Death is one of the few guarantees of human existence, and yet is one of the greatest mysteries of life. The unknown aspect of death, combined with its inevitability and universality, results in some measure of death anxiety for much of humanity. Death anxiety, its various aspects, and the factors that contribute to and correlate with it have been the subject of numerous research studies over the past few decades, which have uncovered a number of consistent predictors of death anxiety, including age, gender, and self-esteem. The goal of the present study is to further investigate the impact of these variables on death anxiety and to uncover any interactions that may occur between them.

**Death Anxiety and Age**

According to Russac, Gatlliff, Reece, and Spottwood (2007), death anxiety literature consistently demonstrates an age effect, which “refers to the fact that young adults often report higher levels of concern over mortality issues than older adults” (p. 549). In their own experiments investigating the relationship between death anxiety and age, using both the Collett-Lester Fear of Death Scale-Revised (CL-R; Lester, 1994, as cited in Russac et al.) and the Revised Death Anxiety Scale (RDAS; Thorson & Powell, 1994), Russac et al. found death anxiety to be highest in the 20’s and lowest in old age (65+ years). In his unpublished dissertation investigating the demographic and socio-cultural variables impacting death anxiety, Scovel (1999) also found that older participants reported less fear of death than younger participants.

Thorson and Powell (1994) found a negative linear relationship between age and death anxiety during the development of the RDAS, as an ANOVA revealed significant differences between young adults (18-20 years), adults (21-36 years), and the two older age groups combined (37-88 years). In a different study, Thorson and Powell (2000) found that age correlated negatively with death anxiety and depression and positively with religiosity; the young scored lower on the Intrinsic Religious Motivation scale (IRM; Hoge, 1972, as cited in Thorson & Powell, 2000) and higher on the RDAS than the old.

Rasmussen and Brems (1996) tried to tease apart the distinction between age and psychosocial maturity in an attempt to better understand the age effects associated with death anxiety. After distributing the DAS and the Constantinople Inventory of Psychosocial Development (CIPD; Constantinople, 1973, as cited in
Rasmussen & Brems) to participants aged 18-80 years, they found that although both age and psychosocial maturity have significant negative relationships with death anxiety scores, psychosocial maturity has greater predictive power when it comes to death anxiety than does age alone.

While a linear correlation between age and death anxiety is fairly consistent, some complexities have been found which require a more sophisticated understanding of their relationship. For example, Keller, Sherry, and Pietrowski (1984) found that older adults (aged 60+ years) reported the least death anxiety related to self but the most anxiety about death in general, while those in late middle-age (50-59 years) had the least anxiety about death in general. Also, when Tomer, Eliason, and Smith (2000) administered the RDAS to 102 young adults (mean age = 19.98 years) and 89 older adults (mean age = 69.04 years), they reported that young adults had significantly higher death anxiety scores than older adults, even though the older adults reported thinking about death more frequently than did the younger cohort. Contrasting this somewhat, in his book on older adults’ views of death, Cicirelli (2002) found that older adults (aged 60+ years) actively avoided thinking about death, but reported the lowest levels of death anxiety. He also noted that although the literature supports a negative linear relationship between age and death anxiety, the majority of “elderly” samples have been made up of young-old participants (aged 60-75 years), and little is therefore known about what happens beyond age 75.

Along this line, Fortner and Neimeyer (1999) challenged the accepted negative linear relationship between age and death anxiety in their quantitative review of 49 studies looking at death anxiety in the elderly, reporting that within that group, “gender, age, and religiosity do not appear to reliably predict death anxiety” (p. 400). They went on to say that, although death anxiety does correlate negatively with age, it stabilizes somewhat in old age, as the oldest adults do not necessarily have the least death anxiety. The conclusion was that age has a greater effect on death anxiety in younger cohorts than in the older ones.

Death Anxiety and Gender

A gender effect has also been a consistent finding in death anxiety research, with women tending to report significantly higher levels of death anxiety than men (Russac et al., 2007). Rose and O’Sullivan (2002) found this effect when undergraduate women scored higher on the Death Anxiety Scale (DAS; Templer, 1970) than undergraduate men. Harding, Flannelly, Weaver, and Costa (2005) found that women in their sample of 130 Episcopal parishioners had higher DAS scores than men across age groups; women also had higher DAS scores than men in the study by Pierce, Cohen, Chambers, and Meade (2007) investigating the impact of religious variables and gender on death anxiety in students. Keller et al. (1984) noted that women reported higher death anxiety related to self than men, and Tomer et al. (2000) found that regardless of age, women taking the RDAS scored significantly higher than did men. Thorson and Powell (1994), in their development of the RDAS, found a slight significant correlation between gender and death anxiety (women had higher RDAS scores), but gender failed to reach significance in the ANOVA.

