfunction, and negative cognitive patterns (Siegel, 2007). In relation to death anxiety, the application of mindfulness to fear of death has been recommended by several experts in contemplative practices (e.g., Rinpoche & McDonald, 2010; Siegel, 2010; Walsh 2011).

Recently, TMT researchers have been interested in whether trait mindfulness

(characterized by attentional awareness to present experience) reduced defensiveness towards death thoughts (Niemiec et al., 2010). A series of seven studies indicated that the application of mindfulness to death anxiety might indeed be an appropriate intervention. Specifically, Niemiec et al.'s (2010) results indicated that individuals with high levels of trait mindfulness engaged in lower levels of both thought suppression and defensiveness that typically arises in the face of death awareness. Kashdan, Afram, Brown, Birnbeck, and Drvoshanov (2011) also conducted a study based on TMT and found that an open, explorative, curious, and mindfully attentive attitude appears to be important in reducing defensiveness towards death awareness. Thus, it appears as though contemplative therapies such as mindfulness offer a self-transcending worldview that may have several elements that Becker (1973) deemed necessary for mental health.

Exposure to Death Thoughts

How is it that mindfulness might work to reduce death anxiety? The answer seems to run counter to yet another TMT principle: individuals may need exposure to death thoughts in order to overcome certain psychopathologies. There may be valid reasons why Buddhist monks conduct “spiritual autopsies” (Siegel, 2010, p. 300) on corpses as reminders that death is real for themselves and why CBT therapists include exposure therapy protocols as an integral component of death anxiety treatment plans (Furer & Walker, 2008). Even Yalom (1980), who viewed death desensitization and its “mechanistic” elements to be demeaning to human beings’ deep, existential concerns admitted, “with repeated contact, one can get used to anything—even to dying” (p. 211). Based on this premise, some common exposure interventions among psychotherapists who are treating death anxiety include having clients become more aware and mindful of their death by having them write their own obituary, imagine their own funeral, and

go for walks in a cemetery (e.g., Furer & Walker, 2008; Yalom, 1980). Thus, both mindfulness and exposure involve openness to processing one's fears of death and the accompanying negative thoughts and feelings. It makes sense, then, that researchers have been considering the possibility that mindfulness might involve similar mechanisms as exposure and that future researchers have been urged to explore the connections between these two processes (Roemer & Orsillo, 2006).

On the surface, both mindfulness and exposure seem to contradict the TMT view that in order to maintain psychological equilibrium, thoughts of death must be managed via self-esteem and cultural worldview adherence in service of a *decrease* in death thoughts. In fact, an impressive program of empirical research has been developed within TMT to support the *dual process theory*, which outlines the mechanisms that work to remove thoughts of death from conscious awareness (see Pyszczynski, Greenberg, & Solomon, 1999 for a review). However, in juxtaposing TMT with exposure-based theories, one might argue that in both theoretical perspectives, the goal is the same: to reduce death thoughts. Research has supported the idea that attempting to control one's anxiety may have paradoxical results (Ascher, 1989). For example, Wegner's (1994) theory and accompanying research on ironic processes of mental control indicated that attempts to control the activities of the mind (in this case to avoid death thoughts) lead to an "ironic reversal" (p. 34) of the intended control (resulting in heightened death thoughts). Similarly, the emotional processing literature has indicated that individuals suffering from anxiety (particularly PTSD) are more successful in overcoming their symptoms when they do not try to escape or reduce their fears while engaging in exposure treatment (Foa & Kozak, 1986). Thus, it may be that when innate dual processing mechanisms are ineffective in buffering death (resulting in psychopathology), exposure to death thoughts may ironically decrease

excessive thoughts via habituation so that the dual processing mechanisms are once again effective in buffering death anxiety. While of course this is speculative and requires extensive empirical study, scholars are once again urged to move beyond the seemingly black or white issue regarding death awareness vs. death denial. This endeavour may show great promise in exploring the grey that emerges from bringing TMT and psychotherapeutic literature together.

The Therapeutic Relationship as the Ultimate Death Anxiety Buffer

A final area for future inquiry that will be explored in the current discussion relates to Becker's (1973) "romantic solution" (p. 160) as described earlier. Despite his conclusion that romantic relationships are a flawed replacement for religion in relation to facilitating death denial, results from several TMT studies have led researchers to conclude that close relationships may indeed function as a third possible anxiety buffer (along with self-esteem and cultural worldview) (Mikulincer, Florian, & Hirschberger, 2004). As evidence of the respective strength of close relationships, Wisman and Koole (2003) gave participants the choice to sit alone and defend their personal worldviews or sit with a group of other people and attack those worldviews. Their results indicated that those participants in a mortality salience condition preferred to sit with the group, despite their own worldview being attacked. Indeed, in the face of death, what Yalom (2008) described as "the loneliest event of life" (p. 119), people tend to prefer to be in the presence of others.

Ben-Naim, Aviv, and Hirschberger (2008) also found that worldview defense may be forsaken by participants who have the opportunity to have meaningful interpersonal contact with another person. Inspired by the contact hypothesis (see Pettigrew & Tropp, 2006), Ben-Naim et al. randomly assigned participants to either a mortality salience condition or a control condition and had participants sit with a confederate who was in a wheelchair or a confederate who was

not in a wheelchair. Participants were asked to work either independently or collaboratively with the confederate. Results revealed that reminders of death led to the expected negative evaluation of the confederate in a wheelchair who, from a TMT perspective reminds people of their physical vulnerability and inevitable death. However, this link between death and rejection was attenuated via the collaborative task group. Specifically, the meaningful connection between two people working collaboratively was impactful enough that evaluations of the confederates did not significantly differ between the MS and control group. These results have significant implications for psychotherapists hoping to facilitate a change process in their clients. Specifically, these findings suggest that TMT mechanisms are not deterministic in nature and are particularly malleable within the context of a human interaction in which there is a collaborative relationship (Ben-Naim et al., 2008). Psychotherapy literature and research also have illustrated the respective strength of the therapeutic relationship in facilitating change in clients. In a theoretical analysis on common therapeutic factors, Lambert (1992) identified the therapeutic relationship as accounting for 30% of therapeutic outcome whereas interventions only accounted for 15%, client expectancy (placebo effects) accounted for 15%, and the extratherapeutic factors (e.g., ego strength, social support, fortuitous external events) accounted for 40%. Norcross (2010) argued that since hundreds of studies have demonstrated the significant contribution of the therapeutic relationship to psychotherapy outcome, maintaining a strong focus on the relationship is integral to successful treatment.

