

EFFECT OF LONELINESS ON OLDER ADULTS' DEATH ANXIETY

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Previous research, as well as theory, has supported the existence of a relationship between death anxiety and loneliness in older adults but a causal examination has not been possible until now. A hypothesized model was developed which states that loneliness will lead to death anxiety mediated by cultural worldview. Longitudinal data was analyzed using Structural Equation Modeling in order to more fully explore this potentially causal relationship. The primary model was supported suggesting that loneliness can lead to death anxiety as mediated by cultural worldview. Implications and future directions are discussed.

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From the soliloquies of Everyman in medieval times to Defoe's Robinson Crusoe to Shakespeare's King Lear and Miller's Loman, loneliness has been synonymous with suffering and pain. For older adults it may seem that loneliness is unavoidable. Older adults often outlive family and friends and frequently find themselves alone. Additionally, loneliness may be particularly painful because it reminds us that death is the ultimate loneliness, as Rollo May (1953) noted that "death is the symbol of ultimate separation, aloneness, isolation from other human beings" (p. 28). In addition to loneliness, older adults must also confront their approaching mortality. How painful it must be to face the prospect of ceasing to exist – and to face it alone.

The current study is an attempt to investigate the potentially causal relationship between older adults' loneliness and death anxiety in a longitudinal framework. Preliminary work on this subject I have completed reveals a significant relationship between the two. In addition, others' research has revealed a number of shared correlations and antecedents between loneliness and death anxiety further supporting such a relationship. Particularly, it is expected that, for an older adult, an increase in loneliness may contribute to an increase in death anxiety.

Definitions of Loneliness

Most researchers would agree that feeling lonely is not the same as being alone. An older adult residing in a nursing home who is constantly surrounded by other people at every hour may feel excruciating loneliness while another older adult who spends most of her days alone may rarely, if ever, feel lonely. Some define loneliness as negatively perceived social isolation (de Jong Gierveld, 1987). That is, it is not the actual absence of others that is loneliness, but rather how the individual feels about that absence. In this way loneliness is a subjective state. For

example, the older adult who spends most time alone may not see this isolation from others negatively because she may be satisfied with what social contacts she has while the lonely nursing home resident may find the quality of her social contacts disappointing although she is not lacking in quantity. These social contacts are perceived as satisfying or not based upon what the person considers a quality relationship. This quality is based upon how it compares with past and expected future interactions with others as well as those experienced by others (Fees, Martin, & Poon, 1999). When there is a discrepancy between the desired quality and the experienced quality of contact with others, loneliness results. The lonely older adult in this example may find little satisfaction in the impersonal interaction she has with doctors and nurses while the other older adult finds great pleasure in her monthly visits with her sister. This is what Peplau, Micheli, and Morasch (as cited in Pinquart & Sorensen, 2001) describe via cognitive discrepancy models – some individuals feel lonely although they objectively experience a great deal of social interaction whereas others have objectively little social contact but yet may not experience loneliness.

However, loneliness is a more complex construct than just experiencing dissatisfaction with the quality of one's social interaction. In this respect, Weiss is most prominent in the elaboration of the experience of loneliness. Expanding upon the work of Ainsworth and Bowlby, Weiss provided a taxonomy of relationships to explain how relationships differ (Weiss, 1998). Weiss argued that humans have needs that can only be met through relationships - needs such as attachment and reliable affiliation among many others (DiTommaso & Spinner, 1997). Specific types of relationships satisfy these different needs that can be categorized into basically two types of relationships that are defined by the understandings and emotions that constitute the

relationship. Weiss agreed with Bowlby and Ainsworth that the two types of relationships are those of attachment and those of affiliation.

The attachment relationship maintained in adulthood is often that of the pair-bond relationship where a member, through the presence (or the feeling that the other is accessible) of the pair-bond partner, experiences feelings of security (Weiss, 1998). The attachment partner is a secure base who fosters feelings of emotional security. Unlike childhood attachment, in pair-bond relationships both participants are the beneficiary and the provider of a secure base. Weiss notes that when an attachment relationship is absent, that is, there is no bond that is related to an emotional system of security, there are pervasive feelings of vulnerability as well as emptiness.

As in childhood, in adulthood there are also relationships of affiliations. Although there may be concerns for security in affiliate relationships, Weiss notes that primarily affiliations are based upon an underlying understanding that the relationship exists to advance a common interest, such as acquiring information. Affiliations often exist in friendship and kinship ties (although both types of relationships can also be attachments) where often the relationship serves to meet several types of needs, such as the reassurance of worth and the opportunity for assistance. When affiliate relationships are absent, the individual may experience feelings of marginality, feelings of being unacceptable to others, and isolation.

The experience that people have when these two types of relationships are missing is what defines loneliness for Weiss. And just as these two types of relationships are different in their function and expression, their absence creates very different types of loneliness. Weiss (as cited in DiTommaso & Spinner, 1997) labeled the experience that accompanies the absence of an attachment partner as emotional loneliness and the experience of the absence of affiliation as social loneliness. Weiss theorized that emotional loneliness would produce anxiety,

hyperalertness, a sense of utter aloneness, oversensitivity to minimal cues, feelings of abandonment, vigilance to threat, and nameless fear (DiTommaso & Spinner, 1997). Social loneliness, however, would produce feelings of marginality, boredom, aimlessness, depression, a drive to search and move among people, and meaninglessness (DiTommaso & Spinner, 1997). Because of their similarity in definition (both are the absence of particular kinds of satisfying relationships) it is sometimes difficult to distinguish between the two. Indeed, some researchers have found considerable overlap in the experience of loneliness (Ernst & Cacioppo, 1998). For example, both emotional and social loneliness produced feelings of depression (Russell, Cutrona, Rose, & Yurko, 1984). However, despite some similarities in their causes and expression these are distinct constructs as evidenced by different predictors. Marital status – assumedly an attachment relationship – predicts emotional but not social loneliness; level of social support predicts social but not emotional loneliness (Stroebe, Stroebe, Abakoumkin, & Schut, 1996). Similarly, Green, Richardson, Lago, & Schatten-Jones (2001) found that emotional loneliness is related to the presence of a romantic partner while social loneliness was related to the average closeness of the social network for older adults. The experiences linked to the two constructs are also usually distinct. For example, Russell et al. (1984) found that emotional loneliness was associated with feelings of anxiety while social loneliness was not. It seems that emotional and social loneliness, while they overlap considerably, are indeed separate constructs. In preliminary work regarding the current study, I failed to find a distinction between social and emotional loneliness, however, it is possible that this was due to a limitation of that study. In the present study, the separateness of social and emotional loneliness will again be assessed via their relationship to death anxiety.

Definitions of Death Anxiety

Death anxiety, or fear of death, is typically defined as anxiety that individuals experience in anticipation of the state in which they do not exist (Tomer & Eliason, 2000). At its core, death anxiety is the awareness that all that is meaningful to an individual will inevitably be destroyed. That is, people they care about as well as themselves will experience dying and death. Although many people experience death anxiety to some degree, it seems that an awareness of death would be particularly salient for older adults because they, as a group, have likely encountered death more frequently than others as living to an advanced age often implies surviving many friends and family. This implication of loss as concomitant of aging suggests that older adults could be prone to both loneliness and death anxiety.

There does not seem to be one universally agreed upon definition of death anxiety. Rather, different researchers often use the terms “death anxiety” or “fear of death” to mean different aspects of this construct (Cicirelli, 2002b). For example, in the Death Anxiety Scale Templer defines death anxiety as a generalized emotional death anxiety, while Neimeyer studies death as a representation of a threat to a person’s identity via his Threat Index instrument.

Additionally, many have understood death anxiety as a multidimensional construct. Lester developed the Collett-Lester Fear of Death Scale with the understanding that there are four aspects of fear of death: fear of death of self, fear of dying of self, fear of death of others, and fear of dying of others. Hoelter (1979) described death anxiety as anxiety about many other aspects of death. For example, people may have fear of how they will die, how significant others will be affected by their death, and fear of what will happen after they die, i.e., not just to their body but whether there is an afterlife (Hoelter, 1979).

Also, anxiety about their and other's demise may be felt consciously (overt) as well as unconsciously (covert). Hayslip (2003) and Hayslip et al. (2002) have noted that there is a three-factor model of death anxiety: overt death and dying of self, overt death and dying of others, and covert (unconscious) death anxiety. In the context of work by Hayslip, Pinder, and Lumsden (1981) and Pinder and Hayslip (1981), Galt and Hayslip (1998) found that, when compared with younger adults, older adults displayed higher levels of conscious death anxiety but lower levels of unconscious death anxiety. This implies that older adults may deal with their fear of death more directly and gradually come to an acceptance of death (Cicirelli, 2002a).

Theories of Loneliness - Death Anxiety Relationships

In order to understand the relationship between loneliness and death anxiety, it is essential to look at the relationship between two theories that best illuminate older adults' experience of these two constructs: Socioemotional selectivity theory and terror management theory. Both theories address the sense of limited time that older adults likely feel in the twilight of their lives. This sense of limited time may lead older adults to value certain relationships more so than others, but it also may predispose them to fear of death.

Socioemotional Selectivity Theory

In socioemotional selectivity theory (SST), Carstensen (1995) points to the importance of social interaction in meeting one's various human needs. Through social interactions people transmit their culture, experience emotional embeddedness, and develop their sense of self (Carstensen, 1995). Specifically, Carstensen's SST posits that there are three primary social motives: emotion regulation, development and maintenance of self-concept, and information seeking (Carstensen, 1995). These motives are present throughout life, however, the importance of each motive changes dependent upon construal of the future. SST suggests that, when the

future is seen as limited, present needs become more important than future needs. Older adults will likely perceive time as limited in recognition that death is no longer a distant or unlikely possibility; rather, older adults will recognize the inevitability and closeness of death.

Interaction with other people is then motivated by present needs, such as emotion regulation and self-concept maintenance, rather than needs more pertinent to the future such as development of self-concept and information seeking. Therefore, according to SST, older adults will place more importance upon relationships that contribute to emotional regulation. Thus, a decrease in social interaction among older adults is seen as adaptive. Social relationships such as casual friendships that allow one to acquire information and have such long-term benefits will no longer be sought out. Instead, older adults will seek and enjoy relationships that satisfy their emotional needs.

These types of relationships that Carstensen describes seem to be parallel to the emotional and social relationships discussed in Weiss' typology of relationships. It is not a great leap to assume that SST can be directly applied to understanding loneliness in later life. If older adults find more satisfaction in attachment relationships than affiliation relationships it follows that the loss of an attachment relationship would be more painful to an older adult than would the loss of an affiliate relationship. Additionally, as attachment relationships are not as easily developed as affiliate relationships, the loss of such a relationship would be more impactful.

SST's limited time aspect implies that older adults likely have an increased awareness of death because of their awareness that time is limited. This awareness of death may evoke various reactions such as placing more value on relationships; however, an awareness of death could also trigger anxiety.

Terror Management Theory

Greenberg, Pyszczynski, and Solomon's terror management theory (TMT) posits that while humans are driven to survive and continue their existence, they are also aware that they will inevitably cease to exist (Cicirelli, 2002b). The awareness that they will someday die may lead people to feel fear because of this drive to survive and continue existence. TMT theorists even go so far as to claim that the knowledge that death is inevitable is the ultimate source from which all other fears derive (McCoy, Pyszczynski, Solomon, & Greenberg, 2000). In order to cope with this fear people use various techniques that lessen the power death has over meaning in their lives. People may align themselves with their culture by accepting the cultural worldview, that is, their culture's shared systems of values and beliefs (McCoy et al., 2000). The cultural worldview creates a sense of order and meaningfulness in the face of potential chaos and the inevitability of death (McCoy et al., 2000). Individuals may feel a sense of symbolic or literal immortality through aligning themselves with their culture and further diminish death's impact. Additionally, by following the cultural prescriptions for meaning, an individual is able to feel of value and derive self-esteem and, in that way, also reduce death anxiety. This self-esteem that is gained by alignment with the worldview comprises the primary way an individual can protect himself or herself from death anxiety (McCoy et al., 2000). Interestingly, however, in my preliminary work on this subject, I found self-esteem to be significantly and positively correlated to several types of death anxiety rather than negatively as would be expected given McCoy et al.'s (2000) suggestion. Rather, I found evidence that people who are higher in self-esteem will be higher in death anxiety. I do not see this as a contradiction of TMT, instead I see this as suggestive of a more complex understanding of TMT: Alignment with certain cultural worldview variables may actually promote more death anxiety because individuals will fear death as the

destruction of that variable while other variables do indeed protect against death anxiety.