Like the age effect, research has uncovered some intricacies in the gender effect that require a more careful examination of its implications. In their quantitative review, Fortner and Neimeyer (1999) found that women reported higher death anxiety than men in younger cohorts, but these effects failed to generalize to older populations. Davis, Bremer, Anderson, and Tramill (1983) found that women had higher death anxiety scores than men, but also noted that men tend to have higher self-esteem and ego strength, two significant negative correlates of death anxiety; they therefore suggested that the relationship between self-esteem and death anxiety is more salient than the relationship between gender and death anxiety.

However, in his book reviewing the death anxiety literature, Cicirelli (2002) pointed out that although some studies do not find gender differences (Scovel, 1999; McDermott, 1994), all of those that do find differences show that women have higher scores than men, rather than vice versa. Thus, the preponderance of existing research indicates that one’s gender does affect death anxiety to an extent.

Death Anxiety and Self-Esteem

As noted above, existing research has established a strong negative relationship between self-esteem and death anxiety. Davis et al. (1983) found a negative correlation between scores on the DAS and scores on the self-esteem measure of the Texas Social Behavior Inventory (Helmreich & Stapp, 1974, as cited in Davis et al.). In a series of three experiments investigating self-esteem and death anxiety through the lens of terror management theory, Harmon-Jones et al. (1997) consistently found a negative relationship between self-esteem and death anxiety, and asserted that their findings “provide the strongest evidence to date that self-esteem provides protection against deeply rooted anxiety about mortality” (p. 35).

Reviews of the literature have repeatedly found a negative relationship between measures of self-esteem
and death anxiety scores. In their empirical review of research examining self-esteem and death anxiety, Pyszczynski, Greenberg, Solomon, Arndt, and Schimel (2004) came to the conclusion that “self-esteem functions as a buffer against the potential for anxiety that results from awareness of the inevitability of death” (p. 452). Buzzanga, Miller, Perne, Sander, and Davis (1989), in their reassessment of the relationship between death anxiety and self-esteem, found that participants low in self-esteem had higher death anxiety scores on the DAS than their high self-esteem counterparts. Finally, in his examination of death anxiety in older adults, Cicirelli (2002) posited that one of the major reasons that the elderly report lower levels of death anxiety could be the fact that they also maintain high levels of self-esteem, despite increasing age, disease, loneliness, and dependency.

**Interactions**

There are a number of potential interactions between the variables age, gender, self-esteem, and death anxiety, but only a few of these have been researched. As pointed out above, gender and age may interact in their effect on death anxiety, as some studies have found a gender difference in younger cohorts but not in the older ones (Fortner & Neimeyer, 1999). Another possible interaction is that of age and self-esteem, as older people tend to have both higher levels of self-esteem and lower levels of death anxiety than younger people (Cicirelli, 2002). Self-esteem and gender may also interact, as women tend to report lower levels of self-esteem and higher levels of death anxiety across age groups (Robins & Trzesniewski, 2005; Davis et al., 1983). Finally, a three-way interaction is possible among all of the variables, as age, gender, and self-esteem may influence one another in their combined impact on an individual’s level of death anxiety.

**Purpose and Hypotheses**

While the effects of gender, age, and self-esteem on death anxiety have been fairly established in the literature, very little investigation into the potential interactions of these variables has been conducted. The goal of the present study is to attempt to fill that gap in the research by looking for any interactions between gender, age, and self-esteem, and addressing the implications of the findings.

Based on the literature presented above, the hypotheses of the present study are as follows: 1) women will have higher death anxiety than men across self-esteem and age groups; 2) older adults (60+) will have the lowest overall death anxiety scores, and young adults (18-25) will have the highest death anxiety scores overall; 3) those in the higher self-esteem group (SES scores 21-30) will have lower death anxiety scores overall than those in the lower self-esteem group (SES scores 11-20); 4) self-esteem scores will correlate negatively with death anxiety scores across age and gender; 5) on the gender-age interaction, young women will have the highest death anxiety scores and older men will have the lowest; 6) on the age-self-esteem interaction, older adults with high self-esteem will have the lowest death anxiety scores and younger adults with low self-esteem will have the highest; 7) on the gender-self-esteem interaction, women with low self-esteem will have the highest death anxiety scores and men with high self-esteem will have the lowest; and 8) on the three-way interaction, women in the young adult age group with low self-esteem will have the highest death anxiety, while men in the older adult age group with high self-esteem will have the lowest.