Although Yalom (2008) has been known for using powerful philosophical ideas in helping clients to reduce their anxiety around death, he has believed ideas to be only one component of treatment and that the therapeutic relationship is what is truly essential. Yalom (2008) wrote, “It is the synergy between ideas and intimate connection with other people that is

most effective in both diminishing death anxiety and in harnessing the awakening experience to affect personal change” (p. 119). According to Yalom, it is a genuine acknowledgement by the therapist of his or her own humanness and anxieties around death and that the client is not alone in feeling afraid, that builds a powerful connection between therapist and client. Thus, fear of death becomes an “awakening experience” (Yalom, 2008, p. 132) that highlights the importance of human connection, first with the therapist, but ultimately with important loved ones in the client’s life. Inspired by Kierkegaard’s writing, Becker (1973) too acknowledged that while anxiety is inevitable it could still be used “as an eternal spring for growth into new dimensions of thought and trust” (p. 92). Thus, the power of the relationship in attenuating death anxiety has been found in both TMT and clinical literature. Although there has been extensive research in TMT to illustrate the power of human connection in reducing death anxiety, there have been no TMT studies to date examining the role of the relationship in therapy in clinical treatment outcomes. Furthermore, while there is widespread literature on death anxiety, there have been no controlled clinical studies on the treatment of death anxiety to date (Furer & Walker, 2008). Combining the sophisticated research methodologies of TMT with extensive philosophical and clinical literature on death anxiety is yet another “eternal spring for growth” from which new insights may arise.

Conclusion

If Terror Management Theory truly seeks to explain the management and mismanagement of one’s terror around death, including current theoretical, empirical, and clinical findings in the death anxiety treatment literature is the important next step. This endeavour would likely (a) contribute to the refinement of TMT as a whole, (b) enhance understanding regarding the clinical implications of TMT, (c) generalize to other forms of

psychopathology that are believed to develop from the same underlying fear of death, and (d) initiate a new discourse that merges TMT and the psychotherapeutic treatment of death anxiety in ways that enhance and further knowledge and interest in both areas. Of course these overarching goals require much time and effort among future researchers and psychotherapists alike, but this paper outlines the necessary next step. The described areas for refinement herein may appear contradictory to TMT as they involve directly assessing death anxiety with clients, offering novel worldviews that may run counter to their existing cultural worldview, and exposure to troublesome death thoughts. However, providing insights from psychotherapy that both confirm and challenge TMT makes room for innovative hypotheses and empirical research that enable TMT researchers and psychotherapists to begin to inform and enhance their respective disciplines.

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CHAPTER 5

Conclusion

The aim of this research project was to explore Terror Management Theory in the context of developmental, social and clinical psychology with an emphasis on understanding the implications of TMT for older adults. As Eckes and Trautner (2000) have argued, research within social psychology often neglects to consider developmental processes, resulting in a “blind spot” in the field. There is a similar gap between social psychology and clinical treatment (Tashiro & Mortensen, 2006). In the study of psychotherapy integration, for example, Jacobson (1999) has stated that social psychological principles are often overlooked. This three-paper project has attempted to demonstrate that merging developmental and clinical theory with TMT engenders new insights and fruitful avenues for future exploration.

Empirical Implications

In Chapter 3, an experiment with 179 older adults from the Edmonton area examined how reminders of death impacted how seniors rated their own generativity, their children’s success, and their grandchildren’s success. Based on Erikson’s (1963) psychosocial stages of development, individuals move through eight stages of development. During each stage, individuals resolve the tension between the two elements inherent to that stage, thus creating the conditions necessary for adequate ego functioning (Erikson, Erikson, & Kivnick, 1986). The generativity vs. stagnation stage was of particular importance in the current investigation as Erikson saw this stage as exceptionally significant in the psychosocial model in general, and with seniors in particular (Erikson et al., 1986). Along with other scholars linking the construct of generativity to immortality (e.g. Tomer, 1994; Kotre, 1984, McAdams, 1988), Erikson (1998) believed that generativity is a particularly effective mode of death denial. According to Erikson

(1998), it is the generativity stage, the point at which one shifts his or her focus to a broader, more global sense of caring, that is “characterized by a supremely sanctioned disregard of death” (p. 80).

To test this theory empirically, TMT methodologies were employed to see if subtle reminders of death (which Maxfield et al., 2007 found to be particularly impactful on seniors) caused older adults to rate themselves as being more generative than blatant or neutral reminders. Indeed, seniors responded to these subconscious death reminders with a heightened sense of their own generativity. This finding corroborates Maxfield’s contention that subtle death reminders are more impactful on seniors but challenges her statement that seniors do not cope with reminders of death like their younger counterparts. As was predicted, seniors responded to reminders of death in much the same way that younger adults do when developmentally relevant constructs were considered. Consistent with the mortality salience hypothesis, when a meaningful construct (in this case generativity) works to alleviate anxiety regarding one’s own death, reminders of death increased participants’ need to be protected by that construct (Solomon, Greenberg, & Pyszczynski, 2004). Future exploration is required to determine why subtle death primes are particularly impactful on seniors. It will also be important to investigate why more specific forms of generativity relating to one’s offspring (i.e. child success and grandchild success) appear to be less effective than more global constructs (i.e. generativity) in producing TMT responses.

Psychosocial Implications

This research also confirms the importance of generativity for seniors’ psychosocial development. Based on a significant quantity of converging data, scholars have concluded that indeed, a positive relationship exists between generativity and well-being (Huta & Zuroff, 2007).

In merging TMT with developmental theory, however, one begins to recognize *why* this construct may be so valuable to an older adult demographic. As was highlighted in Chapter 2, it may be that death anxiety buffers undergo psychosocial development that parallel Erikson's psychosocial stages of development. After children begin to respond to death reminders with the same pattern of worldview defenses as adults (Florian & Mikulincer, 1998), certain death anxiety buffers might become more effective than others during specific windows of critical developmental significance across the lifespan. For example, during adolescence, TMT studies indicate that enhancing one's sense of identity is important (Dechesne, Greenberg, Arndt, & Schimel, 2000; Hirschberger, Florian, Mikulincer, Goldenberg, & Pyszczynski, 2002; Taubman-Ben-Ari & Findler, 2006; Taubman-Ben-Ari, Eherenfreund-Hager, & Findler, 2011). Similarly, in early adulthood, several TMT studies reflect Erikson's (1998) contention that achieving intimacy is important and indicate that romantic commitment in particular appears to buffer death anxiety (e.g. Florian, Mikulincer, & Hirschberger, 2002; Hirschberger, Florian, & Mikulincer, 2002; Hirschberger, Florian, & Mikulincer, 2003; Mikulincer, Florian, Birnbaum, & Malishkevich, 2002; Mikulincer, Florian, & Hirschberger, 2003; Taubman-Ben-Ari, Findler, & Mikulincer, 2002). Finally, the research study outlined in Chapter 3 demonstrated the empirical benefits that accrue from designing a TMT study rooted in the developmental theory of Erikson. By considering what is meaningful to older adults based on their psychosocial development, this research produced some of the first TMT results from an older demographic that make strong conceptual sense. Generativity is a valuable construct to older adults for the same reason that identity is important to adolescents and intimacy is sought by young adults: each of these psychosocial themes appear to facilitate effective death denial for their respective age groups, resulting in psychological equanimity.

