

Determination of Death Anxiety and Death-Related Depression Levels in the Elderly During the COVID-19 Pandemic

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Abstract

The aim of the study is to determine the levels of death anxiety and death-related depression in the elderly during the COVID-19 pandemic. The sample of the descriptive-relational study includes 344 elderly people registered in a family health center. It was determined that the most dreaded fear reported by the elderly who got COVID-19 infection was death, and there was a highly significant positive correlation between death anxiety and death-related depression ratings of the elderly and that as the average death anxiety score of the elderly rises, so does the degree of death-related depression.

Keywords

death, death anxiety, depression, COVID-19, elderly

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Introduction

The world has been battling the COVID-19 pandemic, which originated in the Chinese city of Wuhan at the beginning of 2020. Turkey has had 59,384 fatalities, while the world had 4,666,334 as of September 2021 (World Health Organization, 2021; TC. Sağlık Bakanlığı, 2021). Most people infected with the COVID-19 virus experience mild to moderate respiratory diseases and recover without particular therapy. Fever, shivering, cough, sore throat, shortness of breath, headache, confusion, chest pain, myalgia, nausea, vomiting, and diarrhea are among the symptoms of coronavirus infection (Chen et al., 2020; Yang et al., 2020). It has been reported that older individuals have more severe COVID-19 symptoms, are more vulnerable to infection, and the disease's incidence and fatality rates rise dramatically after 65 (Ekici, 2020). The infection has a fatality rate of 2–3% in the general population, but it can reach up to 30% in the elderly (Öztek, 2020). In addition to the fact that older people are more prone to contracting the virus as a result of physiological and biochemical changes in their organs and systems as they age, as well as an underlying chronic condition or disease, they may also have poorer consequences, such as death (Chen et al., 2020; Yang et al., 2020). Aside from these physical effects, the COVID-19 pandemic may also cause psychological issues in the elderly, such as death anxiety and death-related depression (Huang & Zhao, 2020). According to a study, 37% of the elderly were depressed or anxious during the COVID-19 pandemic. Other studies in this area confirm this relationship between anxiety, death anxiety, and depression (Salari et al., 2020; Kurt Magrebi & Akçay, 2020; Ertekin Pınar & Demirel, 2020).

The fact that COVID-19 is a new infectious disease, there are insufficient treatment methods, and inability to immunize the entire population; high mortality rates, concerns, and uncertainties about the future; and addressing the elderly as a risk group for the disease may cause the elderly to think about death, leading to increased anxiety and death-related depression. In this case, healthcare professionals can assess the elderly's death-related depression and anxiety levels early, allowing intervention techniques to be more successful. More research is needed to determine the severity of death-related despair and anxiety among the elderly worldwide and in our own country. As a result, this study aims to assess the elderly's levels of death anxiety and death-related depression, as well as the relationship between them.

Methods

Type and Date of Study

The descriptive-relational study was conducted between 23.06.2021 and 06.08.2021.

Study Population and Sample Population

Population. The population of the study includes 3247 people aged 65 and over who are enrolled at the Aşıkpaşa Family Health Center (FHC) in Kırşehir city center in the Central Anatolian Region of Turkey.

Sample. The study's sample size was determined using a proposed calculation "in estimating the sample size of descriptive studies with continuous variables." The acceptable margin of error (d) was determined to be 0.05, the standard deviation (s) to be 0.5, the confidence level to be 0.95, and the matching value in the t-table (t) to be 1.96. The sample size needed in the study to determine the study's sample was calculated using the equation ($n = \frac{n_0}{1 + \frac{n_0}{N}}$) proposed by [Büyüköztürk et al. \(2012\)](#). Accordingly, the sample size was determined to be 344. The study sample was picked at random from improbable sampling methods among the elderly who visited the FHC. The researchers filled out the questionnaires by asking questions to the elderly about observing pandemic regulations (mask and distance).

Data Collection

Study data were collected using the general information form, "Templer Death Anxiety Scale (TDAS)" and "Death Depression Scale" formed by the researchers by examining the literature ([Chen et al., 2020](#); [Yang et al., 2020](#); [Salari et al., 2020](#); [Kurt Magrebi & Akçay, 2020](#); [Ertekin Pınar & Demirel, 2020](#)).

Templer Death Anxiety Scale (TDAS)

This scale, developed by [Templer \(1970\)](#), consists of 15 items. Possible scores range from 0 to 15, with higher scores indicating higher levels of death anxiety. Scores from 4.5 to 7 indicate normal levels of death anxiety. Cronbach's alpha value was calculated as 0.86.