Therefore, cultural worldview is likely a more complex variable than originally conceptualized and this theory may require more subtle refining. However, that is beyond the scope of this current study.

Additionally, TMT acknowledges that individuals also attempt to deal with anxiety through denial. By overestimating the time they have left to live, and underestimating the likelihood that they will experience an accident or an illness, people are able to manage death anxiety (McCoy et al., 2000). By denying death individuals are able to maintain the illusion that the world is “controllable, fair, and just” (McCoy et al., 2000, p. 39). In this sense, death denial can actually be quite adaptive – if it is not overused (Hayslip, 2003).

However, the experience of death anxiety is not in itself a negative experience. By feeling a degree of death anxiety which is not overwhelming, people may actually place more value on their lives (Firestone, 1993). In this way, TMT theorists suggest that self-esteem is not only a protector against death anxiety, but is, in fact, created from it (McCoy et al., 2000). That is, with the awareness that we will inevitably cease to be and the resultant anxiety from that awareness we are driven to create meaning and value in our lives (McCoy et al., 2000). Perhaps my finding that self-esteem was positively correlated with death anxiety was a result of this process. It may be that people feel death anxiety which threatens their self-esteem and then set about creating meaning and value in their lives in other ways. One way that people may create meaning in their lives is through their relationships with others.

One aspect of TMT, the anxiety-buffer hypothesis, states that if a psychological structure that reduces anxiety (i.e. self-esteem or cultural worldview) is strengthened then it should reduce anxiety-related thoughts and behaviors (McCoy et al., 2000). Greenberg, Solomon et al., (as

cited in McCoy et al., 2000) found that being high in self-esteem leads to lower self-reported anxiety and physiological arousal when exposed to a reminder of death (in that case a video about death). Another aspect of TMT is the mortality salience hypothesis, which posits that when people are reminded of their mortality (a loved one dies, an individual receives a threat to their health) then they will have a greater need for a psychological structure that reduces death anxiety (alignment with cultural worldview, etc.) and will be more defensive against threats to such structures (McCoy et al., 2000).

It seems likely that the experience of loneliness, particularly emotional loneliness in older adults, could serve as an assault upon such psychological structures that reduce anxiety. That is, loneliness could weaken an individual's cultural worldview and thus leave them vulnerable to death anxiety.

Correlates of Loneliness

The relationship between loneliness and death anxiety can also be understood by looking at the correlates of both loneliness and death anxiety. Understanding how both constructs are correlated with other key variables can help to define the nature of the relationship between loneliness and death anxiety.

Antecedents of Loneliness

In the loneliness literature, numerous factors have been identified that may contribute to the development of loneliness in older adults. The exact relationship between these factors and loneliness is often not clear. Some factors, such as having few social contacts, may predispose older adults to feeling lonely but the lack of social contact could also be the result of potential social contacts finding the person an unattractive contact because their loneliness makes them unpleasant to be around. Additionally, the relationship between loneliness and these factors

could be more complex in a both cause and effect manner. Many of these factors which seem to often put older adults at risk for loneliness are psychological while there are also some physical and demographic factors as well.

Perhaps the most obvious factors that may contribute to loneliness are the loss or absence of relationships with others. This factor makes loneliness a very pertinent subject for current study as sociodemographic changes in our culture indicate that social isolation is becoming increasingly more common (Hawkey & Cacioppo, 2007). Adams, et al. (2004) studied the risk factors of loneliness in older adults in independent living retirement communities and found that having a smaller social network, grieving a recent loss, and receiving fewer visitors, especially friends, were associated with loneliness. Similarly, Dugan and Kivett (1994) found that infrequent visits with siblings were precipitating factors of loneliness. Several studies have noted that it is not necessarily the number of social contacts an older adult has, but the quality of those contacts. For example, Pinquart and Sorensen (2001) found that deficits in the quality of contacts rather than quantity were more closely related to loneliness. Several studies have found that marital status and loss of spouse are significant predictors of loneliness (Yeh & Lo, 2004; Dugan & Kivett, 1994). Indeed, de Jong-Gierveld (1987) found that being single significantly and positively predicted loneliness while living with a partner significantly and negatively predicted loneliness and Holmen, Ericsson, Andersson, and Winblad (1992), as cited in Havens, Hall, Sylvestre, and Jivan, (2004) noted that older people who reside with a spouse are generally less lonely than older adults who live alone. Cavallero, Morino-Abbele, & Bertocci (2007) suggest that men may benefit more from marriage than women as men often rely upon marriage to provide friendships, intimacy, and social relationships. The loss of close relationships such as friends, spouses, and siblings seems to be common factors that older adults will likely face.

Often older adults have outlived their contemporaries, including close friends and spouses and, unlike their younger counterparts, for older adults these relationships are difficult to replace. Pinquart and Sorensen (2001) found that the apparent relationship between loneliness and age was not an actual direct relationship between age and feelings of loneliness but rather caused by risk factors for loneliness that were associated with increased age such as: reduction in the quality of social ties, lower frequency of contacts, and institutionalization. In fact, some researchers have found evidence that loneliness tends to decline with age (Ernst & Cacioppo, 1999, as cited in Rokach, 2007) although many older adults perceive loneliness to be a natural and inevitable part of aging (Barg et al., 2006).

A reduction in social contacts could be partially blamed upon an older adult's health. If an older adult is unhealthy, he or she may have difficulty continuing certain relationships such as visiting friends. A general decline in physical health may contribute to social isolation and, thus, to loneliness (Havens et al., 2004). Indeed, decrements in health have been cited in several studies as predictors of loneliness. Many have noted that a loss in hearing is strongly associated with loneliness (Dugan & Kivett, 1994). As listening and talking to others is often the most common way for people to communicate (as opposed to writing or signing) the loss of the ability to hear could eliminate much interaction. This is evidenced in the association between loss of hearing and loneliness, but a lack of association between loss of vision and loneliness (Dugan & Kivett, 1994). Also, limitations in everyday competence seem to be associated with the development of loneliness. Hozschuher (as cited in Pinquart & Sorensen, 2001) hypothesized that a lack of mobility may hinder social contacts and also limit leisure activities which may be used as a distraction from loneliness. Having four or more chronic illnesses has been associated with loneliness (Havens et al., 2004). Additionally, Sorkin, Rook, and Lu (2002) found that

loneliness is associated with an increased probability of having a heart condition, even after controlling for age.

Other, less direct, measures of physical health are correlated with loneliness. Again, the direction of causality is not clear in these relationships; they could lead to loneliness or they could be the consequence – or both. Russell, Cutrona, Mora, and Wallace (1997) found that a greater number of prescription medications and number of doctor visits were associated with higher levels of loneliness. More use of health services has also been associated with loneliness (Havens et al., 2004).

There are also several psychological factors that may enable the development of loneliness. However, like other characteristics, the exact nature of this relationship regarding causation is often unclear. There seems to be a relationship between higher levels of anxiety and higher levels of loneliness (Fees et al., 1999). There also seems to be a relationship between self-esteem and loneliness. Van Baarsen (2002) suggested that the death of a partner would result in lower self-esteem and it was the loss of self-esteem that would then lead to loneliness. Other studies have supported this negative relationship between self-esteem and loneliness (Kamath & Kanekar, 1993, Riggio, Watring, & Throckmorton, 1993). Similarly, researchers have noted a negative relationship between self-concept and loneliness (McWhirter, 1990). Low domain-specific self-efficacy (such as interpersonal or financial self-efficacy) beliefs have been found to be strong predictors of loneliness (Fry & Debats, 2002). Fry and Debats (2002) have suggested, in keeping with Bandura, that self-efficacy beliefs affect loneliness because they reflect an individual's belief in one's ability to shape one's thinking and emotions in psychologically healthy ways.

There are other characteristics that may predispose an individual to being lonely. Many studies have found that females are more likely to experience loneliness than males (Holmen, Ericsson, & Winblad, 2000; Russell et al., 1997); however, this association has not always been found (Havens et al., 2004). Additionally there seems to be an association between age and loneliness, however, as mentioned before, this is likely not a direct relationship. Jylha (2004) concluded that the apparent relationship between age and loneliness was due to increasing disability and weakening social integration. Other characteristics are social constructs: Russell et al. (1997) found being extremely lonely is correlated with higher levels of education and lower levels of income.

For younger adults, these different types of loneliness may be both equally painful. The needs satisfied by relationships (the lack of satisfaction of these needs through relationships resulting in loneliness) may be similarly important. However, according to socioemotional selectivity theory, as people age different needs take on different levels of importance. Having casual friends and feeling socially accepted (affiliate relationships) may be less important to an older adult. Rather, it seems that having a close emotional attachment relationship becomes far more important and necessary to the older adult's well-being. However, for the older adult, these emotional relationships are extremely difficult, if not impossible, to replace. Dugan and Kivett (1994) found that emotional isolation (the loss of spouse) accounts for more loneliness among very old rural adults than does social isolation.

Consequences of Loneliness

It is likely that everyone has experienced at least occasional feelings of loneliness. For some older adults, however, such feelings may become ubiquitous. In a correlational and cross-sectional study it was found that 24 % of people over the age of 82 reported experiencing

loneliness (Prince, Harwood, Blizard, Thomas, & Mann 1997). This prevalence should give one pause, particularly when the many negative effects of loneliness are considered. For older adults, the pain of loneliness may be compounded by the numerous effects loneliness has upon their mental and physical health.

The emotional impact of loneliness has a significant effect upon the psychological health of older adults. Perhaps because loneliness is the signal of an absence of intimate relationships which have been found to soften the effects of stressful life events (Cohen & Wills, 1985), the experience of loneliness may be a risk factor for several psychological problems. Depression has often been associated with loneliness. Cacioppo, Hughes, Waite, Hawkley, and Thisted (2006) found that even after controlling for other risk factors for depression such as age, ethnicity, social support, marital status, and perceived stress, loneliness is still a significant risk factor for depression. Cohen (as cited in Adams, Sanders, & Auth, 2004) likened the relationship between loneliness and depression as similar to that of near-poverty and poverty. Both are crushing experiences and to say that loneliness is slightly less painful than depression is trifling. Indeed, Barg et al (2006) found that older adults consider loneliness and depression to be very similar experiences. When asked to describe a depressed person, older adults will often use the term “lonely” spontaneously and more often than any other term (Barg et al., 2006). Holman, Ericsson, and Winblad (1999 as cited in Adams et al., 2004) found loneliness to be a risk factor for depression in older adults and an even stronger predictor if an older adult is cognitively impaired. In addition, the co-existence of loneliness and depression in an older adult seems to be particularly powerful: Stek et al. (2005) found that older adults who suffered from both loneliness and depression had a greater risk of mortality than those who only suffered from depression or loneliness, and two times higher risk of mortality when compared to older adults

with neither depression nor loneliness. It has been found that defining characteristics of older adults who attempt suicide are: being a widowed woman suffering from social isolation, loneliness, and depression (Lebret, Perret-Vaille, Mulliez, Gerbaud, & Jalenques, 2006). However, it is important to note that depression and loneliness are separate, though highly related, constructs (Adams et al., 2004). Cacioppo and colleagues (2006) suggested that loneliness and depression have a reciprocal relationship and can act in a synergistic way to diminish well-being in older adults.

Loneliness also may have an effect upon older adults' physical health. Lonely older adults may neglect health care because of the demoralizing effect of loneliness and so experience a decline in physical health (Cohen, 1988, as cited in Russell, Cutrona, de la Mora, & Wallace 1997). While not specifically relevant to older adults, there is some evidence that suggests loneliness has a more direct effect upon physical health: loneliness in psychiatric inpatients and medical students has been linked to poor functioning of their immune systems (Kiecolt-Glaser, Ricker, et al. 1984; Kiecolt-Glaser, Garner et al., 1984). Cacioppo et al. (2002) compared lonely and nonlonely older adults and found that lonely older adults displayed greater age-related increases in blood pressure and poorer sleep quality than those who were not lonely. Recently, Hawkley and Cacioppo (2007) proposed that loneliness may contribute to and accelerate decreases in physiological resilience. They suggested that this is due to the influence loneliness has upon health behaviors, stress exposure, and psychological and physiological stress responses. Similarly, Steptoe, Owen, Kunz-Ebrecht, and Brydon (2003) concluded that loneliness has potentially adverse effects on biological stress processes that may be relevant to health.