Clinical Implications

Current understandings of psychological health from a TMT perspective need considerable exploration and refinement. As was outlined in Chapter 4, mental illness or, “terror mismanagement” (Arndt & Vess, 2008, p. 12), has been theoretically conceptualized by TMT scholars and several psychological disorders have been examined empirically using TMT methods. However, the clinical implications derived from these empirical findings are vague and do not provide clear direction for psychotherapists hoping to incorporate TMT theory and research into their clinical practice. In fact, within the few articles describing clinical implications of TMT, two seemingly contradictory views tend to emerge: one advocating for effective death denial via cultural worldview adherence or, conversely, one exploring death directly in an effort to reduce its anxiety provoking effects (Martin et al., 2004). The current investigation of the grey area that bridges these two seemingly opposed camps fostered new insights and provided direction toward a more meaningful and coherent understanding of the potential clinical contributions of TMT. Some of the most promising areas for such an exploration offered in Chapter 4 included a) assessing death anxiety directly, b) offering unique therapeutic worldviews, c) exposure to death thoughts, and d) using the therapeutic relationship as a death anxiety buffer. Both TMT and psychotherapy literature offered unique insights on these topics that were not always mutually exclusive, generating opportunity for empirical study and collaboration between the two areas.

The empirical findings in Chapter 3 also offer unique insight into how psychotherapists might work specifically with an older adult population in a clinical setting. Given the importance of generativity in facilitating meaning making and death denial in seniors, there are several approaches that may be particularly effective. For example, Lewis and Butler’s (1974)

life-review therapy includes various methods of evoking memory in older adults that have been found to be both enjoyable and useful (e.g., writing an autobiography, attending reunions, scrapbooking, etc). Knight (2004) asserted that life review therapy with seniors is used most effectively in grief work, after important realizations, in coping with role traditions, and dealing with functional limitations. Life review may also be a particularly effective technique to use with clients who are overcome by their fear of death as Fishman (1992) found a significant negative relationship between the extent to which one has undergone life review and their level of death anxiety.

Not surprisingly, life review therapy cannot work independently of developmental theory. In their description of life review therapy, Lewis and Butler (1974) stated that it is critical that psychotherapy involve consideration of the developmental life stages. It is not surprising that soon after Butler's formation of life review, his ideas were quickly linked with Erikson's theory of psychosocial development (Molinari, 1999). In fact, one study employed a content analysis of the autobiographical memories of older adults across their lifespan. Their results suggested that these memories were systematically related to Erikson's stages (Conway & Holmes, 2004). As a result of this integration of theories, some psychotherapists use Erikson's psychosocial stages as a way to structure the life review process (see Haight & Haight, 2007). Specifically, the therapist helps the client to move more smoothly through their life review from infancy to old age using probing questions that elicit memories related to the primary conflict of the psychosocial stage being examined (Haight & Haight, 2007). Other scholars have described how the working alliance is used in therapy to engage in these psychosocial themes (Kivnick & Kavka, 1999). For example, in the generativity versus stagnation stage of development, it is important for the therapist to communicate a sense of caring and concern towards the client who

will reciprocate this sense of caring towards the therapist. In contrast, the integrity vs. despair stage focuses primarily on integration through life review in the context of a strong therapeutic relationship (Kivnick & Kavka, 1999).

The eighth stage of psychosocial development has been of particular interest to both theorists and clinicians interested in the life review process. Erikson (1963) himself described the importance of carrying out a life review in the final stage of integrity vs. despair (Haber, 2006). Interestingly, the seventh stage of generativity vs. stagnation has not been examined in an empirical study related to life review despite its obvious relevance to reminiscence (Haber, 2006). More specifically, the generativity stage focuses on stories and passing on one's culture to younger generations, which has direct parallels to the process of life review (Haber, 2006). Results from Chapter 3 illuminate the need to include issues related to generativity in a psychotherapeutic setting with older adults. Generativity-focused life review therapy is likely to be an effective intervention that can easily be implemented in order to help older adults identify how their life has been meaningful as well as help them to prepare for death. In fact, in his book *Staring at the Sun: Overcoming the Terror of Death*, existential psychotherapist Irvin Yalom (2008) described a strategy known as "rippling" in which clients experiencing death anxiety feel a great deal of satisfaction projecting themselves into the future as well as beyond death by considering a personal trait such as wisdom or guidance that will be passed on to another person.

Social Implications

On a social level, arguably the most important implication of this project comes from the finding that seniors appear to cope with death anxiety via their personal sense of generativity. Evidence is mounting that because people are living longer and retiring earlier, many people are spending a significant part of their life (more than one-third) in the retirement phase and are

searching for ways to contribute to their community (Freedman, 1997). Taylor (2006) recognized the importance of engaging adults in generative social roles through effective volunteer recruitment campaigns. An essential part of this recruitment process is successfully communicating and promoting the benefits of volunteering in later life through enhancement of research, policy, and practice (Theurer & Wister, 2010). This act of volunteerism will not only contribute to economic cost savings, but also work to change the prevailing image of older adults as dependent, needy, and reliant on care, promoting a positive psychology of the aging process (Gottlieb & Gillespie, 2008). Erikson et al. (1986) expressed the importance of vital involvement in later life over two decades ago when they stated, “Perhaps what we need today is this ‘clear insight’ into how the elders in our present society can become more integral coworkers in community life” (p. 294). Using the experience and wisdom of seniors through promotion of generative experiences in later life will benefit both older and younger generations alike.

Unfortunately, in a society in which the traditional family system is deteriorating, ageism is an ongoing issue, and youth culture is continuously emphasized, the increasing population of seniors may have less opportunity to engage in generative acts. While seniors are clearly disadvantaged by this situation, society as a whole also suffers. It is essential to both younger and older generations that communities honour seniors’ willingness to be more selfless, to bridge the past and the future, and to work to better the lives of younger people, to whom they have so much to give. This is not about just helping seniors feel more valued but involves truly valuing the wisdom that the older adult population has to offer. Indeed, there is much to be learned from people who appear to be exceptionally competent in managing what is considered by many to be human beings’ biggest fear: death of the self. Continuing to explore the ways in which

individuals respond to and manage their death anxiety across the lifespan will undoubtedly provide a more complete conceptualization of Terror Management Theory and its more wide ranging implications.

General Conclusion

The developmental review in Chapter 2 and empirical results in Chapter 3 offer support for the incorporation of Erik Erikson's psychosocial stages within Terror Management Theory. Many promising directions for research, theory, and practice can be derived from merging developmental and social psychological theory. Identifying the existential importance of generativity for seniors and its apparent efficacy in buffering death anxiety in later life validates psychotherapeutic interventions such as life review (Reker & Chamberlain, 2000) and engagement in generative social roles provided through volunteerism (Taylor, 2006). Future researchers are encouraged to continue to examine the implications that arise from using developmental theories such as Erikson's to inform TMT research. Cross-sectional and longitudinal designs will further enhance our understanding of the developmental trajectory of death anxiety buffers and the role they play in meaning making and death denial across the life span. Chapter 4 outlines the importance of beginning to effectively explore the clinical implications of the TMT framework. Based on a review of the relevant psychotherapy literature, it becomes increasingly apparent that TMT recommendations for clinicians do not adequately address the complexities therapists face when working with death anxiety in a clinical setting. Both the empirical findings and theoretical analyses in the current investigation suggest that further collaboration between developmental theory, psychotherapy literature, and TMT research can be expected to produce valuable clinical recommendations with regards to mental health across the lifespan.

