

Race and Gender Differences in Correlates of Death Anxiety Among Elderly in the United States

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Abstract

Background: Death anxiety among elderly is a major public health concern. Few studies, however, have been conducted on factors associated with death anxiety.

Objectives: This study investigated race and gender differences in psychosocial correlates of death anxiety among elderly in the US.

Materials and Methods: With a cross-sectional design, we used data of the Religion, Aging, and Health survey. 1,074 White and Black elderly (age > 65 years, 615 women, 359 men) were entered to this study. Demographic (age, gender, and race), socio-economic (family income, perceived financial difficulty), health (number of chronic medical conditions and self-rated health), and psychological (perceived control over life) factors were measured. Death anxiety was measured using four items. We used linear regressions to determine factors associated with death anxiety based on race and gender.

Results: Although race and gender did not have main effects on death anxiety ($P > 0.05$), they altered correlates of death anxiety. Age was a predictor of death anxiety among women ($B = 0.165$, $P = 0.002$) but not men ($B = 0.082$, $P = 0.196$). Self-rated health was associated with death anxiety among Whites ($B = -0.120$, $P = 0.050$) but not Blacks ($B = -0.077$, $P = 0.268$). Total family income was only associated with death anxiety among White men.

Conclusions: Demographic, socio-economic, health, and psychological determinants of death anxiety in United States differ based on race, gender, and their intersection. Findings advocate that geriatric psychiatrists and gerontologists who wish to reduce death anxiety among elderly people may need to tailor their interventions to race and gender.

Keywords: Aged, Anxiety, Attitude to Death, Ethnic Groups, Health, Sex Factors

1. Background

Death anxiety is a public health challenge among elderly (1). Death anxiety reduces well-being (1) and the will to live (2) among elderly. Death anxiety is one of the main concerns experienced by elderly patients (3), and acts as a barrier against end-of-life communications with health care providers (4).

Death anxiety may be particularly high when death is being seen as associated with pain, punishment, losing worldly involvement, consequences of religious transgressions and failures, and being parted from loved ones (5). Fear from disintegration of body after dying is also another reason for death anxiety (6). A wide range of demographic, socio-economic, health, psychological and also cultural factors influence death anxiety.

Research has provided mixed results about the effect of age on death anxiety (6-10). Although most studies suggest death anxiety is lower among elderly populations than their young counterparts (6-10), opposite results have been also reported (7). Literature has mostly shown that gender

influences level of fear of death experiences by the individuals (8, 11-15).

Based on the terror management theory, a well-established theoretical framework for death anxiety, culture and resources such as self-esteem and belief system influence death anxiety (16). A wide range of demographic, social, cultural, psychological, and health factors shape individuals' beliefs about death. In this view, beliefs about death and fear of death may be influenced by factors such as demographics, health, perceived control over life, and life expectancy (17, 18). This theoretical framework has been supported by empirical data which has shown an increase in death anxiety with a decline in self-efficacy related to a reduced level of physical functioning due to chronic medical conditions associated with aging (19). It has been hypothesized that different cultural belief systems influence death attitudes among different ethnic groups (9, 20).

Blacks have lower levels of socio-economic position, employment, education, income, and life expectancy than Whites. Blacks tend to develop multiple chronic medi-

cal conditions such as cardiovascular, metabolic, and endocrinology diseases several years earlier than Whites (21-24). In a study, Black men reported highest level of death anxiety, followed by Black women, White women, and White men. The study documented a main effect of race, indicating considerable difference in death anxiety between Blacks and Whites (20). Thus, race may have a main effect on attitudes related to death (25).

Although race (20) and gender (8, 13, 14) may have main effects on death anxiety, literature is scarce on the race and gender differences in demographic, social, psychological, and health related correlates of death anxiety.

2. Objectives

This study aimed to investigate factors associated with death anxiety among a sample of American elder adults, based on race, gender, and their intersection.

3. Materials and Methods

This cross sectional study used data from the Religion, Aging, and Health survey, a household survey in 2004. The project received institutional review board (IRB) approval from University of Michigan.

3.1. Participants and Sampling

The study used a nationally representative household sample. The study only included Whites or Blacks more than 65 years. The study population was limited to Christians or those who were never associated with any faith. Older Blacks were oversampled in the survey. Individuals who were institutionalized at the time of survey or could not speak English were excluded.

3.2. Measures

Demographic (age, gender, and race), socio-economics (family income, perceived financial difficulty), health (number of chronic medical conditions and self-rated health), and psychological (perceived control over life) factors were considered as independent variables. Death anxiety was the dependent variable.