Understanding exactly what the relationship between health and loneliness is has been difficult. Some researchers suggest that the relationship between loneliness and physical health

may be complicated by perceptions of physical health, that lonely older adults may simply perceive their health as poor. Fees et al. (1999) found that elevated feelings of loneliness predict poor subjective health evaluations. Barg and colleagues (2006) found that older adults who reported feelings of loneliness in the week prior to an interview reported poorer physical functioning than those who did not report loneliness. Specifically, these researchers found that feelings of loneliness affected perceptions of health rather than perceptions of health affecting loneliness. Others (Cacioppo et al., 2002) have noted that there are few differences in the health behaviors (eating poorly, disregarding seatbelt usage, smoking, etc) of lonely and non-lonely individuals.

Correlates of Death Anxiety

Although the theory of TMT explicitly states that self-esteem is directly linked to death anxiety, quantitative analysis has not always supported this relationship. As previously discussed, I found self-esteem to have a positive relationship to certain forms of death anxiety (higher self-esteem was associated with higher levels of some types of death anxiety). The relationship between death anxiety and self-esteem appears to be a complex one. Cicirelli (2002a) found only a weak correlation between self esteem and death fear as defined by terror management theory (fear of annihilation). Rather, he found that self-esteem has an indirect effect which was mediated by external locus of control. Cicirelli suggested that this may be because self esteem works to suppress unconscious death anxiety but other factors are important to deal with conscious fear.

Besides the loss of self-esteem, there are several other factors that are correlated with an increase in death anxiety. Just as Fry and Debats (2002) found loneliness to be predicted by domain specific self-efficacy, Fry (2003) found that self-efficacy is a significant predictor of

several kinds of death anxiety. Also, as noted by Hayslip and Stewart-Bussey (1986, 1987), and later supported by Cicirelli (2002a), having an external locus of control is associated with greater fear of death. Cicirelli (2002a) also found a correlation between less social support and greater fear of annihilation. In a recent meta-analysis, Fortner, Neimeyer, and Rybarczyk (2000) identified age, ego integrity, institutionalization, physical problems, psychological problems, and religiosity as the most commonly studied correlates of death anxiety. Specifically, they found that, generally, older adults as a group have less death anxiety than middle-aged adults. The authors suggested that this decrease in death anxiety for older adults was due to the focus on the present (as suggested by socioemotional selectivity theory) and to life experiences that had taught them to be tolerant of uncertainty and ambiguity. Fortner, et al. also found that, although some studies have found evidence to the contrary, in general there is no gender effect for death anxiety. Also, it was found that being institutionalized (i.e., living in a nursing home) predicted higher levels of death anxiety. The researchers also found that having more physical problems predicted higher levels of death anxiety in older adults. Cicirelli (2002b) studied this effect more in depth and found that, specifically, older adults in poor health had a greater fear of the dying process. Fortner et al. (2000) also noted that having more psychological problems predicts having greater death anxiety. Additionally, people who are more religious tend to report less death anxiety.

At first glance it seems that older adults should have a high degree of death anxiety because not only are they in closer proximity to death than the general population, but also because the buffer against death anxiety, self-esteem, is likely lower as they may have lessened ability to meet cultural prescriptions and so align themselves with their cultural worldview (Cicirelli, 2002b). It might be expected that older adults would be unable to meet the demands of

cultural standards because roles they once occupied are no longer available as well as because of the decline in the number of contemporary social supports (Cicirelli, 2002b). However, in general, this does not seem to be the case at all. Although they may no longer be able to meet cultural demands as they once were, older adults appear to have high levels of self-esteem and, compared to younger adults, low levels of death anxiety (Cicirelli, 2002b).

One explanation for this counterintuitive high self esteem in older adults is socioemotional selectivity theory. Older adults tend to narrow social contacts to only include those who maintain the self-concept and thus maintain their alignment with their worldview. However, this begs the question of what would happen to an older adult's self-esteem, and resultant level of death anxiety, if those emotional relationships that maintain the self-concept were absent and could not be regained. If older adults use attachment relationships to stave off loneliness and, to an extent, death anxiety, how are loneliness and death anxiety connected? In other words, if the self-esteem and self-concept are keys to both protection against loneliness and death anxiety, what is the relationship between these two constructs?

The Current Study

The purpose of the present study is to investigate the nature of the relationship between loneliness and death anxiety in older adults. There is much evidence that would support a hypothesis for such a relationship. Primarily, because the presence of loneliness in older adults may result in a decline in self-concept and self-esteem and such a decline may contribute to the presence of death anxiety, it is likely that there is a relationship between these two constructs. Other similarities between these two constructs may further support such a hypothesis. Institutionalization, psychological problems, and a decline in health also seem to be shared by many individuals who are lonely and those who experience high levels of death anxiety.

Ultimately, both high levels of death anxiety and loneliness may compel an individual to commit suicide. Although intentionally bringing about their death may seem an unlikely action by a person who is extremely afraid of death, suicide may be an attempt by the highly death-anxious individual to avoid the suffering the death anxiety induces as well as to take control of their lives (Firestone, 1993). Likewise, for people who are suffering from loneliness, suicide may serve as a release from such pain. The loss of important family and friends, particularly spouses, also seems to be a trigger for both loneliness and death anxiety and may lead to suicide among older persons (Miller, 1979). These similarities may suggest that an increase in loneliness may result in an increase in death anxiety.

Although my prior research into this topic has supported the existence of a relationship, it is not clear what pathway links loneliness and death anxiety. There are likely many mediating variables such as bereavement and, particularly self-esteem. In this respect, Tomer and Eliason (2000) have proposed a comprehensive model of death anxiety which may help elucidate the relationship between loneliness and death fear. A simplified version of this model poses that background variables (such as age, gender, and education) as well as death salience and religiosity may either directly affect attitudes about death (which influence the level of death anxiety) or indirectly by affecting individuals' beliefs about themselves and the world. These beliefs then either directly affect levels of death anxiety or indirectly by affecting death attitudes. Loneliness may fit in this model as a variable that affects an individual's beliefs about self and world.

More specifically, this study hypothesizes that emotional loneliness will result in considerably more death anxiety than will social loneliness. Because (according to socioemotional selectivity theory) emotional attachment relationships are more important to

older adults than social affiliate relationships, emotional loneliness will likely have more of an impact on older adults than will social loneliness. Higher social loneliness is expected to produce a moderate level of death anxiety; however, this level will not be at the level of that produced by more emotional loneliness. Preliminary work on this subject found only partial support for this hypothesis. While loneliness as a whole was found to be significantly and positively correlated with death anxiety, emotional loneliness did not uniquely predict death anxiety, other than death anxiety specific to fear of loss of significant relationships. Despite this finding, because of the theoretical evidence, I believe it is worth retesting this hypothesis.

Hypothesized Model

The hypothesized model for this study states that loneliness will lead to death anxiety, mediated by cultural worldview. More specifically, it is expected that loneliness scores at the first sampling (time 1) will predict death anxiety scores at the second sampling mediated by cultural worldview at time 1.

In other words, emotional and social loneliness then may affect and interact with personality variables such as spirituality, depression, resiliency, locus of control, openness to experience, and self-esteem. These personality variables should also be understood as components or indicators of an individual's cultural worldview. The presence or absence of these variables could indicate how an older adult makes sense of and gives meaning to his or her life. The cultural worldview should therefore mediate the influence of loneliness on death anxiety.

Cultural Worldview as Mediator

According to Greenberg et al.'s terror management theory, the main component of the cultural worldview is self-esteem, although the relationship between self-esteem and death anxiety may be more complex than originally imagined. Older adults may experience high levels

of loneliness but their high levels of self-esteem may maintain their understanding of life as meaningful, and buffer them from being negatively impacted (i.e. experiencing more death anxiety). As there is a correlation between loneliness and low self-esteem, it is therefore possible that feeling more lonely may be associated with a decrease in self-esteem, leading to more death fear.

Spirituality and religiosity may also be important mediators of the relationship between loneliness and death anxiety. Spirituality and religiosity are often very important to older adults as they constitute a worldview that provides a way to transcend difficult situations by giving life meaning, purpose, and making sense of suffering and tragedy (Koenig, 2000). While loneliness may contribute to a breakdown of a worldview that otherwise provides meaning, thus leaving older adults vulnerable to death anxiety, spirituality and religiosity may maintain that worldview despite the effects of loneliness. It is possible that while negative life events such as loss can lead to the development of loneliness, they also may lead to the use of religion and spirituality to cope (Balk, 1999). This use of religion and spirituality, as might self-esteem, may reflect better coping thus allowing older adults to experience life as meaningful and so prevent death anxiety.

This ability on the individual's part to transcend painful experiences and thus find meaning and purpose can also be represented in his or her openness to experience. Persons who are imaginative, intellectually curious, and sensitive may be more likely to sustain their worldview when beset by loneliness than those who are practical, pragmatic, and who have a narrow range of emotions.

Resilience is described as the ability to adapt after unfortunate events and buffer the negative effects of stress (Wagnild & Young, 1993). It has also been described as emotional stamina (Wagnild & Young, 1993). Researchers have described resilient individuals as having

satisfying interpersonal relationships, self-efficacy, and self-esteem (Rutter ,1987, as cited in Wagnild & Young, 1993). Resilience is also thought to be present in older adults who are socially active (Wagnild & Young, 1990 as cited in Wagnild & Young, 1993). This seems to support a negative relationship between loneliness (primarily emotional) and resilience. In terms of this study, it is hypothesized that the presence of loneliness may not lead to an increase in death anxiety among those who are more resilient. Alternatively, less resilience may leave an older adult open to higher levels of death anxiety in the presence of more experienced loneliness. A resilient older adult may react to the sense of limited time with acceptance or another adaptive reaction rather than fear or anxiety while an individual with less resilience may respond to such an awareness of death with anxiety.

A related concept, psychological hardiness, may serve a similar mediating role in the relationship between loneliness and death anxiety. Psychological hardiness is a personality style that allows an individual to cope with stress and remain healthy (Maddi & Kobasa, 1984). Hardy individuals tend to view the world as capable of being influenced (an unfortunate situation can be made advantageous), are fully engaged in activities, believe that change, as opposed to stability, characterizes life and that change offers opportunities for future development (Kobasa, 1979). This attitude towards themselves and their world may allow individuals who experience loneliness to adapt positively and not experience high levels of death anxiety.

Locus of control would also likely play a part of the cultural worldview that mediates the relationship between loneliness and death anxiety. Individuals whose cultural worldview contains the belief that they are in control of their own destiny may be less likely to respond to the experience of loneliness with death anxiety than individuals who believe they have little control over their environment.

Statement of the problem

In summary, it is expected that loneliness will affect an older adults' fear of death of self and others, fear of dying of self and others, and unconscious death fear through the mediating influence of the cultural worldview. (Loneliness at time one will predict death anxiety at time two mediated by cultural worldview at time one.) In this particular study, the cultural worldview will be represented through the constructs of spirituality, depression, resiliency, locus of control, openness to experience, and self-esteem.