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Appendix A: Self-Esteem Scale (SES)



Please answer the following questions about how you feel **right now in your life** by circling either:

Strongly Disagree	Disagree	Agree	Strongly Agree
(1)	(2)	(3)	(4)

1. On the whole, I am satisfied with myself.

(Strongly disagree) 1 2 3 4 (Strongly agree)

2. At times, I think I am no good at a

(Strongly disagree) 1 2 3 4 (Strongly agree)

3. I feel that I have a number of good qualities.

(Strongly disagree) 1 2 3 4 (Strongly agree)

4. I am able to do things as well as most other people.

(Strongly disagree) 1 2 3 4 (Strongly agree)

5. I feel I do not have much to be proud of.

(Strongly disagree) 1 2 3 4 (Strongly agree)

6. I certainly feel useless at times.

(Strongly disagree) 1 2 3 4 (Strongly agree)

7. I feel that I'm a person of worth, at least on an equal plane with others.

(Strongly disagree) 1 2 3 4 (Strongly agree)

8. I wish I could have more respect for myself.

(Strongly disagree) 1 2 3 4 (Strongly agree)

Strongly Disagree (1)	Disagree (2)	Agree (3)	Strongly Agree (4)
--------------------------	-----------------	--------------	-----------------------

9. All in all, I am inclined to feel that I am a failure.

(Strongly disagree) 1 2 3 4 (Strongly agree)

10. I take a positive attitude toward myself.

(Strongly disagree) 1 2 3 4 (Strongly agree)

Appendix B: Measures of Psychosocial Development (MPD) Stages 7 and 8*

*Due to copyright concerns I cannot print this scale.

Appendix C: Attachment Style Measure (Adapted Version)



The following four items describe different styles of relating to others. Think about each of them and use the 5-point scale to describe how much it applies to you and the way you see **your relationship with your child (children)**.

1 = it is not at all characteristic of your parent/child relationship

5 = it is very characteristic of your parent/children relationship

1. I find it difficult to allow myself to depend on my children.

(not at all characteristic)	1	2	3	4	5	(very characteristic)
--------------------------------	---	---	---	---	---	-----------------------

2. My children are never there when you need them.

(not at all characteristic)	1	2	3	4	5	(very characteristic)
--------------------------------	---	---	---	---	---	-----------------------

3. I am comfortable depending on my children.

(not at all characteristic)	1	2	3	4	5	(very characteristic)
--------------------------------	---	---	---	---	---	-----------------------

4. I know that my children will be there when I need them.

(not at all characteristic)	1	2	3	4	5	(very characteristic)
--------------------------------	---	---	---	---	---	-----------------------

5. I find it difficult to trust my children completely.

(not at all characteristic)	1	2	3	4	5	(very characteristic)
--------------------------------	---	---	---	---	---	-----------------------

6. I am not sure that I can always depend on my children to be there when I need them.

(not at all characteristic)	1	2	3	4	5	(very characteristic)
--------------------------------	---	---	---	---	---	-----------------------

1 = it is not at all characteristic of your parent/child relationship

5 = it is very characteristic of your parent/children relationship

7. I do not often worry about being abandoned by my children.

(not at all characteristic) 1 2 3 4 5 (very characteristic)

8. I often worry that my children do not really love me.

(not at all characteristic) 1 2 3 4 5 (very characteristic)

9. I find my children are reluctant to get as close as I would like.

(not at all characteristic) 1 2 3 4 5 (very characteristic)

10. I often worry my children will not want to stay with me.

(not at all characteristic) 1 2 3 4 5 (very characteristic)

11. I want to merge completely with my children.

(not at all characteristic) 1 2 3 4 5 (very characteristic)

12. My desire to merge sometime scares my children away.

(not at all characteristic) 1 2 3 4 5 (very characteristic)

13. I find it relatively easy to get close with my children.

(not at all characteristic) 1 2 3 4 5 (very characteristic)

1 = it is not at all characteristic of your parent/child relationship

5 = it is very characteristic of your parent/children relationship

14. I do not often worry about my children getting too close to me.

(not at all characteristic) 1 2 3 4 5 (very characteristic)

15. I am somewhat uncomfortable being close to my children.

(not at all characteristic) 1 2 3 4 5 (very characteristic)

16. I am nervous when my children get too close.

(not at all characteristic) 1 2 3 4 5 (very characteristic)

17. I am comfortable having my children depend on me.

(not at all characteristic) 1 2 3 4 5 (very characteristic)

18. Often, my children want me to be more intimate than I feel comfortable being.

(not at all characteristic) 1 2 3 4 5 (very characteristic)

Appendix D: Geriatric Depression Scale – Short Form (GDS15)

★ Please circle the best answer for how you have felt over the **past week** by circling “Y” for YES or “N” for NO:

- | | | |
|--|---|---|
| 1. Are you basically satisfied with your life? | Y | N |
| 2. Have you dropped many of your activities and interests? | Y | N |
| 3. Do you feel that your life is empty? | Y | N |
| 4. Do you often get bored? | Y | N |
| 5. Are you in good spirits most of the time? | Y | N |
| 6. Are you afraid that something bad is going to happen to you? | Y | N |
| 7. Do you feel happy most of the time? | Y | N |
| 8. Do you often feel helpless? | Y | N |
| 9. Do you prefer to stay at home, rather than going out and doing
new things? | Y | N |
| 10. Do you feel you have more problems with memory than most? | Y | N |
| 11. Do you think it is wonderful to be alive? | Y | N |
| 12. Do you feel pretty worthless the way you are now? | Y | N |
| 13. Do you feel full of energy? | Y | N |
| 14. Do you feel that your situation is hopeless? | Y | N |
| 15. Do you think that most people are better off than you are? | Y | N |

Appendix E: Mortality Salience - Blatant

On the following page are two open-ended questions, please respond to them with your first, natural response.

We are looking for peoples' gut-level reactions to these questions.

The Projective Life Attitudes Assessment



This assessment is a recently developed, innovative personality assessment. Recent research suggests that feelings and attitudes about significant aspects of life tell us a considerable amount about the individual's personality. Your responses to this survey will be content-analyzed in order to assess certain dimensions of your personality. Your honest responses to the following questions will be appreciated.

1. PLEASE BRIEFLY DESCRIBE THE EMOTIONS THAT THE THOUGHT OF YOUR OWN DEATH AROUSES IN YOU.

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.