**Method**

**Participants**

Participants (N = 136) consisted of 83 undergraduate students aged 18-25 years (36 men and 47 women); 19 university faculty and staff members aged 35-50 years (9 men and 10 women); and 34 university faculty, staff, and emeriti members aged 60+ years (19 men and 15 women). The undergraduate students consisted of 29 freshman, 30 sophomore, 14 junior, and 10 senior students. All of the middle-aged and approximately half of the older adult participants were employed, with 16 in the 60 and older group identifying themselves as retired. When asked if they believed in "some form of afterlife," all but 7 participants circled “yes” (3 in the young age group circled “no,” and 4—2 young and 2 old—left it blank). All participants were volunteers and were affiliated with a private Christian liberal arts university in the northwest region of the United States; ethnic, religious, educational, and socioeconomic demographic data was not requested.

**Materials**

The death anxiety measure used was the 25-item Revised Death Anxiety Scale (RDAS; Thorson & Powell, 1994). Items such as “I fear dying a painful death” and “the subject of life after death troubles me greatly” were rated on a 5-point Likert-type scale ranging in value from 4 (strongly agree) to 0 (strongly disagree), with 2 being the neutral score (which was assigned to any items left blank). Eight of the 25 items are reverse-scored. This study used the total RDAS score as a measure of overall death anxiety, although 7 sub-factors have also been established (fear of pain, fear of not
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being, bear of isolation, fear of being left out, fear of loss of control, and fear over the uncertainty of an afterlife; Thorson & Powell, 2000). Thorson and Powell reported a Cronbach reliability alpha of .83 for the measure, and established internal validity by correlating the 7 factors that make up the measure. The RDAS has been used in a number of death anxiety studies (Tomer et al., 2000; Thorson & Powell, 2000; Russac et al., 2007), and is an established measure of death anxiety.

The self-esteem measure used was the 10-item Rosenberg Self-Esteem Scale (SES; Rosenberg, 1965). Items such as “on the whole, I am satisfied with myself” and “at times I think I am no good at all” were rated on a 4-point Likert-type scale ranging in value from 3 (strongly agree) to 0 (strongly disagree); 5 of the 10 items are reverse-scored. The items making up the measure have face validity, and Rosenberg established construct validity by correlating SES scores to nurses’ observations and self-reports of behaviors and affects having been found to correlate positively or negatively with self-esteem (e.g., depression, neurosis; Rosenberg, 1965, p.17). Silbert and Tippett (1965) established convergent validity when the SES and the Heath Self-Image Questionnaire (Heath, 1965) demonstrated a Pearson correlation coefficient of .83. Silbert and Tippett (1965) also found a 2-week test-retest reliability coefficient of .85, and McCarthy and Hoge (1982) found a 1-year reliability coefficient of .77.

The materials also included a standard individual consent form and a 5-item demographic questionnaire ascertaining age group, gender, belief in an afterlife (“Do you believe in some form of afterlife?” yes or no), student/occupation/retirement status, and year in school.

Procedure

To recruit the undergraduate student participants, the experimenter positioned herself immediately outside the entrance to the campus cafeteria during the lunch hour on the same day of the week for 2 consecutive weeks. As they entered the cafeteria, students were invited to take the surveys; if they agreed, they read and signed an individual consent form, returned it immediately to the researcher, and received the survey packet in return. The researcher placed the signed consent forms face-down in a pile apart from the data upon receipt. When participants returned the completed survey packet, they had the opportunity to select a miniature candy bar as a form of remuneration for their participation, and also received a slip of paper explaining the goals and hypotheses of the study and inviting them to the presentation of the research in the event that they were interested in the results.

A campus email to university faculty and staff requested participation of anyone fitting into the middle or older adult age groups. Those willing to participate emailed the experimenter who then set up a time to meet with each participant. Upon meeting, the experimenter explained the study and asked the participant to sign an individual consent form, which was immediately returned to the experimenter and put in a folder with other consent forms. The participant then completed the survey packet at his or her own convenience and returned it to the experimenter via the campus mail in order to ensure anonymity. These participants received the results of the study via email.

Those participants aged 60 years and older who did not work on campus were members of the university emeriti, and were recruited via postal mail—they received a letter inviting participation in the study, long with the survey packet and consent form. The experimenter separated the returned survey packets and individual consent forms immediately upon receipt so as to ensure anonymity. The emeriti participants received the results of the study via postal mail. Once data had been collected, the researcher scored the scales and entered the data into SPSS for statistical analysis.

Design

Data were collected with a 3 x 2 x 2 factorial design in mind, the independent variables being age (3 levels—young, middle, and old), gender (2 levels—male and female), and self-esteem (2 levels—lower and higher), and the dependent variable being RDAS score. For ANOVA analysis, participant scores on the SES were divided into low and high self-esteem groups; scores 11-20 constituted the lower self-esteem group and scores 21-30 constituted the higher self-esteem group.