There has been some support for this model although a full causal analysis has not been possible until now. I recently conducted a preliminary investigation of this model. Three hundred and thirty eight older adults completed a survey containing the above mentioned measures. Correlational analysis (hierarchical regression) supported the proposed model in that loneliness significantly predicted important forms of death anxiety as did cultural worldview variables. This preliminary work supported (although due to the nature of the analysis could not confirm) the proposed relationship between loneliness and death anxiety. However, not all of my hypotheses were supported in this preliminary study. While loneliness significantly predicted death anxiety, emotional loneliness did not account for a unique amount of the variance. Also, loneliness negatively predicted one form of unconscious death anxiety (covert fear for the future). Most significantly, as has been alluded to earlier in this paper, the preliminary study suggested a more complex role of cultural worldview that was originally hypothesized. The hypothesized components of cultural worldview (locus of control – powerful others and control, depression, spirituality, openness to experience, self-esteem, hardiness, and resilience) were indeed significant predictors of several different forms of death anxiety, however, they were not simply negative predictors as was anticipated. As mentioned before, self-esteem positively predicted

death anxiety (people with high self esteem tended to have higher death anxiety). Additionally some cultural worldview components differed in their prediction direction dependent upon what kind of death anxiety was being predicted. Depression predicted, in a positive direction, several different forms of death anxiety, but negatively predicted covert fear of disease and pain. Openness to experience similarly negatively predicted several death anxiety variables but positively predicted fear of the unknown (MFODS Unknown). This suggests that the mediating role of cultural worldview may be more complex than was originally thought. These data suggest that the mediating role of the cultural worldview in the relationship between loneliness and death anxiety may work in several ways. For example, an older person could experience a great deal of loneliness which would ordinarily result in more death anxiety. However, this person may have a high degree of alignment with his or her cultural worldview which could protect the person from experiencing such death fear. However, the mediating role of the cultural worldview could also be hurtful to an older person. For example, one person may experience a low level of loneliness; however, because of his or her low degree of alignment with the cultural worldview, the older person may nevertheless experience more death anxiety.

While this preliminary work was helpful, it could not speak to the integral element of the model: causality. With only one measurement in time it cannot be understood whether loneliness affected death anxiety or whether death anxiety influenced loneliness, or both. Additionally, the mediating or moderating role of cultural worldview or changes in the death anxiety-loneliness relationship over time cannot be confirmed. The preliminary study simply took a snapshot of these variables and confirmed that they were indeed related in some way. It was necessary to take another “snapshot” of these variables at another point in time to understand the causal nature and direction of these relationships. If change is observed in death anxiety of individuals

over times of measurement, it may be possible to understand whether an increase in one variable (i.e. loneliness) led to an increase in another (i.e. death anxiety) or vice versa. To be more specific, if, at time one, loneliness was at a certain level and at the second time, death anxiety had changed to that level, it can be assumed that loneliness led to the change in death anxiety. In this way such a longitudinal research design can confirm causality.

In the current investigation, willing participants from the previous study were asked to complete the survey again approximately one year to 18 months after their original completion. This longitudinal design will allow causal inferences to be made.

METHOD

Participants

Of the 335 original participants, 173 (51%) agreed to be contacted again for re-administration of the survey. These surveys were mailed to the participants to the addresses provided along with an addressed, stamped envelope so that participants would not have to spend any more than time in the completion of this survey. To further increase response likelihood, participants were told that one participant who returned the second survey would be randomly selected to receive a \$50 gift card to a restaurant chain. (This gift card was indeed given to a randomly selected participant.) It was hoped that this method would encourage all participants equally to complete the survey and thus decrease the likelihood of further selection bias. Two months after the surveys were mailed a reminder letter was sent to participants who had not yet turned in the survey. Of the 173 participants who agreed to be recontacted, 106 returned surveys. This sample consisted of 68% female. In terms of ethnicity, 95% were Caucasian with 3% African American and 2% Hispanic. The average age was 72 ($SD = 7.2$) with an average income of 30,000 to 39,000 dollars a year. A large percentage of participants (47%) had obtained some

college education. Twenty-eight percent had a high school education or less and 25% had received some graduate education.

Statistical analysis, multivariate analysis of variance (MANOVAs) revealed a few important differences between those that agreed to be re-contacted and those that declined. This may suggest a selection bias – the results may be skewed because a systematic part of the survey kept certain people from participation, therefore, some important data may have been lost. Participants who agreed to be re-contacted were significantly more likely to endorse higher levels of spirituality, openness to experience, and hardiness than those who declined to be re-contacted. Additionally, although when taken as a group, death anxiety variables were not significantly different between the two groups of participants, individually, nine of the thirteen conscious death anxiety variables differentiated the two groups. (See Table 1.) This finding suggests that people who declined to be re-contacted had higher levels of death anxiety than did those who agreed to be re-contacted. This finding could be potentially problematic as it suggests that the current sample will be non normal (skewed) in terms of death anxiety. Because people with higher degrees of death anxiety will be self-excluded from this study the results may not be entirely generalizable to the general older adult population. On the positive side, ceiling effects in relation to this data will be less of a concern. However, the two groups were not significantly different on other important variables including loneliness and unconscious death anxiety.

MANOVAs were also conducted comparing those that returned surveys and those who agreed to return surveys but did not eventually do so. Those who returned surveys had significantly higher self-reported health than did those who did not return surveys, $F(1, 361) = 5.69, p = .019; M = 42.92, SD = 7.79$ (did return); $M = 38.62, SD = 9.19$ (did not). Those who returned surveys also had a higher level of hardiness, $F(1, 1029) = 5.13, p = .026; M = 111.37,$

$SD = 11.81$ (did return); $M = 104.79$, $SD = 17.99$ (did not); than did those who did not return the survey. There were no significant differences regarding loneliness or death anxiety variables.

Measures

Participants were asked to complete a shortened version of the surveys originally given to them approximately 1 year to 18 months ago. This second packet was streamlined in order to increase the likelihood of response. All but a few health items were removed as well as the social desirability scale. The abbreviated version of the NEO Openness scale was used instead of the entire scale which had been used in the original survey. Additionally all but one of the locus of control factors were removed (Internal control was kept). What were included an informed consent form and a brief demographics questionnaire to obtain self-reported health, gender, income, education, marital status, and previous loss history. Other remaining items included those measures intended to measure loneliness, death anxiety, resiliency/hardiness, spirituality, social support, locus of control, openness to experience, and self-esteem.

Loneliness. Loneliness was assessed through the use of two measures: the short version of the Social and Emotional Loneliness Scale for Adults (SELSA-S) and the UCLA Loneliness Scale – Version 3 (UCLA-3). The SELSA-S (DiTommaso, 1997) is the short form version of the originally developed SELSA (DiTommaso & Spinner, 1993). DiTommaso and Spinner originally developed the SELSA as a multidimensional measure consistent with Weiss' theory of the distinction between emotional and social loneliness. The original SELSA was theoretically derived with good reliability and validity (DiTommaso, Brannan, & Best, 2004). The SELSA-S similarly assesses social loneliness as well as two domains of emotional loneliness: family emotional loneliness and romantic emotional loneliness. The SELSA-S consists of 15 items that were selected from the original 37-item scale based upon item's loading, variance, and need to

balance the items with both positive and negative wording (DiTommaso, et al., 2004). Items are rated on a 7-point Likert-type scale which ranges from 1 (*strongly disagree*) to 7 (*strongly agree*). DiTommaso, et al. (2004) report that the SELSA-S subscales are highly internally consistent as displayed by Cronbach alphas ranging from .87 to .90. Confirmatory factor analysis supported DiTommaso & Spinner's three-factor model. Di Tommaso, et al. (2004) also reported that the SELSA-S possesses concurrent and discriminant validity as demonstrated by its correlation with the original SELSA and the UCLA-3 as well as correlation with various attachment, quality of relationship, social competence, and adjustment measures.

The UCLA Loneliness Scale – Version 3 (UCLA-3; Russell, 1996) is likely the most widely used loneliness scale. The UCLA-3 is a unidimensional scale of loneliness, however, evidence has been found that an earlier version of this scale may also measure more dimensions of loneliness as well, although factor analysis has not been attempted with this version (Russell, 1996). Unlike previous versions of the UCLA, the UCLA-3 has been tested and found applicable for use with older adults (Russell, 1996). The internal consistency reliability is excellent with Cronbach alphas ranging from .89 to .94. As the UCLA-3 does not distinguish between social and emotional loneliness scores for older adults were unrelated to frequency of social contacts but were strongly related to perceived quality of interpersonal relationships (Russell, 1996). This finding would be consistent with socioemotional selectivity theory. In support of construct validity, Russell (1996) noted that loneliness as measured by the UCLA-3 was significantly related to measures of depression, life satisfaction, and job-related burnout.

For the purpose of the present study, in order to study social and emotional loneliness separately, a factor analysis was conducted on the UCLA using the present data. The scree plot indicated two factors which were thought to contain the constructs of social and emotional

loneliness. The factor that was assumed to contain emotional loneliness was composed of the 1st item of the UCLA-3 (dealing with Feeling “In Tune” With Others; factor loading .453), the 5th (Feeling A Part Of A Group Of Friends; factor loading .771), the 6th (Feeling That Have A Lot In Common With Others; factor loading .767), the 9th (Feeling Outgoing And Friendly; factor loading .615), and 10th (Feeling Close To Others; factor loading .541). The remainder the other 15 items of the UCLA-3 were included in the social component. This included the 2nd item (Sense Of Companionship; factor loading .583), the 3rd (Feeling There Is Someone To Turn To; factor loading .612) the 4th (Feeling Alone; factor loading .617), 7th (Feeling Close; factor loading .666), 8th (Feeling Interests Are Shared By Others; factor loading .694), 11th (Feeling Left Out; factor loading .627), 12th (Relationships Have Meaning; factor loading .717), 13th (People Know You Well; factor loading .743), 14th (Feeling Isolated; factor loading .679), 15th (Ability To Find Companionship; .599), 16th (Others Understand You; factor loading .599), 17th (Feeling Shy; factor loading .186), 18th (People Around But Not With You; factor loading .499), 19th (There Are People To Talk To; factor loading .823) and 20th (There Are People You Can Turn To; factor loading .831). These two components were thus called UCLA Emotional and UCLA Social. The alphas for these measures were .76 and .90 respectively.

Death Anxiety. Four separate measures were employed to measure death anxiety: the Multidimensional Fear of Death Scale (MFODS), the Revised Death Anxiety Scale (RDAS), the Collett-Lester Fear of Death Scale (CLFD), and the Incomplete Sentence Blank (ISB).

The Multidimensional Fear of Death Scale (MFODS; Hoelter, 1979) assesses eight types of fear of death (fear of the dying process, fear of the dead, fear of being destroyed, fear for significant others, fear of the unknown, fear of conscious death, fear for the body after death, and fear of premature death). Factor analysis has shown the MFODS eight types to be stable factors

(Hoelter, 1979; Walkey, 1982 as cited in Neimeyer et al., 2003). There are 42 items that are scored on a 5-point Likert-type scale. Hoelter (1979) and Walkey (as cited in Neimeyer, Moser, & Wittkowski, 2003) report that internal consistency (Cronbach's alpha) for the subscales ranged from .65 to .82. Neimeyer and Moore (as cited in Neimeyer, et al., 2003) report that the test-retest reliability for the eight different subscales ranged from .61 to .81 and for the total score was .85. They also reported low but significant correlations with the Threat Index scales.

The Revised Death Anxiety Scale (RDAS; Thorson & Powell, 1994) measures death anxiety of an emotional nature. It consists of 25 statements which respondents rate on a 5-point scale indicating agreement or disagreement. Thorson and Powell (1994 as cited in Cicirelli, 2002b) report internal reliability (Cronbach alphas) ranging from .80 to .83. As evidence of construct validity Thorson & Powell (1994 as cited in Neimeyer, et al., 2003) noted that it discriminates between individuals who are high and low in religiosity.

The Collett-Lester Fear of Death Scale (CLFD; Collett & Lester, 1969) consists of 32 items that are scored on a 5-point scale. Lester (1994 – as cited in Cicirelli, 2002b) suggests that the CLFD assesses four aspects of fear of death: Fear of Death of Self, Fear of Death of Others, Fear of Dying of Self, and Fear of Dying of Others. While the test-retest reliability for these four scores is satisfactory, factor analysis has only partially supported this four factor structure (Cicirelli, 2002b). However, the “self” and “other” two-factor solution has been supported (Loo & Shea, 1996 – as cited in Neimeyer, et al., 2003). Cronbach alphas have ranged from .78 to .82 for the full scale and .58 to .69 for the four scales (Loos & Shea, 1996 – cited in Neimeyer, et al., 2003). Lester (1994 as cited in Neimeyer, et al., 2003) reported the four subscales test-retest reliability as ranging from .79 to .86.