The Death Depression Scale (DDS)

The Death Depression Scale was developed by [Templer et al. \(1990\)](#) and consisted of 17 items. The scale aims to evaluate emotions such as depression, grief, loneliness, fright, and grief associated with death. A minimum of 0 and a maximum of 17 points can be obtained from the scale at the end. As the scores on the scale rise, it is assumed that the amount of death-related depression is rising as well. Cronbach's alpha was determined to be 0.83 in this study.

Data Evaluation

The SPSS (25.0) statistical package software was used to analyze the study data. Descriptive statistics, such as frequency, mean, standard deviation, number, median, minimum, and maximum values, are given in the data evaluation. The normal distributions of the study data were determined using the Shapiro-Wilk normality test. The data were non-normally distributed; thus, the Mann-Whitney U test was used to compare two independent groups, and the Kruskal-Wallis test and Allpairwise multiple comparison (Bonferroni) test were used to compare more than two independent groups. The statistical significance was $p \leq 0.05$. The relationship between the scales was investigated using the Spearman correlation test.

Ethical Considerations

Ethical committee approval was obtained from the Ministry of Health Scientific Research Council (-2021-04-23T180633) and Kırşehir Ahi Evran University (2021-11/129) prior to the study. After informing them about the study objectives, verbal/written consents were obtained from the elderly people who participated in the study.

Results

The mean age of the participants in the study was 71.55 ± 6.27 . Women account for 60.8% of the elderly, 74.7% are married, 46.2% are literate, 94.5% are unemployed, 52.9% live in detached houses, 90.4% have a good+moderate income perception, and 36.0% live with their spouses (Table 1).

It was discovered that 75.3% of the elderly had a chronic disease, 75.3% took regular medication, 19.2% caught COVID-19, 1.2% were hospitalized in intensive care due to COVID-19, 78.8% thought about death, and that death was the most common fear experienced by those infected with COVID-19 (Table 2).

The study found that the elderly's age, education level, and working status did not affect the TDAS and DDS mean scores ($p > 0.05$). The style of residence in which the elderly resided, their perceived monthly income, and the family members living with them did not affect the DDS score averages ($p > 0.05$). Women had significantly higher TDAS and DDS mean scores than males, and married people had significantly higher TDAS and DDS mean scores than singles ($p < 0.05$). The elderly who lived in apartments had a medium-level income and shared a room with one of their offspring had considerably higher TDAS mean scores than the other groups. ($p < 0.05$) (Table 3).

According to the research, the prevalence of chronic illness and regular drug use in the elderly had no effect on the mean TDAS and DDS scores ($p > 0.05$). It was discovered that the state of the elderly people who contracted COVID-19 had no effect on the mean scores of TDAS, and the state of being in the intensive care unit due to COVID-19 had no effect on the mean scores of DDS ($p > 0.05$). The elderly hospitalized due to COVID-19 had significantly higher TDAS mean scores than those who

Table 1. Socio-demographic characteristics of the elderly.

Variable	n (Bektaş et al., 2017; Büyüköztürk et al., 2012; Chen et al., 2020; Ekici, 2020; Ertekin Pınar & Demirel, 2020; Huang & Zhao, 2020; Huppert, 2018; Keskin et al., 2018; Kılıçaslan & Of, 2020; Kurt Magrebi & Akçay, 2020; Meng et al., 2020; Öztek, 2020; Salari et al., 2020; Say Şahin & Örnek Büken, 2020; Shevlin et al., 2020; Shojaei & Masoumi, 2020; TC. Sağlık Bakanlığı, 2021, World Health Organization, 2021; Templer, 1970; Templer et al., 1990; Yang et al., 2020; Yao et al., 2020)	%
Age, Mean (SD) (Min–Max)	71.55 ± 6.27 (65–92)	
65–74	252	73.3
75–84	77	22.4
85+	15	4.4
Gender		
Female	209	60.8
Male	135	39.2
Marital status		
Married	257	74.7
Single	87	25.3
Education status		
Literate	159	46.2
Primary/secondary school	133	38.7
High school /college— university	52	15.1
Working status		
Worker	19	5.5
Unemployed	325	94.5
Type of house		
Apartment	162	47.1
Detached house	182	52.9
Monthly income perception		
Good+moderate	311	90.4
Bad	33	9.6
Family member living with		
Spouse	124	36.0
Spouse and children	110	32.0
Alone	61	17.7
One of your children	35	10.2
Close relative/friend	14	4.1