3.2.1. Death Anxiety

The following four items were used to measure death anxiety: 1) I find it hard to face up to the fact that I will die. 2) Thinking about death makes me feel uneasy. 3) I do not feel prepared to face my own death. And 4) I am disturbed by the shortness of life. Responses ranged from 4 (strongly agree) to 1 (strongly disagree). Higher score reflected higher death anxiety. The reliability estimate for this measure was high (Cronbach's alpha = 0.868).

3.2.2. Perceived Control Over Life

The following four items were used to measure control over life. 1) I have a lot of influence over most things that happen in my life. 2) I can do just about anything I really set my mind to. 3) When I make plans, I'm almost certain to make them work. 4) When I encounter problems, I don't give up until I solve them. Responses ranged from 4 (strongly agree) to 1 (strongly disagree). Higher score reflected higher control over life. (Cronbach's alpha = 0.743).

3.2.3. Number of Chronic Medical Conditions

The presence of the following chronic medical conditions were measured during the past 12 months: 1) arthritis or rheumatism, 2) eye diseases, 3) any respiratory disease, 4) hypertension, 5) heart problem, 6) diabetes, 7) intestinal disorders, 8) liver disease, 9) kidney disease, 10) urinary tract disorders, 11) cancer, 12) any other major health problem, and 13) prostate disease (for men only). Possible responses included yes (1), no, and not sure (0). Number of conditions ranged between 0 and 13, a higher score reflected higher number of conditions.

3.2.4. Financial Difficulty

Control variables included race and financial difficulty. Financial difficulty was measured using the following six items: 1) You had difficulty paying phone or utility bills, 2) You suffered a major financial loss (20% or more of your income), 3) You had a problem with social security or other retirement benefits, 4) You failed to qualify for money to pay for medical expenses, food, or housing, 5) You made a major purchase that you had difficulty paying for, and 6) Has any other event happened that has affected your ability to take care of your family financially? Responses included not sure, yes and no.

3.2.5. Self-Rated Health

Individuals were asked three questions. 1) How would you rate your overall health at the present time? Would you say your health is excellent, good, fair, or poor? 2) Would you say your health is better, about the same, or worse than most people your age? 3) Do you think your health is better, about the same, or worse than it was a year ago? Responses to the first item included 1) Excellent, 2) Good, 3) Fair, 4) Poor. Responses to the second and third items included 1) Better, 2) About the same, and 3) Worse. (Cronbach's alpha = 0.678).

3.3. Statistical Analysis

We fitted a linear regression for each gender to test if number of chronic medical conditions is associated with

death anxiety among men and women and if this association is independent of the effect of race and financial difficulty. Listwise deletion was used to account for missing data (related to non-item response). Cronbach's alpha was calculated using the following formula:

$$\alpha = \frac{N.\bar{c}}{\bar{v} + (N - 1).\bar{c}} \quad (1)$$

While N was equal to the number of items, c-bar was the average inter-item covariance among the items and v-bar was the average variance. Correlation coefficients with 95% confidence intervals (CI) were reported. For analysis on sub-populations, P less than 0.1 was considered marginally significant. For analysis in the pooled sample, P of 0.05 was considered as significant.

4. Results

The study included 615 women (63.1%) and 359 men (36.9%). Participants were either White (52.9%) or African American (47.1%). Mean age of the sample was 77 ± 6 years. On average, respondents had completed 12 ± 3 years of education. Table 1 presents distribution of socio-demographic factors among participants. As Table 2 shows, number of physical health conditions ranged between 0 and 11, with a mean (SD) of 2.6 ± 1.7 .

Table 1. Distribution of Sample Based on Race and Gender

	No. (%)
All	
White women	311 (31.9)
White men	204 (20.9)
Black women	304 (31.2)
Black men	155 (15.9)
White	515 (52.9)
Black	459 (47.1)
Men	359 (36.9)
Women	615 (63.1)
Men	
White	204 (56.8)
Black	155 (43.2)
Total	359 (100.0)
Women	
White	311 (50.6)
Black	304 (49.4)
Total	615 (100.0)

There was no significant difference in terms of death anxiety between men and women. There was no significant difference in number of physical health conditions and financial difficulty between men and women, as well.

Based on linear regression model in the pooled sample, age, self-rated health and perceived control over life were associated with death anxiety. Based on this model, race and gender did not have main effects on death anxiety (Table 3).

Tables 4 shows race and gender differences in factors associated with death anxiety. Self-rated health was associated with death anxiety among Whites ($B = -0.120$, $P = 0.050$) but not Blacks ($B = -0.077$, $P = 0.268$). Age was a predictor of death anxiety among women ($B = 0.165$, $P = 0.002$) but not men ($B = 0.082$, $P = 0.196$).