The Incomplete Sentence Blank (ISB; Hayslip, Pinder, & Lumsden, 1981; Pinder & Hayslip, 1981) is a ten-stem sentence completion task that is used to assess covert fear of death. The neutral stems are scored for the presence or absence of a variety of dimensions of unconscious death anxiety: 1) overt death or dying, 2) fear of separation or isolation, 3) fear of dependency or loss of control, 4) fear of stasis or stagnation, 5) fear of loss of goals, 6) fear of injury or disease/fear of pain and suffering, 7) fear of punishment or rejection by others, and 8) concern over time. Hayslip, Galt, & Pinder, 1992, Hayslip, Galt, & Pinder, 1993, Hayslip, et al., 1979, and Pinder & Hayslip, 1981 report that all of the nine dimensions can be reliably scored. Additionally, the ISB appears to be a valid measure as evidenced in its sensitivity to death education (Hayslip & Walling, 1985; Hayslip & Walling, 1986; Hayslip & Galt, 1992; Hayslip & Galt, 1993, Servaty & Hayslip, 1996) and to communication apprehension regarding the dying (Servaty & Hayslip, 1996).

Social Support. A short form of the Social Support Questionnaire (SSQ6; Sarason, Sarason, Shearin, & Pierce, 1987) was used to assess participants' level of social support. The six SSQ6 items have two parts: an assessment of the number of available others the person feels they can turn to in various situations and that person's degree of satisfaction with the perceived social support in those situations (Sarason, et al., 1987). This degree of satisfaction is assessed through the use of a 6-point Likert-type scale ranging from *very dissatisfied* to *very satisfied*. Sarason, et al. (1987) report the internal consistency (Alpha) reliabilities for both Number and Satisfaction (the two parts of items) to range from .90 to .93 with satisfactory test-retest reliability.

Resiliency. The Resiliency Scale (RS), and the Personal Views Survey (PVS) were used to measure resilience and hardiness. The Resiliency Scale (RS; Wagnild & Young, 1993)

assesses positive personality characteristics that enhance individual adaptation or resiliency. The RS contains 25 statements that the participant agrees or disagrees with on a 7-point Likert-type scale. Wagnild and Young (1993) report internal consistency of .91. Killien and Jarrett (cited in Wagnild & Young, 1993) report test-retest reliability ranging from .67 to .84. Wagnild and Young (1993) also report a priori content validity due to items being constructed based upon a generally accepted definition of resilience as well as interviews with people who they believed characterized resilience. Discriminant validity is evidenced by a negative correlation with depression (-.37) and a positive correlation with life satisfaction (.30) and morale (.28) (Wagnild & Young, 1993).

The Personal Views Scale (PVS; Kobasa, personal communication, January 12, 1995) contains 43 statements which respondents rate on a Likert-type scale from *not at all true* to *completely true*. Hardiness is broken into a control component (belief that surroundings can be influenced), commitment (engagement in activities), and challenge (belief that change rather than stability characterizes life). For the current study, an overall hardiness score was used. The reliability (coefficient alpha) of the PVS is reported as .88 for overall hardiness (Crowley, Hayslip, & Hobdy, 2003).

Spirituality. The Expressions of Spirituality Inventory-Revised (ESI-R; McDonald, 2000) is a 30-item self-report scale that was created through the use of rational and empirical test construction to measure five dimensions of spirituality: Experiential/Phenomenological Dimension, Cognitive Orientation Towards Spirituality, Existential Well-Being, Paranormal Beliefs, and Religiousness. MacDonald (2003) reports that the reliability (alpha coefficients) of the ESI-R range from .80 to .89.

Depression. The Center for the Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977) was used to assess depression. The CES-D was specifically designed by Radloff (1977) for use in research. It measures the current self-reported presence of major depressive symptoms such as depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, loss of energy, as well as disturbances of sleep and appetite (Radloff & Teri, 1986). The scale consists of 20 statements such as “I felt sad” to which participants are asked to report how often in the past week this statement was true. Respondents are given four options ranging from *Rarely or None of the Time (less than 1 day)* to *Most or All of the Time (5-7) days*. Radloff and Teri (1986) report split-half reliabilities and coefficient alphas to range from .85 to .92 indicating that the CES-D is a reliable measure. The CES-D also displays construct validity by correlating with ratings of severity of depression made by clinicians who were familiar with patients tested (Radloff & Teri, 1986). Discriminant validity is evidenced in the low and negative correlation between the CES-D and the Bradburn Scale of Positive Affect and the high and positive correlation with the Bradburn Measure of Negative Affect. Radloff and Teri (1986) report that the CES-D is appropriate for use with older adults.

Locus of Control. Locus of Control was assessed through the use of the Levenson’s Internality, Powerful others, and Chance scales (IPC; Levenson, 1974). This scale measures across three dimensions (Internal Control, Powerful Others, and Chance Control) the degree to which individuals feel that their destiny is within or beyond their control (Levenson, 1981). Each dimension is represented by 8 statements which participants rate on a six point Likert-type scale ranging from *strongly disagree* to *strongly agree*. In the follow-up study, only the Internal Control dimension items were used. As evidence of internal consistency reliability, Levenson (1974, as cited in Levenson, 1981) noted that Kuder-Richardson reliabilities ranged from .64 to .

78 which is comparable to other measures of locus of control. In terms of test-retest reliability, Zukotynski and Levenson (1976, as cited in Levenson, 1981) found that a simplified version of the scales yielded reliabilities ranging from .65 to .91 for an older adult sample. Levenson (1981) notes that this moderate level of reliability is to be expected as the items sample from a variety of situations.

Openness to Experience. The Openness scale from the NEO-FFI (Costa & McCrae, 1992) was used to assess openness. This is a 12-item measure from the shortened version of the Revised NEO Personality Inventory. The internal consistency estimate for the Openness scale has been reported as .87 (Costa & McCrae, 1992).

Self-esteem. The Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1979) was used to measure participants' self-esteem. The RSE contains 10 statements which respondents are asked to rate on a 4-point Guttman scale the degree to which they agree or disagree. Rosenberg (1979) reports a coefficient of reproducibility of 92 percent and a coefficient of scalability of 72 percent. Schmitt and Allik (2005) reported a Cronbach alpha of .88 for the RSE.

Statistical Analysis

In order to confirm or reject the proposed model of the relationship between loneliness and death anxiety, structural equation modeling (SEM) was employed. With SEM a model of proposed relationships among variables is hypothesized based upon either empirical evidence or theoretical rationale. This current model reflects both, due to the preliminary work done I have done on death anxiety-loneliness relationships. My preliminary work, described earlier in this paper, supported the proposed model of the loneliness/ cultural worldview/ death anxiety relationship. The aforementioned measures were used as indicators of the underlying constructs of interest (loneliness, cultural worldview, and death anxiety).

SEM is a particularly apt method to use for this study. It has the ability to do more than just describe the data – it can also infer relationships within a given dataset (Byrne, 2006) in a longitudinal framework. Additionally, SEM is able to estimate measurement error explicitly, unlike other statistical methods (Byrne, 2006). SEM, in contrast to other methods, is also capable of estimating indirect effects and modeling multivariate relationships. And, most importantly for this study, SEM was able to examine not only observed variables (i.e. depression, spirituality) but also unobserved or latent variables (i.e. loneliness, death anxiety) (Byrne, 2006).

The primary model that was tested was that loneliness (separated into social and emotional) components at time one would predict death anxiety at time two as mediated by cultural worldview at time one.

RESULTS

Reduction of Cultural Worldview and Death Anxiety Variables

In order to reduce unnecessary overlap between measures (and increase degrees of freedom) in the structural equation, several important groups of variables were factor analyzed. It was found that Cultural Worldview could be explained via two components wherein each component higher scores indicated higher alignment with the cultural worldview. The first component consisted of Resilience, Spirituality, Depression (reverse scored so a higher score indicated the absence of depression), Self-esteem, and Locus of Control – Internality (Eigenvalue = 2.981; 43% of variance explained). This component seemed to consist of measures that indicated general well-being or the absence of distress. The second component revealed by factor analysis consisted of Openness to Experience and Hardiness (Eigenvalue = 1.221; 17% of variance explained). This component appeared to be composed of a proactive coping style. While it was unexpected that Hardiness would load separately apart from Resilience, it did load

heavily (.571) on the first component as well. Both components defined the Cultural Worldview variable for use in the structural equation analysis. It was found that Death Anxiety was defined by six factors; however, three of the factors were defined by one or two variables each (unconscious death anxiety about disease and pain – fourth component, MFODS Destroyed and MFODS Unknown – fifth component, unconscious death anxiety about the future – sixth component) and were thus deleted. Another component was composed of exclusively unconscious death anxiety subvariables. Because of low reliability, this component was deleted from the model. Thus, the remaining two components defining death anxiety consisted of: MFODS Dead, MFODS Body Death, MFODS Premature Death, MFODS Conscious Death, and the Revised Death Anxiety Scale (Eigenvalue = 4.883; 26% of variance explained); and CL Own Death, CL Own Dying, CL Dying Others, MFODS Dying Process, MFODS Significant Others, and CL Death Others (Eigenvalue = 2.016; 11% of variance explained). Higher scores indicated higher levels of death anxiety. The first component appeared to be composed of morbid, immature, and fear of something regarding death that was unlikely to happen while the second component appeared to consist of realistic and specific fears of death as well as emotional and interpersonal concerns regarding death and dying.

Structural Equation Models

The original model (Figure 1) which specified that social and emotional loneliness (separately) at time one would predict cultural worldview at time one which would then predict death anxiety at time two was found to be untenable. The social and emotional loneliness factors were extremely highly correlated ($r = 1.372$). Similar models were attempted that allowed the errors of the loneliness measures to covary but each time the correlation between the loneliness

factors were above 1 indicating model misspecification as evidenced by no convergence to a final solution.

Another model was tested in the interest of completeness regarding the original hypothesis' assertion of the separateness of social and emotional loneliness. This model (Figure 2) posed social and emotional loneliness separately predicting a unidimensional loneliness factor. This general loneliness factor as well as the social and emotional loneliness factors each separately predicted the Cultural Worldview factor. Cultural Worldview predicted the Death Anxiety factor. The loneliness factors were linearly dependent and thus the model was deemed misspecified (did not converge to a final solution).

Due to this apparent misspecification, the original model was abandoned and all the loneliness measures were indexed by one unidimensional loneliness factor. In this model (Figure 3), the loneliness factor at time one predicted cultural worldview at time one which predicted death anxiety at time two. This model had good fit to the data ($\chi^2_{18}, N = 106, = 36.22, p = .006$), robust comparative fit index (CFI) = .923, root-mean-square error of approximation (RMSEA) = .100, Bentler-Bonett Non-normed fit index = .881. (All robust parameter estimates were significant at the 5% level with the exception of the error variance associated with the first death anxiety factor.) These revealed that loneliness negatively predicted cultural worldview and cultural worldview negatively predicting death anxiety.

Another model (Figure 4) was attempted wherein loneliness at time one predicted cultural worldview at time one as well as death anxiety at time two. Cultural worldview at time one also predicted death anxiety at time two. This model also had good fit ($\chi^2_{17}, N = 106, = 34.1756, p = .008$) robust comparative fit index (CFI) = .928, root-mean-square error of approximation (RMSEA) = .100, Bentler-Bonett Non-normed fit index = .881. (All robust parameter estimates

were significant at the 5% level with the exception of the error variance associated with the first death anxiety factor.) These revealed that loneliness negatively predicting cultural worldview and cultural worldview negatively predicting death anxiety. The chi-square nested test of this model indicated that it did not fit significantly better than the previous, more parsimonious model (difference $\chi^2 = 2.05, p > .05$).

DISCUSSION

The primary purpose of this study was to examine the relationship between loneliness and death anxiety as mediated by cultural worldview. The existence of such a relationship was suspected due to the numerous common associations shared by these two concepts, theoretical considerations, and prior research I have conducted supporting the existence of a relationship between these three constructs. This study attempts to improve upon other research by using a longitudinal model which allows inference of causality between these two concepts. The one year time difference between the first and second data collection allows this longitudinal perspective. In addition, a more specific hypothesis was proposed with the intention of examining different types of loneliness and their potentially differential effects on death anxiety (i.e. emotional loneliness is a more powerful predictor of death anxiety than is social loneliness).