Appendix F: Mortality Salience - Control

On the following page are two open-ended questions, please respond to them with your first, natural response.

We are looking for peoples' gut-level reactions to these questions.

The Projective Life Attitudes Assessment



This assessment is a recently developed, innovative personality assessment. Recent research suggests that feelings and attitudes about significant aspects of life tell us a considerable amount about the individual's personality. Your responses to this survey will be content-analyzed in order to assess certain dimensions of your personality. Your honest responses to the following questions will be appreciated.

1. PLEASE BRIEFLY DESCRIBE THE EMOTIONS THAT THE THOUGHT OF DENTAL PAIN AROUSES IN YOU.

2. JOT DOWN, AS SPECIFICALLY AS YOU CAN, WHAT YOU THINK WILL HAPPEN TO YOU AS YOU PHYSICALLY EXPERIENCE DENTAL PAIN.

Appendix G: Mortality Salience - Subtle

On the following page is a word find.

Please circle as many of the listed words that you can find and then mark them off the list. Do not spend more than 4-5 minutes on this task.



Instructions: Circle as many of the following words as you can find. Also, cross off the corresponding word from the list when a word is found. Please spend no more than 4-5 minutes on this task, and then move on to the next form. It is not necessary that you find all of the words listed.

build
walk
orange
baseball
see

pear
railroad
monkey
computer
friday

D E A D X Q T R U I O P E A R B
G H E B Y H B N M F D R E Z X U
P C J I S A L A D A C V C B N R
Q O U V T G J E E S O O M W R I
K M B Y B A S E B A L L R T Y A
I P H J I I K Y R H S D N C O L
L U I L Y T R E A Q A D G H B A
L T B C D U I I I W W A L K O S
E E H G J O I R L N B U I L D E
D R A S R I V E R C C O R P S E
F U N E R A L J O O U M Y W X Z
P R Q W F H V C A A A N K L G F
E M O N K E Y B D F N F R T Y B
A Q W S D E E F G I Y C U I K L
V G F R I D A Y U N E D E A T H
R D E C A Y R G B M O R A N G E

Appendix H: Neutral Word Find Distracter #1

★ Please find and circle the words listed in the box below in the word search puzzle. Then cross off the corresponding word in the list of words in the box. Words may be straight across or diagonal and may be forwards or backwards. Please do not spend more than TWO minutes on this puzzle. It is not necessary that you find all of the words listed.

House	Letter
Kit	Computer
Desk	Phone
Paper	Party

H	R	E	T	U	P	M	O	C	O
O	P	H	O	N	E	R	E	E	B
U	M	U	S	I	C	A	P	T	N
S	T	N	R	O	T	C	A	S	K
E	M	R	D	E	S	K	R	A	O
T	F	O	A	G	F	L	T	R	O
E	L	G	V	I	Z	U	Y	G	B
P	A	P	E	R	N	E	N	W	Y
A	L	E	T	T	E	R	G	E	D
P	S	C	K	O	O	L	K	I	T

Appendix I: Positive and Negative Affect Schedule Expanded Form (PANAS-X) - Distracter #2



This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way **right now**, that is, at the present moment. Use the following scale to record your answers.

1	2	3	4	5
not at all	a little	moderately	quite a bit	extremely
___ cheerful	___ sad	___ active	___ angry at self	
___ disgusted	___ calm	___ guilty	___ enthusiastic	
___ attentive	___ afraid	___ joyful	___ downhearted	
___ bashful	___ tired	___ nervous	___ sheepish	
___ sluggish	___ amazed	___ lonely	___ distressed	
___ daring	___ shaky	___ sleepy	___ blameworthy	
___ surprised	___ happy	___ excited	___ determined	
___ strong	___ timid	___ hostile	___ frightened	
___ scornful	___ alone	___ proud	___ astonished	
___ relaxed	___ alert	___ jittery	___ interested	
___ irritable	___ upset	___ lively	___ loathing	
___ delighted	___ angry	___ ashamed	___ confident	
___ inspired	___ bold	___ at ease	___ energetic	
___ fearless	___ blue	___ scared	___ concentrating	
___ disgusted with self	___ shy	___ drowsy	___ dissatisfied with self	

Appendix J: Revised Generalized Expectancy for Success Scale (GESS-R)



The following statements concern if you feel your children or child will be successful in certain situations. If you have more than one child, please think of your children as a whole when answering these questions (not individually). We are interested in how you believe they will succeed in the future in general, not just how they will succeed right now in their lives. Respond to each statement by indicating how much you agree or disagree with it. Circle the number for each item using the following rating scale:

Highly Improbable**Neutral/mixed****Highly Probable**

1

2

3

4

5

1. In the future, I expect that my child (or children) will succeed at most things they try.

(highly improbable) 1 2 3 4 5 (highly probable)

2. In the future, I expect that my child (or children) will be listened to when they speak.

(highly improbable) 1 2 3 4 5 (highly probable)

3. In the future, I expect that my child (or children) will carry through their responsibilities successfully.

(highly improbable) 1 2 3 4 5 (highly probable)

4. In the future, I expect that my child (or children) will get the promotions they deserve.

(highly improbable) 1 2 3 4 5 (highly probable)

5. In the future, I expect that my child (or children) will have successful close personal relationships.

(highly improbable) 1 2 3 4 5 (highly probable)

Highly Improbable**Neutral/mixed****Highly Probable**

1

2

3

4

5

6. In the future, I expect that my child (or children) will handle unexpected problems successfully.

(highly improbable) 1 2 3 4 5 (highly probable)

7. In the future, I expect that my child (or children) will make a good impression on people they meet for the first time.

(highly improbable) 1 2 3 4 5 (highly probable)

8. In the future, I expect that my child (or children) will attain the career goals they set for themselves.

(highly improbable) 1 2 3 4 5 (highly probable)

9. In the future, I expect that my child (or children) will experience many failures in their life.

(highly improbable) 1 2 3 4 5 (highly probable)

10. In the future, I expect that my child (or children) will have a positive influence on most of the people with whom they interact.