Table 5 reports predictors of death anxiety based on the intersection of race and gender. Among White men and White women, perceived control over life was associated with lower death anxiety. Such association could not be found among Black men or Black women.

5. Discussion

Based on this study, although race and gender did not have main effects on death anxiety, there were major race and gender differences in factors associates of death anxiety. Self-rated health was associated with death anxiety among Whites but not Blacks. Age was a predictor of death anxiety among women but not men. Our findings suggest that determinants of death anxiety vary by race and gender.

In our study, gender did not show a main effect on death anxiety; however, men and women had different correlates of death anxiety. Multiple studies have shown that older women may report higher levels of death anxiety than their male counterparts (8, 12). Among patients with myocardial infarction (13) and cancer (14), women have reported higher levels of death anxiety, as well. There are researchers who have conceptualized fear of death as a feminine phenomenon (15). Men may tend to express their anxiety nonverbally while a questionnaire is better able to capture anxiety of women. Hence some of the gender differences may be due to gender differences in use of language for sharing such a complicated subject. One study in Israel interviewed a random sample of elderly and used hypothetical illness conditions to compare explanatory factors of will to live among men and women. The study showed a higher will to live by medical interventions in all the hypothetical health conditions among men (26).

Our findings did not show an effect of number of medical conditions on death anxiety, when self-rated health was controlled. Self-rated health was associated with death

Table 2. Range, Mean and Standard Deviation of Death Anxiety, Number of Physical Health Conditions and Financial Difficulty Among a Representative Sample of American Elderly Based on Race and Gender

	Min	Max	Mean	SD
All				
Death anxiety	4.0	16.0	12.1	2.7
Number of chronic medical conditions	0.0	11.0	2.6	1.7
Financial difficulty	4.0	9.0	6.7	0.9
Men				
Death anxiety	4.0	16.0	12.0	2.7
Number of chronic medical conditions	0.0	11.0	2.6	1.8
Financial difficulty	4.0	9.0	6.6	0.8
Women				
Death anxiety	4.0	16.0	12.1	2.7
Number of chronic medical conditions	0.0	9.0	2.6	1.6
Financial difficulty	4.0	9.0	6.7	0.9

Table 3. Predictors of Death Anxiety Among a Representative Sample of American Elderly

	Unstandardized Coefficient		Standardized Coefficient	t	Sig.
	B	Standard Error	Beta		
Gender	0.334	0.219	0.062	1.529	0.127
Race	0.105	0.118	0.040	0.894	0.372
Age	0.057	0.017	0.131	3.264	0.001
Family income	0.062	0.051	0.057	1.200	0.231
Number of chronic medical conditions	-0.032	0.070	-0.020	-0.451	0.652
Self-rated health	-0.114	0.057	-0.093	-1.996	0.046
Perceived control over life	-0.222	0.052	-0.177	-4.243	< 0.001

anxiety among Whites but not Blacks. There are studies suggesting that physical health is a strong predictor of will to live (26). Death anxiety has shown stronger association to mental health than physical health (2). There are studies suggesting that fear of death may be correlated with psychological but not physical health (27). There is a need for studying if self-rated health and perceived control over life mediate the effect of number of chronic medical conditions on death anxiety, and if such mediation varies based on race and gender.

Perceived control over life predicted death anxiety among White men and White women, but not Black men and Black women. Based on a study, spiritual health efficacy was linked to fear of death among women, while among men, instrumental efficacy was associated with death anxiety (28).

Although our study did not show any direct effect of

race or gender on fear of anxiety, such differences have been reported previously (29). It is believed that the attitudes about death (such as views concerning hastening death) are shaped by culture and religion, which are closely related to race and ethnicity (21, 30). Cicirelli showed that the effect of race/ethnicity on fear of death is strong and independent of age, gender and religiosity (29). In line with findings of this study, race and gender have previously shown to moderate the complex associations between chronic medical conditions, psychosocial factors, anxiety, depression, and well-being (31-36).

Studies on death anxiety have hardly provided comparable results. The review conducted by Hallberg in 2004 showed major heterogeneity of results in different studies (37) What we know about death anxiety has been achieved from heterogeneous research by the means of samples' age (1, 12, 26, 30, 37, 38), health status (7, 8, 11, 14, 26, 29,