The primary hypothesis posed that a loneliness and cultural worldview at time one would predict death anxiety at time two. This model was developed based upon suppositions expounded by terror management theory (McCoy, Pyszczynski, Solomon, & Greenberg, 2000) that states that overwhelming fear of death is staved off with an alignment with culture. A secondary hypothesis posed that emotional loneliness would result in significantly more death anxiety than would social loneliness. This hypothesis was developed with socioemotional selectivity theory

(Carstensen, 1995) in mind which states that as people age they place more importance on emotional (attachment) relationships relative to social (affiliative) relationships.

The primary hypothesis was supported. The model adequately fit (as tested by structural equation modeling) and was in the direction that was expected. That is, the results of EQS analysis supported the model that loneliness at time one affected death anxiety at time two as mediated by cultural worldview at time one. Loneliness at time one negatively predicted cultural worldview at time one (suggesting that an increase in loneliness weakened cultural worldview) which negatively predicted death anxiety at time two (lower alignment with the cultural worldview predicted higher death anxiety). This supports TMT's assertion that a weakening of alignment with cultural worldview would leave an individual more vulnerable to death anxiety. Loneliness appears to be powerful enough to have such a weakening effect upon cultural worldview. This suggests that an older adult who experiences high levels of loneliness may experience a loss of alignment with their culture's shared systems of values and beliefs. This loss of alignment may cause the person to feel that their world does not have order and meaning and thus leave this person highly vulnerable to death anxiety.

Findings suggest that cultural worldview may act as a protective factor against death anxiety. A high alignment with culture may protect an individual with high loneliness from developing death anxiety. TMT states that alignment with the cultural worldview serves a protective function, or buffer, against death anxiety. Death anxiety is, at its core, fear of ceasing to exist and thus lose meaning (Tomer & Eliason, 2000). Culture can provide a sense of transcendence that weakens the power death holds over that person's meaning.

The second hypothesis was not supported in this study. It was expected that emotional loneliness would be significantly more affecting than would social loneliness for older adults.

That is, it was expected that high emotional loneliness would weaken cultural worldview alignment more and thus produce more death anxiety than would social loneliness. In this study the two types of loneliness were very highly correlated with each other and there was no evidence for a two-factor loneliness construct. While I found such a result in previous studies, I attempted to explore this further due to the strong theoretical support of SST. The failure of this study to find a difference between social and emotional loneliness may be due more to a weakness in this study than in SST. This study made several assumptions that were not explicitly delineated in Carstensen's original theory. An assumption made in this study was that Weiss' constructs of social and emotional loneliness could be understood as the direct consequence of the loss of the social and emotional relationships described by Carstensen in SST. It may be that these two concepts are not the same (i.e. Weiss' social and emotional relationships are not similar to Carstensen's social and emotional relationships) and, therefore, the lack of differentiation between emotional and social loneliness may be due to a false assumption, rather than a failing of SST. That is, SST may correctly describe the importance of social and emotional relative to increasing age but I incorrectly assumed that the social and emotional relationships referred to by Carstensen were the same as Weiss'. Alternatively, it could be possible that Weiss' constructs are only indirectly related to Carstensen's and that scales designed to measure Weiss' constructs do not adequately capture those of Carstensen's. Clearly, this is an area deserving of further research. The most likely explanation, however, is that the difficulty lies with the measurement of loneliness in this study. While the SELSA was developed to measure a dimensional understanding of loneliness, the UCLA scale was developed to represent a unidimensional loneliness. Although factor analysis suggested that two factors were present, the items on the scale may have been too similar to truly represent a separate emotional and social

loneliness. Additionally, SELSA and UCLA were developed for the general population and therefore may not adequately capture the nuances of loneliness in later adulthood. Further research is warranted to explore not only the measurement of emotional and social loneliness, but also the unique experience of loneliness in older adults.

These results emphasize the importance of preventing loneliness in older adults as well as the importance for older adults to develop or maintain a meaningful and strong cultural alignment. The relationship between loneliness and death anxiety may lead practitioners to be aware that the presence of one could suggest the presence of the other. Older adults may have difficulty discussing a fear of death and so it may be necessary for a practitioner to broach the subject. Being lonely may make this more difficult, but more important. In addition to loneliness' relationship to death anxiety, efforts should be made to prevent loneliness in older adults due to previous research that has found a relationship between loneliness, poor health, and depression. Increase of social support could also serve to strengthen an older adult's alignment with cultural worldview and thus protect them from death anxiety.

Future research should emphasize the importance of a strong alignment with culture for older adults as a strong alignment may work as a protective factor against destructive death anxiety and likely also works as a protective factor against other negative experiences. Previous research I have conducted on this subject revealed that cultural worldview is complex and multi-faceted, but nonetheless appears to function as a meaningful, unified construct. Future research should examine the complex nature of cultural worldview. Future research should also undertake an understanding of how best to strengthen alignment with culture in older adults and practitioners should be cognizant of indicators that an individual is alienated from their culture.

Future research should also address practical implications of death anxiety. It has been hypothesized that death anxiety will have a negative impact upon older adults who experience it (although it has also been hypothesized that it could lead older adults to place more meaning on their lives), the specific consequences of death anxiety have not, to the author's knowledge, been examined. While we know of some correlates of death anxiety (for example, depression) there has not been research that uses a longitudinal approach to actually examine the outcomes of intense death anxiety. Understanding what the negative, or positive, repercussions are of death anxiety will allow researchers to speak more clearly to the practical implications of working with aged persons, especially with regard to interventions with older adults who are either isolated, physically limited, or recently bereaved.

Limitations include the already-mentioned difficulty with measuring loneliness as well as the elusiveness of measuring unconscious death anxiety in this study. Unconscious death anxiety as a component of death anxiety in this study was removed due to low reliability. However, in previous studies this method of assessing unconscious death anxiety has been shown to be valid (see Hayslip & Walling, 1985; Hayslip & Walling, 1986; Hayslip & Galt, 1992; Hayslip & Galt, 1993; Servaty & Hayslip, 1996). In further research on this topic I intend to recode the unconscious death anxiety variables to account for the fact that overt death anxiety is often negatively correlated with covert death anxiety (Galt & Hayslip, 1998). Another limitation which affects all instruments in this study involves the self-report nature of the questionnaire. Self-report can be influenced through lack of awareness of present experience, social desirability bias, and lack of attention. Another significant limitation of the present study includes the lack of generalizability to the larger population. Only a self-selected group of individuals provided data for this study. Individuals who were lower in spirituality, openness to experience, and hardiness

were less likely to agree to be recontacted. Results also suggested that people who were high in certain types of death anxiety also declined to be recontacted. Of those that agreed to be recontacted, those with lower self-rated health and hardiness were less likely to return surveys. This likely contributed restricted the range by skewing certain important variables such as death anxiety. (Death anxiety scores were likely negatively skewed because people with high death anxiety self-selected out of follow-up.) This psychological uniqueness is in addition to the lack of cultural diversity (most participants were Caucasian) present in the sample. This indicates that the sample that ultimately provided data is unique and therefore conclusions based upon its data may not be wholly generalizable to the larger older adult population.

Despite these limitations, it is hoped that these findings will spur more research regarding death anxiety and relationships in later life and particularly how practitioners can better attend to the unique needs of older adults. Specifically, it is hoped that future research will focus on methods to assist practitioners strengthen older adults' social networks and prevent loneliness as well as strengthen their alignment with their cultural worldview.

Table 1

Significant Differences Between Those who Agreed to be Re-contacted and Those who Did Not (MANOVAs)

Variable	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	Agreed		Did not	
					<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Spirituality	1	2254	8.59	.004	79.16	14.79	73.37	16.48
Openness	1	2671	8.10	.005	160.66	18.40	151.69	17.66
Hardiness	1	799	4.03	.046	109.38	14.92	104.99	13.22
Collet-Lester Own Death	1	185	5.43	.021	12.93	5.16	14.57	6.28
Collet-Lester Own Dying	1	328	5.72	.018	18.48	6.85	20.72	8.12
MFODS Dying Process	1	192	7.60	.006	18.79	5.31	20.81	4.64
MFODS Dead	1	188	8.91	.003	15.23	4.79	17.12	4.31
MFODS Significant Others	1	130	7.18	.008	20.64	4.42	22.21	3.60
MFODS Body Death	1	193	9.14	.003	11.94	4.43	13.85	4.50
MFODS Premature Death	1	80	7.83	.006	9.21	3.11	10.35	3.29
RDAS	1	1932	12.73	.000	39.29	12.04	44.78	12.42

Table 2

Means and Standard Deviations of Measures Used

Variable	<i>M</i>	<i>SD</i>
SELSA Social Loneliness T1	10.51	5.41
SELSA Emotional Loneliness T1	23.23	11.96
UCLA Social Loneliness T1	28.19	6.82
UCLA Emotional Loneliness T1	7.67	2.17
Spirituality T1	79.38	15.06
Openness T1	40.31	6.16
Self Esteem T1	33.12	5.00
Locus of Control – Internality T1	35.64	4.82
Hardiness T1	110.92	12.21
Depression T1	51.36	7.14
Resilience T1	143.10	15.16
Collet-Lester Own Death T2	12.65	5.37
Collet-Lester Own Dying T2	17.79	5.37
Collet-Lester Dying Others T2	21.72	7.55
Collet-Lester Death Others T2	21.66	5.78
MFODS Dying Process T2	18.93	4.74
MFODS Dead T2	15.27	4.24
MFODS Destroyed T2	11.21	4.11
MFODS Significant Others T2	20.20	4.28
MFODS Unknown T2	9.80	3.97
MFODS Body Death T2	11.60	3.83
MFODS Premature Death T2	8.69	3.33
MFODS Conscious Death T2	11.52	4.02
Unconscious Death Anxiety – Futurity T2	.55	.68
Unconscious Death Anxiety – Disease Pain T2	.53	.73
Unconscious Death Anxiety – Overt Death T2	2.58	.60
Unconscious Death Anxiety – Separation T2	3.92	1.57
Unconscious Death Anxiety – Loss of Control T2	2.53	1.29
Unconscious Death Anxiety – Loss of Goals T2	1.61	.83
RDAS T2	39.80	11.78

Table 3

Correlation Matrix

	1	2	3	4	5	6	7	8
1	1	.425**	.305**	.313**	.213*	.055	.182	.129
2	.425**	1	.602**	.517**	.299**	.163	.290**	.154
3	.305**	.602**	1	.470**	.356**	.169	.474**	.123
4	.313**	.517**	.470**	1	.353**	.162	.408**	.289**
5	.213*	.299**	.356**	.353**	1	.296**	.257**	.121
6	.055	.163	.169	.162	.296**	1	.202*	-.133
7	.182	.290**	.474**	.408**	.257**	.202*	1	.083
8	.129	.154	.123	.289**	.121	-.133	.083	1
9	.347**	.409**	.686**	.234*	.204*	.244*	.399**	.080
10	.328**	.185	.213*	.324**	.478**	.262**	.247*	.232*
11	.503**	.235*	.192	.354**	.226*	-.104	.315**	.386**
12	-.103	-.137	-.144	-.013	-.123	.032	.002	-.125

(table continues)

Table 3 (continued).

	1	2	3	4	5	6	7	8
13	-.149	.203*	.108	.192	.151	.082	-.090	.144
14	.216*	.018	.113	.278**	.333**	.046	.168	.253**
15	.419**	.334**	.234*	.415**	.378**	.181	.374**	.433**
16	-.119	-.204*	-.268**	-.257**	-.160	-.159	-.287**	-.111
17	-.012	-.160	-.071	-.087	-.029	.137	.079	-.073
18	.119	.092	.029	.191	.066	-.022	.056	-.009
19	.321**	.176	.185	.213*	.020	.006	.095	.239*
20	.234*	.149	.041	.064	-.017	-.059	-.015	.145
21	.071	.056	-.068	.024	.093	-.164	-.229*	.242*
22	-.203*	-.163	-.225*	-.153	-.175	-.006	-.080	-.138
23	.074	-.133	-.161	-.202*	-.200*	-.083	-.101	-.590**
24	-.082	.023	-.124	-.145	-.307**	-.274**	.001	.113
25	.203*	.111	.108	.131	-.005	-.165	.100	.126
26	.152	.112	.054	.105	.029	-.093	.023	.284**
27	-.189	-.139	-.134	-.130	-.163	.140	-.072	-.268**

(table continues)

Table 3 (continued).