(highly improbable) 1 2 3 4 5 (highly probable)

11. In the future, I expect that my child (or children) will be able to solve their own problems.

(highly improbable) 1 2 3 4 5 (highly probable)

Highly Improbable		Neutral/mixed		Highly Probable	
1	2	3	4	5	
12. In the future, I expect that my child (or children) will acquire most of the things that are important to them.					
(highly improbable)	1	2	3	4	5 (highly probable)
13. In the future, I expect that my child (or children) will find that no matter how hard they try, things just don't turn out the way they would like.					
(highly improbable)	1	2	3	4	5 (highly probable)
14. In the future, I expect that my child (or children) will be a good judge of what it takes to get ahead.					
(highly improbable)	1	2	3	4	5 (highly probable)
15. In the future, I expect that my child (or children) will handle themselves well in whatever situation they are in.					
(highly improbable)	1	2	3	4	5 (highly probable)
16. In the future, I expect that my child (or children) will reach their financial goals.					
(highly improbable)	1	2	3	4	5 (highly probable)
17. In the future, I expect that my child (or children) will have problems working with others.					
(highly improbable)	1	2	3	4	5 (highly probable)
18. In the future, I expect that my child (or children) will discover that the good in life outweighs the bad.					
(highly improbable)	1	2	3	4	5 (highly probable)

Highly Improbable		Neutral/mixed		Highly Probable	
1	2	3	4	5	
<hr/>					
19. In the future, I expect that my child (or children) will be successful in their endeavors in the long run.					
(highly improbable)	1	2	3	4	5 (highly probable)
20. In the future, I expect that my child (or children) will be unable to accomplish their goals.					
(highly improbable)	1	2	3	4	5 (highly probable)
21. In the future, I expect that my child (or children) will be very successful working out their personal life.					
(highly improbable)	1	2	3	4	5 (highly probable)
22. In the future, I expect that my child (or children) will succeed in the projects they undertake.					
(highly improbable)	1	2	3	4	5 (highly probable)
23. In the future, I expect that my child (or children) will discover that their plans don't work out too well.					
(highly improbable)	1	2	3	4	5 (highly probable)
24. In the future, I expect that my child (or children) will achieve recognition in their profession.					
(highly improbable)	1	2	3	4	5 (highly probable)
25. In the future, I expect that my child (or children) will have rewarding intimate relationships.					
(highly improbable)	1	2	3	4	5 (highly probable)

Appendix K: Four Items from the Self-Attributes Questionnaire (SAQ) – Grandchild Success



As a whole, rate your GRANDCHILDREN on the following attributes compared to other grandchildren in general using the scale below. If you do not have grandchildren, please skip to page _____.

1. My grandchildren's intellectual/ academic ability

1	2	3	4	5	6	7	8	9
extremely below average				average				extremely above average

2. My grandchildren's social skills/social competence

1	2	3	4	5	6	7	8	9
extremely below average				average				extremely above average

3. My grandchildren's leadership ability

1	2	3	4	5	6	7	8	9
extremely below average				average				extremely above average

4. My grandchildren's common sense

1	2	3	4	5	6	7	8	9
extremely below average				average				extremely above average

Appendix L: Loyola Generativity Scale (LGS)

★ For each of the following items, please indicate the extent to which each statement applies to you. Please respond to the items according to how you feel at this moment in time, by marking either a "1," "2," "3," "4," or "5."

Mark "1" if you Strongly Disagree.

Mark "2" if you Disagree.

Mark "3" if you Neither agree or disagree.

Mark "4" if you Agree.

Mark "5" if you Strongly Agree.

1. I try to pass along the knowledge I have gained through my experiences.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

2. I do NOT feel that other people need me.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

3. I think I would like the work of a teacher/mentor.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

4. I feel as though I have made a difference to many people.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

5. I do NOT want to volunteer to work for a charity.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

6. I have made and created things that have had an impact on other people.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

7. I try to be creative in most things that I do.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

Mark "1" if you Strongly Disagree.

Mark "2" if you Disagree.

Mark "3" if you Neither agree or disagree.

Mark "4" if you Agree.

Mark "5" if you Strongly Agree.

8. I think that I will be remembered for a long time.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

9. I believe that society cannot be responsible for providing food and shelter for all homeless people.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

10. Others would say that I have made unique contributions to society.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

11. If I were unable to have children of my own, I would like to adopt children.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

12. I have important skills that I try to teach others.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

13. I feel that I have done nothing that has lasting value.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

14. In general, my actions do NOT have a positive effect on others.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

15. I feel as though I have done nothing of worth to contribute to others.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

Mark "1" if you Strongly Disagree.

Mark "2" if you Disagree.

Mark "3" if you Neither agree or disagree.

Mark "4" if you Agree.

Mark "5" if you Strongly Agree.

16. I have made many commitments to many different kinds of people, groups, and activities in my life.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

17. Other people say that I am a very productive person.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

18. I have a responsibility to improve the neighbourhood in which I live.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

19. People come to me for advice.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

20. I feel as though my contributions will exist indefinitely.

(Strongly Disagree) 1 2 3 4 5 (Strongly Agree)

Appendix M: Word Completion Task



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

12. CHA _ _

2. PLA _ _

13. KI _ _ ED

4. WAT _ _

14. TAB _ _

5. DE _ _

15. W _ _ DOW

6. MU _ _

16. SK _ _ L

7. _ _ NG

17. TR _ _

8. B _ T _ LE

18. P _ P _ R

9. M _ J _ R

19. COFF _ _

10. F L _ P

20. POST _ _

11. GRA _ _

21. R _ DI _

Appendix N: Demographic Questions



Please complete the following questions:

1. Birthday / /
 (day) (month) (year)

2. Current Age years old

3. Gender (check one): Male Female

4. Number years of Education (total number of years including primary, secondary, college, university, technical, etc) years

5. Please provide an assessment of your current health status

1	2	3	4	5	6	7
(very poor)						(excellent)

6. Please check one:

Married

Common Law

Separated

Divorced

Widowed

Never Married

7. Total number of children _____

8. Number of male children _____

9. Number of female children _____

10. Ages of male children _____

11. Ages of female children _____

12. Are all of your children still living today? Please check one.

Yes _____

No _____

13. Have you been in contact with at least one of your children in the past 6 months?

Yes _____

No _____

14. Do you have grandchildren?

Yes _____ If yes, how many? _____

No _____ (please move on to question #16)

15. Age range of grandchildren (example: ages 5 – 18)

Ages _____ - _____

16. Annual Household Income (please circle one):

a. below \$20,000

b. \$20,000 - \$39,999

c. \$40,000 - \$59,999

d. \$60,000 - \$79,999

e. \$80, 000 - \$99,999

f. \$100,000 - \$119,999

g. over \$120,000

17. Are you currently employed?

a) Yes. If so, what is your current position _____ and how many hours do you work per week on average _____.

b) No

18. Please indicate how often you attend church or mosque or temple etc (circle one only)

- a. every week
- b. two to three times a month
- c. once a month
- d. once every three months
- e. once or twice a year
- f. never

19. Would you consider yourself to be (circle one only)

- a. Very religious
- b. Somewhat religious
- c. Not very religious
- d. Not at all religious

20. Would you consider yourself to be (circle one only)

- a. Very spiritual
- b. Somewhat spiritual
- c. Not very spiritual
- d. Not at all spiritual

21. Do you pray privately (i.e. other than in church, mosque, temple, etc.)

- a. Several times a day
- b. About once a day
- c. Several times a week
- d. Only on special occasions
- e. Almost never

22. Where do you live?

- a. In a home that you own or rent
- b. In a seniors lodge or assisted living (room and board)
- c. In long term care (room and board *and* nursing care)
- d. Other. Please explain _____

23. Do you receive provincial home care services?

- a. Yes
- b. No

24. Have you been speaking, reading and writing in the English language for a minimum of 20 years?

- a. Yes
- b. No

Appendix O: Information Sheet

Principal Researcher: Rochelle Major rmajor@ualberta.ca

Supervisor: Dr. William Whelton wwhelton@ualberta.ca

We invite you to participate in our current research project that is focussed on older adults from all different religious, educational, and socioeconomic backgrounds who are a) 60 years old and older, b) have at least one child with whom they still remain in contact (i.e. have spoken with in the past 6 months), and c) have been speaking, reading, and writing in the English language for at least 20 years. The purpose of this study is to include seniors in a research area that has neglected to consider the unique perspective of older adults. More specifically, we are trying to understand how older adults differ on various measures of well being as well as their emotions and insights in regards to the more meaningful aspects of their life. It is our hope that we can use this information in order to get a better idea of the life experiences of seniors.