Table 4. Predictors of Death Anxiety Based on Race and Gender

	Unstandardized Coefficient		Standardized Coefficient	T	Sig.
	B	Standard Error	Beta		
Men					
Race	0.156	0.191	0.058	0.818	0.414
Age	0.035	0.027	0.082	1.296	0.196
Family income	0.132	0.079	0.121	1.679	0.094
Number of chronic medical Conditions	- 0.158	0.111	- 0.106	- 1.423	0.156
Self-rated health	- 0.134	0.099	- 0.103	- 1.356	0.177
Perceived control over life	- 0.162	0.077	- 0.139	- 2.111	0.036
Women					
Race	0.106	0.152	0.041	0.703	0.483
Age	0.072	0.023	0.165	3.152	0.002
Family income	0.010	0.068	0.008	0.140	0.889
Number of chronic medical conditions	0.058	0.092	0.035	0.624	0.533
Self-rated health	- 0.094	0.070	- 0.080	- 1.332	0.184
Perceived control over life	- 0.264	0.072	- 0.199	- 3.647	< 0.001
Whites					
Gender	0.240	0.275	0.048	0.872	0.384
Age	0.062	0.023	0.151	2.757	0.006
Family income	0.086	0.060	0.081	1.422	0.156
Number of chronic medical conditions	0.027	0.090	0.018	0.298	0.766
Self-rated health	- 0.142	0.074	- 0.120	- 1.924	0.050
Perceived control over life	- 0.321	0.070	- 0.254	- 4.599	< 0.001
Blacks					
Gender	0.467	0.357	0.080	1.310	0.191
Age	0.054	0.027	0.118	2.000	0.046
Family income	0.051	0.092	0.034	0.550	0.583
Number of chronic medical conditions	- 0.075	0.111	- 0.044	- 0.674	0.501
Self-rated health	- 0.098	0.089	- 0.077	- 1.110	0.268
Perceived control over life	- 0.139	0.080	- 0.111	- 1.732	0.084

39), sampling (community or clinical) (8, 11, 13, 14, 39), geographic region (6, 8), and religion (5, 6, 37, 39).

Results of surveys on death anxiety have important clinical implications for mental health care of elderly people who experience high levels of fear of death (7). Information about psycho-social correlates of death anxiety has particular clinical implications for improvement of end-of-life health care (30). Results of this study may inform ways to reduce barriers for end of life care, and also promotion of health care use among elderly. Findings of this study are important because presence of death anxiety determines help seeking behaviors among elderly (40).

Although addressing an important topic, this study had a few limitations. We did not measure religiosity as an important determinant of death anxiety. Personality, mental health, social support, and recent experience of loss was also not included to the study. Another limitation of the study was lack of information about validity of our measure of death anxiety based on race and gender. Finally, death anxiety is composed of conscious and unconscious death-related thoughts. This study, however, exclusively focused on conscious fear and the sub/unconscious part of death anxiety was not covered here.

To conclude, psycho-social correlates of death anxiety

Table 5. Predictors of Death Anxiety Based on the Intersection of Race and Gender

	Unstandardized Coefficient		Standardized Coefficient	t	Sig.
	B	Standard Error	Beta		
White Men					
Age	0.088	0.034	0.216	2.579	0.011
Total family income	0.206	0.090	0.192	2.279	0.024
Number of chronic medical conditions	0.022	0.134	0.016	0.162	0.872
Self-rated health	- 0.211	0.120	- 0.173	- 1.761	0.081
Perceived control over life	- 0.282	0.099	- 0.233	- 2.847	0.005
Black Men					
Age	- 0.005	0.044	- 0.012	- 0.122	0.903
Total family income	0.093	0.151	0.065	0.613	0.541
Number of chronic medical conditions	- 0.329	0.195	- 0.184	- 1.688	0.095
Self-rated health	- 0.096	0.170	- 0.064	- 0.565	0.574
Perceived control over life	- 0.078	0.132	- 0.069	- 0.591	0.556
White Women					
Age	0.044	0.030	0.107	1.465	0.145
Total family income	- 0.012	0.081	- 0.011	- 0.143	0.886
Number of chronic medical conditions	0.050	0.126	0.031	0.394	0.694
Self-rated health	- 0.071	0.095	- 0.060	- 0.745	0.457
Perceived control over life	- 0.379	0.098	- 0.290	- 3.854	< 0.001
Black Women					
Age	0.098	0.035	0.212	2.829	0.005
Total family income	0.052	0.119	0.032	0.436	0.663
Number of chronic medical conditions	0.076	0.136	0.046	0.556	0.579
Self-rated health	- 0.127	0.104	- 0.108	- 1.220	0.224
Perceived control over life	- 0.164	0.107	- 0.122	- 1.534	0.127

ety differ based on race and gender. Further research is needed.

Footnotes

Authors' Contribution: Shervin Assari designed the study, performed the statistical analysis, interpreted the results, and contributed to drafting and revising the manuscript. Maryam Moghani Lankarani contributed to drafting and revising the manuscript. Both authors approved the final version of the manuscript.

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