Results

The initial 3 x 2 x 2 univariate analysis of variance (ANOVA) analyzing death anxiety by gender, age, and self-esteem, yielded no significant main effects or interactions. However, when self-esteem was left out of the analysis and a 3 x 2 ANOVA with age and gender as factors was conducted, age reached significance with and F_age-group (1, 131) = 3.201, p = .044 (M_young = 39.25 SD_young = 11.74; M_middle = 34.05, SD middle = 8.94; M_old = 33.62, SD old = 10.32). A Tukey HSD post hoc test revealed that the significant difference was between the young and old participants, p = .031. An independent-samples t-test analyzing death anxiety by gender reached significance, t(134) = 2.552, p = .012 (M_men = 34.55, SD_men =
10.43; $M_{men} = 39.40$, $SD_{men} = 11.62$). Although self-esteem failed to significantly impact death anxiety in the original ANOVA, self-esteem scores were negatively correlated with death anxiety scores ($r(134) = -.264$, $p = .002$).

**Discussion**

The results supported the first hypothesis that females would have higher death anxiety overall than males, as gender reached significance in the independent-measures t-test. These results support those of the existing death anxiety literature (Russac et al., 2007; Rose & O’Sullivan, 2002; Harding et al., 2005; Pierce et al., 2007; Keller et al., 1984; Tomer et al., 2000; Fortner & Neimeyer, 1999; and Davis et al., 1983). Placed in a practical context, these findings suggest that different therapeutic approaches for men and women may be beneficial when death is concerned. Of course, further research is necessary to better understand the various aspects of death anxiety from the different gender standpoints, as well as to develop more appropriate methods for dealing with death anxiety for both men and women.

The second hypothesis, which posited that death anxiety would be highest in young adulthood and then gradually decline to reach its lowest levels in old age, was also supported. Young adults reported significantly more death anxiety than older adults, and middle-aged adults reported death anxiety levels between those of the young and the old. This difference retained significance across gender and self-esteem groups, indicating that age has a substantial impact on one’s overall level of death anxiety. These findings agree with the results of Russac et al. (2007); Scovel (1999); Thorson and Powell (1994); Thorson and Powell (2000); Fortner and Neimeyer (1999); and Rasmussen and Brems (1996) finding a negative relationship between age and death anxiety. The idea that death anxiety decreases with age suggests that, while age brings us closer to death, it also enables us to develop more efficient and/or effective ways of coping with death anxiety. Another possible contribution to this age effect is that the increasing personal experiences with death that come with age result in a more positive perspective of and relationship to death.

The third hypothesis, that those in the lower self-esteem group would have higher death anxiety than those in the higher self-esteem group was not supported; this may be due to the relative homogeneity of the sample, and the fact that the range of SES scores is limited. However, the fourth hypothesis predicting a negative correlation between death anxiety and self-esteem was supported. This finding has been firmly established in the literature, as is evidenced by the studies of Davis et al. (1983), Harmon-Jones et al. (1997), Pyszczynski et al. (2004), and Cicirelli (2002). When placed in a practical or clinical context, these results provide further rationale for treating death anxiety by endeavoring to raise one’s self-esteem instead of confronting the death anxiety directly, which has the potential to be more threatening.

None of the four hypotheses predicting interactions between age, gender, and self-esteem were supported, as no interactions reached significance in the ANOVA. It is interesting to note that each of the variables reached some measure of significance separately, but there were no significant interactions between them. This suggests that, although each of the variables studied here has a significant impact on death anxiety individually, there is no relationship between them in the extent to which they affect death anxiety.

There are a number of limitations to this study which should be addressed and taken into consideration when assessing the implications of this research. First, the sample size was relatively small and unevenly represented by age group, which may have caused some of the overall means to be skewed toward the scores of the group with the greatest representation in the sample. Second, the participants were all affiliated in some way with a Christian liberal arts university, which restricts the generalizability of the findings to that specific population. Third, as is true with all one-time self-report measures, it is difficult to differentiate states from traits, and conclusions should be hedged accordingly. Fourth, sole reliance on self-report measures, albeit valid and reliable ones, necessarily qualifies any results with the possibility of individual misinterpretations and/or biases. Finally, the study was designed to be analyzed by a univariate 3 x 2 x 2 ANOVA statistic, which revealed no significance; so, those statistics which showed significance were conducted after the fact and the possibility of Type I error is raised as a result.

Despite its limitations, there are at least two things that can be taken away from this study. First, it provides evidence that the impact of gender, age, and self-esteem on death anxiety remains consistent with the literature in a highly homogenous religiously-affiliated population. Second, the fact that no interactions were significant indicates that the three variables represent three completely different sources of influence—they each affect death anxiety in a predictable way, but they do so separately, without affecting one another.

Should this line of research be continued, it would helpful to have a larger and more representative sample of participants, along with a more comprehensive