	1	2	3	4	5	6	7	8
28	-.004	-.121	-.132	-.123	.002	.089	.019	-.245*
29	-.185	-.150	-.066	-.242*	-.158	-.058	-.046	-.221
30	-.127	-.132	-.134	-.054	-.096	.109	-.148	-.193
	9	10	11	12	13	14	15	16
1	.347**	.328**	.503**	-.103	-.149	.216*	.419**	-.119
2	.409**	.185	.235*	-.137	.203	.018	.334**	-.204*
3	.686**	.213*	.192	-.144	.108	.113	.234*	-.268**
4	.243*	.324**	.354**	-.013	.192	.278**	.415**	-.257**
5	.204*	.478**	.226*	-.123	.151	.333**	.378**	-.160
6	.244*	.263**	-.104	.032	.082	.046	.181	-.159
7	.399**	.247*	.315**	.002	-.090	.168	.374**	-.287**
8	.080	.232*	.386*	-.125	.144	.253**	.433**	-.111
9	1	.166	.163	-.075	.033	.053	.265**	-.178
10	.166	1	.528**	-.096	-.023	.645**	.674**	-.160

(table continues)

Table 3 (continued).

	9	10	11	12	13	14	15	16
11	.163	.528**	1	-.132	-.132	.532**	.520**	-.228
12	-.075	-.096	-.132	1	-.051	.056	-.102	.061
13	.033	-.023	-.132	-.051	1	-.074	.045	.038
14	.053	.645**	.532**	.056	-.074	1	.470**	-.203*
15	.265**	.674**	.520**	-.102	.045	.470**	1	-.056
16	-.178	-.160	-.228*	.061	-.038	-.203*	-.056	1
17	.099	.049	-.060	.071	.006	-.038	-.034	-.220*
18	.018	-.035	.049	.058	.125	-.019	.109	.182
19	.092	.070	.344**	-.195*	-.114	.188	.136	-.027
20	.196*	.042	.166	-.046	.023	.062	.173	-.027
21	.020	.091	.056	-.108	.036	.054	.110	.021
22	-.218*	-.129	-.204*	.190	-.086	.002	-.190	.098
23	-.064	-.144	-.092	.105	-.233*	-.148	-.285**	.112
24	-.112	-.153	-.133	-.089	.088	-.272**	-.015	.175
25	.141	.009	.272**	-.122	-.147	-.017	.190	-.072

(table continues)

Table 3 (continued).

	9	10	11	12	13	14	15	16
26	.211*	.135	.206*	-.181	.018	.110	.346**	-.041
27	-.142	-.254**	-.391**	.230*	.078	-.109	-.284**	.205*
28	-.033	-.060	-.025	.072	-.178	.011	-.200*	-.050
29	-.170	-.172	-.209*	.145	-.018	-.204*	-.392**	.100
30	-.160	-.082	-.183	.309**	-.095	-.079	-.191	.069
	17	18	19	20	21	22	23	24
1	-.012	.119	.321**	.234*	.071	-.203*	.074	-.082
2	-.160	.092	.176	.149	.056	-.163	-.133	.023
3	-.071	.029	.185	.041	-.068	-.225*	-.161	-.124
4	-.087	.191	.213*	.064	.024	-.153	-.202	-.145
5	-.029	.066	.020	-.017	.093	-.175	-.200*	-.307**
6	.137	-.022	.006	-.059	-.164	-.006	-.083	-.274**
7	.079	.056	.095	-.015	-.229*	-.080	-.101	.001
8	-.073	-.009	.239*	.145	.242*	-.138	-.590**	.113

(table continues)

Table 3 (continued).

	17	18	19	20	21	22	23	24
9	.099	.018	.092	.196*	.020	-.218*	-.064	-.112
10	.049	-.035	.070	.042	.091	-.129	-.144	-.153
11	-.060	.049	.344**	.166	.056	-.204*	-.092	-.133
12	.071	.058	-.195*	-.046	-.108	.190	.105	-.089
13	.006	.125	-.114	.023	.036	-.086	-.233*	.088
14	-.038	-.019	.188	.062	.054	.002	-.148	-.272
15	-.034	.109	.136	.173	.110	-.190	-.285**	-.015
16	-.220*	.182	-.027	-.027	.021	.098	.112	.175
17	1	-.151	-.214*	.177	.040	-.110	-.105	-.102
18	-.151	1	.254**	.027	.116	-.042	-.113	-.023
19	-.214*	.254**	1	-.066	-.014	-.111	-.016	-.039
20	.177	.027	-.066	1	.529**	-.456**	-.230*	-.177
21	.040	.116	-.014	.529**	1	-.204*	-.218*	-.106
22	-.110	-.042	-.111	-.456**	-.204*	1	.349**	.209*

(table continues)

Table 3 (continued).

	17	18	19	20	21	22	23	24
23	-.105	-.113	-.016	-.230*	-.218*	.349**	1	.179
24	-.102	-.023	-.039	-.117	-.106	.209*	.179	1
25	.042	.148	.060	.518**	.313**	-.440**	-.153	-.130
26	.088	.107	.071	.527**	.628**	-.345**	-.265**	-.156
27	-.005	-.157	-.178	-.367**	-.372**	.590**	.367**	.238*
28	-.137	-.078	-.047	-.131	-.182	.343**	.265**	-.071
29	-.041	-.205*	-.203*	-.294**	-.374**	.373**	.392**	.440**
30	-.075	-.060	-.002	-.416**	-.244*	.574**	.325**	.048
	25	26	27	28	29	30		
1	.203*	.152	-.189	.004	-.185	-.127		
2	.111	.112	-.139	-.121	-.150	-.132		
3	.108	.054	-.134	-.132	-.066	-.134		
4	.131	.105	-.130	-.123	-.242*	-.054		

(table continues)

Table 3 (continued).

	25	26	27	28	29	30
5	-.005	.029	-.163	.002	-.158	-.096
6	-.165	-.093	.140	.089	-.058	.109
7	.100	.023	-.072	.019	-.046	-.148
8	.126	.284**	-.268**	-.245*	-.221*	-.193
9	.141	.211*	-.142	-.033	-.170	-.160
10	.009	.135	-.254**	-.060	-.172	-.082
11	.272**	.206*	-.391**	-.025	-.209*	-.183
12	-.122	-.181	.230*	.072	.145	.309**
13	-.147	.018	.078	-.178	-.018	-.095
14	-.017	.110	-.109	.011	-.204*	-.079
15	.190	.346**	-.284**	-.200*	-.392**	-.191
16	-.072	-.041	.205*	-.050	.100	.069
17	.042	.088	-.005	-.137	-.041	-.075
18	.148	.107	-.157	-.078	-.205*	-.060

(table continues)

Table 3 (continued).

	25	26	27	28	29	30
19	.060	.071	-.178	-.047	-.203*	-.002
20	.518**	.527**	-.367**	-.131	-.294**	-.416**
21	.313**	.628**	-.372**	-.182	-.374**	-.244*
22	-.440**	-.345**	.590**	.343**	.373**	.574**
23	-.153	-.265**	.367**	.265**	.392**	.325**
24	-.130	-.156	.238*	-.071	.440**	.048
25	1	.603**	-.535**	-.304**	-.329**	-.489**
26	.603**	1	-.444**	-.268**	-.547**	-.475**
27	-.535**	-.444**	1	.180	.471**	.534**
28	-.304**	-.268**	.180	1	.114	.191*
29	-.329**	-.547**	.471**	.114	1	.343**
30	-.489**	-.475**	.534**	.191*	.343**	1

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

1 = CL OwnDeathT2; 2 = CL Own DyingT2; 3 = CL Dying OthersT2; 4 = MFODS DyingProcessT2; 5 = MFODSDeadT2; 6 = MFODS DestroyedT2; 7 = MFODS Sig OthersT2; 8 = MFODS UnknownT2; 9 = CL Death OthersT2; 10 = MFODS Body Death T2; 11 = MFODS Premature Death T2; 12 = FuturityT2; 13 = Disease PainT2; 14 = MFODS Conscious DeathT2; 15 = RDAS T2; 16 = Overt DeathT2; 17 = SeparationT2; 18 = Loss ControlT2; 19 = LossGoals T2; 20 = SELSA Social T1; 21 = SELSA EmotionalT1; 22 = ResilienceT1; 23 = Spirituality T1; 24 = Openness T1; 25 = UCLA Emotional T1; 26 = UCLA Social T1; 27 = SelfesteemT1; 28 = Locus of Control, Internality; 29 = PVS T1; 30 = Depression T1

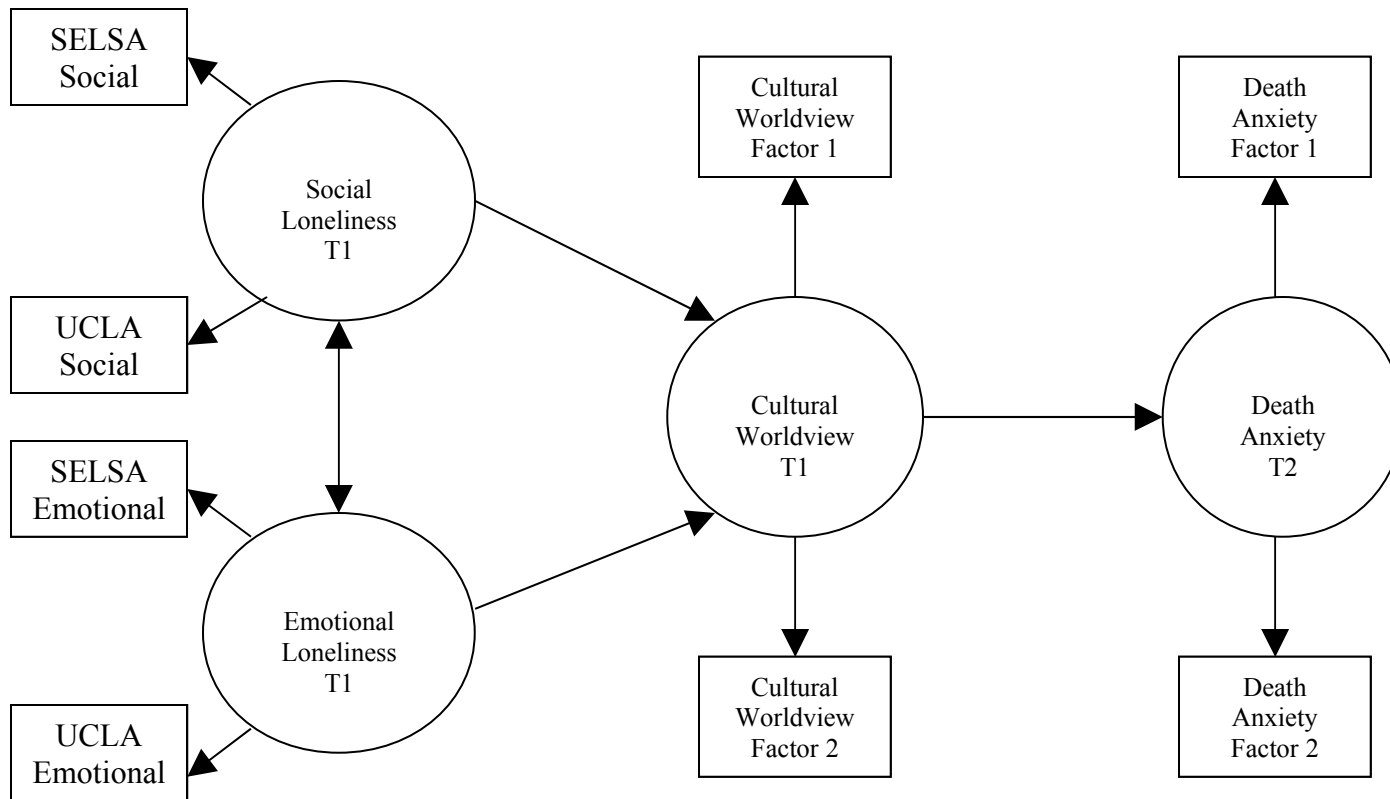


Figure 1. Original model which specifies that social and emotional loneliness (separately) at time one will predict cultural worldview at time one which would then predict death anxiety at time two.