The study consists of three separate questionnaires that include measures of wellbeing and demographic information. Participants will also complete a brief cognitive exam and a personal reflection questionnaire. Your participation should take approximately 1 – 2 hours and you will receive \$10.00 for your contribution to this study. The consent form with the names will be kept separate from the anonymous questionnaires and both will be locked in a filing cabinet.

The researcher in this study complies with the University of Alberta Standards for the Protection of Human Research participants. It is important to understand that this project is voluntary. This means that you may choose to participate or withdraw at any time throughout the study without any penalty. Many people will find participating to be an enjoyable experience as it involves thinking about one's thoughts, feelings, and behaviours in a unique, reflective, and in-depth way. However, this experience may be a negative one for some individuals in the event that some questions provoke unpleasant memories, thoughts, or feelings. If this is the case, counselling will be made available to you upon request. The data from this study may be used in published scientific literature, presented at relevant conferences and symposiums, or may be used for educational purposes.

If you have any questions or concerns regarding this project or if you would like a copy of this report upon its completion, please feel free to contact us.

Appendix P: Consent Form

Principal Researcher: Rochelle Major rmajor@ualberta.ca

Supervisor: Dr. William Whelton wwhelton@ualberta.ca

Objectives: We are interested in older adults' self-concepts and interpersonal perceptions across a number of situations.

Procedure: In this study, you will be asked to fill out 3 questionnaires that include measures of wellbeing, demographic information, a personal reflection questionnaire, as well as participate in a brief cognitive exam. By examining individuals' various responses to these questions we can begin to understand the perceptions of seniors and how they relate to their social context. We anticipate that testing will vary among participants and will take a total of 1 – 2 hours. You will receive \$10.00 for participating in this research. You are free to not participate and to withdraw at any time without penalty. Although your name will appear on this consent form, it will be kept confidential and separate from your answers in order to ensure anonymity. Both the consent forms and the questionnaires will be locked in a secure area. The data from this study may be used in published scientific literature, presented at relevant conferences and symposiums, or may be used for educational purposes. The data will be used to describe older adults *in general* and never to single out or identify one person in particular.

If you have any questions or concerns about this study or wish to receive a summary of the results upon its completion, you can contact either researcher or the University of Alberta Research Ethics Board in the Faculty of Education.

I, _____, understand what will be asked of me in this study and that I have a right to not participate if I do not wish to. I understand that my identity will be kept completely confidential and that my name will not be used anywhere except on this form which will be kept separate from my answers on the questionnaire to ensure anonymity. I understand that my answers will only be reviewed by the researchers in this study and that I am free to withdraw from the study at any time without penalty. I understand that this data may be used for presentations and in research articles. Finally, I understand that if I experience any kind of distress from this study and would like to seek counselling, this option will be made available to me.

(signature)

(date)

(researcher)

The plan for this study has been reviewed for its adherence to ethical guidelines and approved by the Education, Extension Augustana, Campus Saint-Jean Research Ethics Board (EEASJ REB) at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Board at (780) 492-2614.

Appendix Q: Debriefing Form

Title: Older Adults and Generativity in Terror Management Theory

Principal Researcher: Rochelle Major rmajor@ualberta.ca

Supervisor: Dr. William Whelton wwhelton@ualberta.ca

Thank you for participating in this study and helping us learn more about the experiences of older adults. By answering the questionnaire, you provided information regarding existential questions involving personal meaning, anxiety, self-esteem, parent-child relationships, and the importance of leaving a legacy in later life.

More specifically, you contributed to a growing body of research examining how human beings function effectively despite their concerns relating to the more broad issues of human existence such as life and death. According to a prominent and well-researched theory of personality and social psychology (called “Terror Management Theory”), humans manage their anxiety around death through two primary anxiety buffers: the enhancement of their self-esteem and the adherence to their cultural worldview.

Our study is among one of the first to include older adults in an investigation based on Terror Management Theory. While some participants were in a control group, others were asked to contemplate thoughts of death before responding to measures that indicated how important it was to leave a legacy both personally and through their children. Terror Management research usually shows that people who are asked to think of their own death are more likely to score higher on measures that are meaningful to them (i.e. legacy for seniors) than people who were not asked to think of their own death.

We expected that when older adults think of their own death, they would be more motivated to leave some kind of legacy behind either through their children or through their personal contributions to society. This allows us to catch a glimpse of what brings older adults a sense of meaning in later life because humans often cling to that which is of central importance to them after thinking of their own death. If we do indeed see these results, this will have important implications for psychologists who work with seniors in a counselling setting who are trying to help seniors generate feelings of meaning and personal integrity in later life.

If you have any questions or want a summary of the results, you can contact the principal researcher. Thank you once again for your time and contribution to this research.

Rochelle Major
 Doctoral Student, Counselling Psychology
 Department of Educational Psychology
 6-102 Education North
 University of Alberta
 Edmonton, AB T6G 2G5

Appendix R: Script for Introducing the Study

Introducing the Study and getting Consent:

“Thank you for considering to participate in this study. I’ll remind you again that I’m looking for participants who are 60 years old and older, who have been speaking and reading the English language for at least 20 years, and who have at least one child that they have spoken to within the past 6 months. The purpose of this study is to include older adults in a research area that has neglected to consider the unique perspective of seniors and gain a better understanding of their emotions and insights on some meaningful aspects of their lives. “

“The study should take between 1 – 2 hours and simply involves filling out three questionnaires and engaging in a brief cognitive exam. Although people are very different in the amount of time needed to complete questionnaires, it is estimated that the first session will take approximately 10 – 20 minutes, the second session will take approximately 30 – 40 minutes, and the third session will take approximately 5- 10 minutes. After each session you will be given a 5 minute break. The three questionnaires will include measures of wellbeing, demographic information, and a personal reflection questionnaire.”

“It’s really important that you understand that this project is voluntary and you can choose to participate or withdraw from the study at any time with no penalty. Although this study only involves filling out a series of questionnaires it is possible that some of the questionnaires may trigger certain aspects in your life that may lead you to feel distressed. If this is the case, it is recommended that you stop the study and a counselling referral will be made available to you upon request. Every person who begins the study will receive \$10.00 for their participation regardless of whether they end up completing the study or not.”

“It’s also important that you understand that your contribution will be 100% confidential and anonymous. You will not be leaving any identifying information such as your name on any of the questionnaires and your data will be labelled as a number to ensure your anonymity. The consent form with the names will be kept separate from the anonymous questionnaires and both will be locked in a secure area. The data from this study may be used in published scientific literature, presented at relevant conferences and symposiums, or may be used for educational purposes. All data made available to the public will discuss the results of the research in general and will not identify any one participant’s results. Do you have any questions?”

“If you are still interested in participating in the study I ask that you read over this information sheet that outlines again what I just explained. You can then read over and sign this consent form.”

Appendix S: Script for Introducing Each Session

Prior to the First Session:

“So now we can begin with the questionnaire for the first session. Please read the instructions very carefully. You will notice a star beside each new set of instructions to remind you that you are on a new section with different instructions. Make sure you complete the questionnaire in order and do not move ahead until each section is complete. Please try your best to not leave anything blank and do not put your name on any of the pages. There are no right or wrong answers to these questions because they are just your personal opinion or feelings. You are free to withdraw at any time. I will remain in the room with you in case you have any questions.”

After the First Session:

“Thank you very much. Before you begin the second session I’m going to ask you take 5 minutes to clear your mind. You can go for a walk or remain in this room or whatever you need to do to take a break. I’ll just ask that you don’t smoke a cigarette, drink alcohol, or eat or drink anything with caffeine (coffee, chocolate, etc) because this might alter your mental state between sessions.”

Prior to the Second Session:

“Now we can begin the questionnaire for the second session. Again I’ll ask that you read the instructions very carefully. There will be a star beside each new set of instructions to remind you to read them. Remember to complete the questionnaire in order, to not leave anything blank, to not put your name anywhere, and that there are no right or wrong answers to any of these questions. Again you are free to withdraw at any time. I will continue to stay in the room in case you have any questions.”

After the Second Session:

“Thank you very much. Before you begin the third session I’m going to ask you to once again take 5 minutes to clear your mind and to avoid any cigarettes as well as food or drink that might affect your mental state due to caffeine or high sugar content. I’ll stay here to prepare for the final session.”

Prior to the Third Session (Introducing the Cognistat):

“Now we can begin the final session which includes a brief cognitive exam and a short questionnaire. Before we start I will get you to fill out this word completion task, which is separate from the cognitive exam. It should only take a few minutes and again, you have the right to withdraw at any time. For this first task, you are simply asked to put letters in the blanks to create words. You should fill in the blanks with the first word that comes to mind. Please write only one letter per blank and note that some words may be plural.”

“Now lets begin the cognitive exam. This exam simply assesses your ability in a variety of areas. I want to make sure you understand that some people find these questions difficult while others find them to be quite easy and a whole bunch of people find them to be somewhere in the middle in terms of difficulty. We are all different with different strengths and weaknesses and the questions you will be asked to respond to do not reflect your intelligence level (this is not an IQ test) so please don’t feel any pressure to get things “right” just try your best. Are there any questions?”

After the Cognistat is Completed:

“Thank you very much. We are almost done now. We just have a final questionnaire to fill out that should only take a few minutes and then we can discuss your experience with the study and I can answer any questions you might have. Again I’ll ask that you read the instructions, which in this case are very straightforward as they ask you to simply “complete the following questions.” Please try to not leave anything blank, and do not put your name anywhere on the questionnaire. Again you are free to withdraw at any time. I will continue to stay in the room in case you have any questions.”

Appendix T: Script for Debriefing Discussion

After the Third Session (Debrief Discussion):

“Thank you so much. You have completed the entire study. I’d like to take some time now to describe in greater detail the specifics of my study as well as get your insights on my topic of investigation. The main hypothesis of this study is that older adults generate a great deal of meaning and purpose in life from their children as well as the ways in which they give back to their community (both can be referred to as achieving “generativity”). The way I am trying to validate this theory is by having some of my participants contemplate their own death and then see if they are more inclined to rate their children as successful as well as themselves as successful in giving back to their community (or put more simply – as being “generative”). A way to understand this is to think of a person diagnosed with a terminal illness. Having death in the background of their mind often leads individuals to value those things that are most important to them – often much more than people who do not think of death at all. In this study I had some people think of death and some people think of a neutral topic. In essence I *used* the idea of death to help me determine if generativity is truly important to seniors on a very deep and meaningful level.”

“This type of research is based on a theory in social psychology called “Terror Management Theory.” According to this theory human beings are in a unique situation because unlike all other animals, they are aware that one day they will die. However, like all animals, humans have a strong desire to avoid death and continue living (i.e. the self-preservation instinct). According to Terror Management Theory researchers, this awareness of the inevitability of death coupled with this strong impulse to avoid death should cause a great deal of anxiety and terror for human beings. However, we all seem to be functioning just fine....but how?”

“According to these researchers each human somehow manages to deal with his or her own death anxiety by convincing herself that she is a special and important person that contributes to a world that is full of structure, meaning, and purpose. For example, most cultures prescribe socially acceptable behaviours, outline standards for success, and provide explanations for how the world was created and where people go after they die. If an individual is able to behave appropriately, meet the cultural standards for success, and believe that death is not really the end, their death anxiety can be held in check and will not be as debilitating as it would be if they didn’t adhere to their cultural worldview. In short, people alleviate their death anxiety through two “death anxiety buffers” – by having faith in a meaningful worldview and believing that they live up to the standards of that worldview (which gives them self-esteem).”

“Many Terror Management Theory researchers have used these ideas to identify some unique aspects of human behaviour. For example, many studies have found that if you ask participants to consider their own death, they are significantly more punitive and negative towards people who undermine their cultural worldview than people who are asked to consider a control topic. Other studies have found that participants who were asked to consider thoughts of

their own death were more likely to increase their identification with the things that bring them self-esteem. This is the kind of study you participated in today.”

“An extensive review of what brings older adults a sense of purpose in later life revealed that personal legacy, especially the legacy left with one’s children is likely to leave many older adults feeling as though they were valuable members within their culture. So we had some participants consider their own death and others consider a neutral topic and then measured how successful they think their children will be as well as how “generative” they themselves have been in their life (how much they “give back” to their community). We believe that when thoughts of death are in the back of older individual’s minds, they will be more likely to rate themselves higher on a measure of generativity as well as rate their children higher on a measure of success.”

“If this is indeed the case, we have successfully identified legacy, particularly legacy through one’s children, as being especially meaningful to seniors. This will help psychologists who provide psychological treatment to seniors understand how to facilitate a greater sense of purpose in seniors who are suffering from emotional distress. Helping seniors to feel more ‘generative’ or helping them to identify their unique legacy and contribution to their culture is expected to bring about greater psychological health.”

“Here is a debriefing form that briefly outlines what I just described. Do you have any questions or comments about this study? Would you like to talk about your experience participating in this study?”