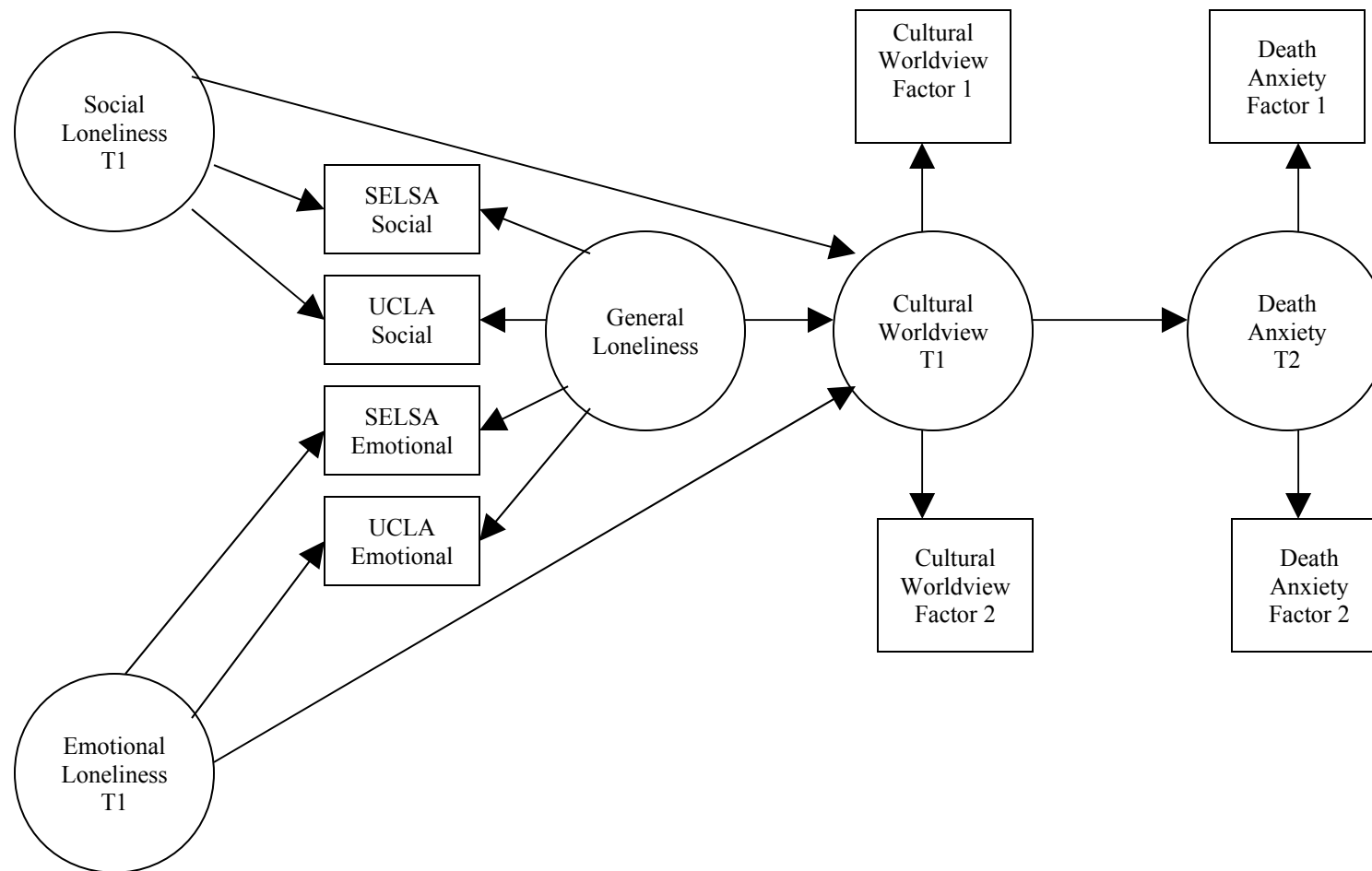


Figure 2. Model which poses that social and emotional loneliness separately predict a unidimensional loneliness factor.

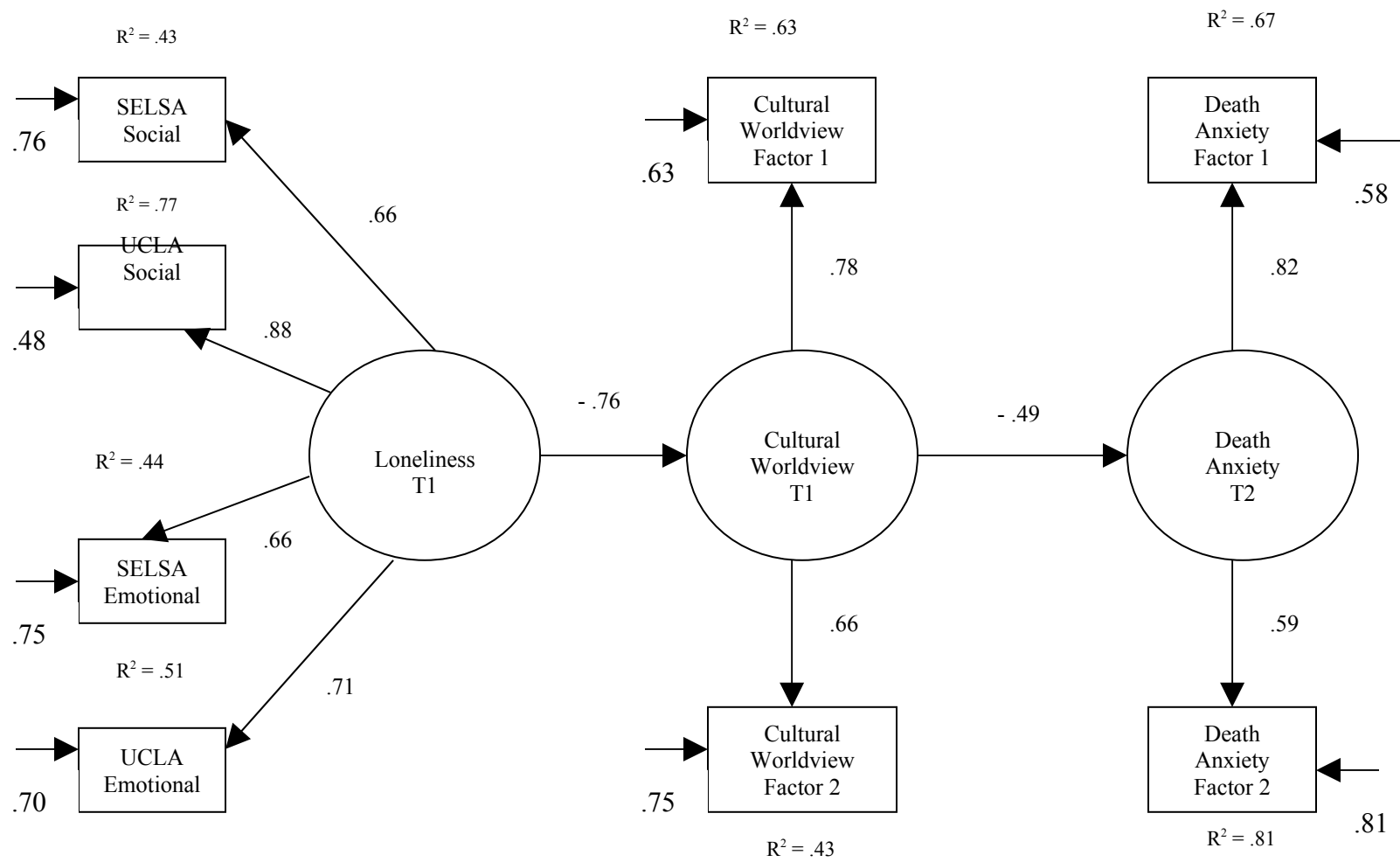


Figure 3. Model specifying that loneliness factor at time one predicts cultural worldview at time one which predicts death anxiety at time two.

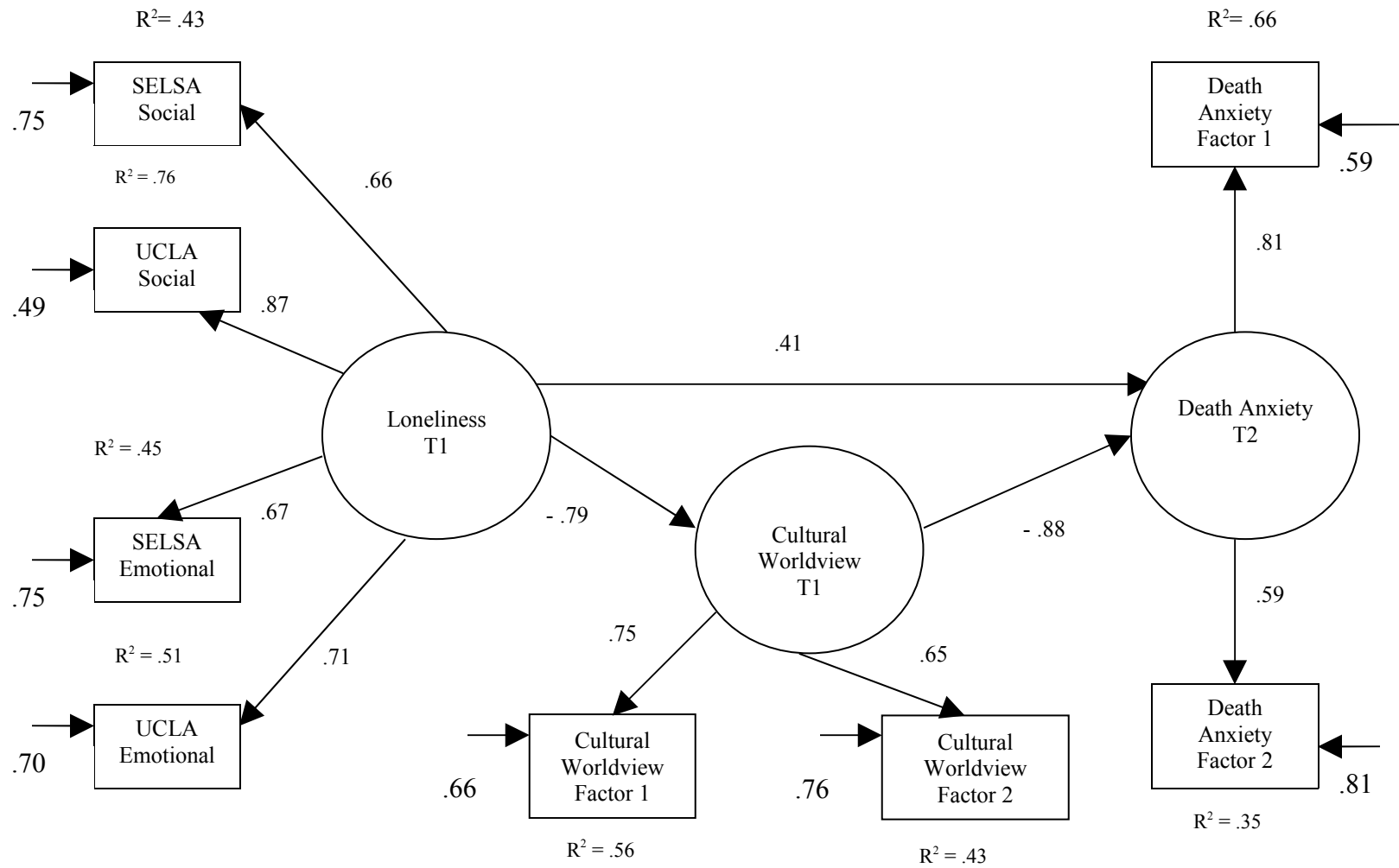


Figure 4. Model specifying that loneliness at time one predicts cultural worldview at time one as well as death anxiety at time two. Cultural worldview at time one also predicts death anxiety at time two.

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