Table 2. Some characteristics of the elderly regarding the disease and COVID-19.

	n	%
Presence of chronic disease		
Yes	259	75.3
No	85	24.7
Regular medication use		
Yes	259	75.3
No	85	24.7
Situation of contracting COVID-19		
Yes	66	19.2
No	278	80.8
Hospitalization in intensive care due to COVID-19		
Yes	4	1.2
No	340	98.8
Thought about death		
Yes	271	78.8
No	73	21.2
Fear experienced by those infected with COVID-19 (n = 66)		
Death	89	25.9
Hospitalization in intensive care	29	8.4
Of hospitalization	34	9.9
Infesting my family and loved ones with the disease	28	8.1
Of unbearable pain	26	7.6
From being a burden to others	23	6.7
Not being able to do what I want in life	10	2.9

^amultiple answers given.

were not, and those who thought about death had significantly higher TDAS mean scores than those who did not ($p < 0.05$). The elderly who caught COVID-19 had significantly higher DDS mean scores than those who did not, and those who thought about death had significantly higher DDS mean scores than those who did not ($p < 0.05$) (Table 4).

While the mean TDAS score of the elderly was 8.90 ± 3.98 , the mean DDS score was 9.19 ± 3.65 . According to the Spearman correlation analysis results, death anxiety and death-related depression scores have a highly significant positive correlation ($r = 0.643$, $p < 0.001$). It was discovered that as the mean death anxiety scores of the participants increased, so did their levels of death-related depression (Table 5).

Discussion

The measures and restrictions to protect against COVID-19 and prevent its spread have had several consequences for the elderly. It is well known that the elderly who stay at

Table 3. Templer Death Anxiety Scale and Death Depression Scale scores according to the sociodemographic characteristics of the elderly.

Variable	TDAS Score		DDS Score	
	Mean \pm SD	Med (Min-Max)	Mean \pm SD	Med (Min-Max)
<i>Age</i>				
65–74	9.02 \pm 3.93	9 (0–16)	9.36 \pm 3.70	9 (1–17)
75–84	8.90 \pm 4.08	8 (1–16)	8.56 \pm 3.51	8 (2–16)
85+	6.87 \pm 3.83	6 (1–13)	9.53 \pm 3.37	9 (5–16)
Kruskal–Wallis H	KW = 4.176	$p = 0.124$	KW = 2.675	$p = 0.263$
Gender				
Female	9.84 \pm 3.72	10(0–16)	9.57 \pm 3.47	9(2–17)
Male	7.44 \pm 3.93	7(1–16)	8.60 \pm 3.86	8(1–16)
<i>Mann–Whitney U</i>	$U = 9313.500$	$p = 0.000$	$U = 11574.500$	$p = 0.005$
<i>Marital status</i>				
Married	9.14 \pm 4.09	9(0–16)	9.44 \pm 3.73	9(1–17)
Single	8.18 \pm 3.53	8(1–16)	8.44 \pm 3.32	8(3–15)
<i>Mann–Whitney U</i>	$U = 9573.500$	$p = 0.045$	$U = 9542.000$	$p = 0.040$
<i>Education status</i>				
Literate	9.23 \pm 3.96	9(0–16)	8.78 \pm 3.41	8(1–17)
Primary/secondary school	8.94 \pm 3.88	9(1–16)	9.75 \pm 4.01	9(2–16)
High school /college— university	7.79 \pm 4.14	8(1–16)	9.00 \pm 3.27	8(2–16)
<i>Kruskal–Wallis H</i>	KW = 4.645	$p = 0.098$	KW = 3.204	$p = 0.201$
<i>Working status</i>				
Worker	7.16 \pm 3.80	7(2–14)	10.05 \pm 3.18	9(6–15)
Unemployed	9.00 \pm 3.97	9(0–16)	9.14 \pm 3.68	9(1–17)
<i>Mann–Whitney U</i>	$U = 2262.500$	$p = 0.050$	$U = 2670.000$	$p = 0.320$
<i>Type of house</i>				
Apartment	9.80 \pm 3.74	10(0–16)	9.44 \pm 3.56	9(1–17)
Detached house	8.09 \pm 4.01	8(1–16)	8.96 \pm 3.73	8(2–16)
<i>Mann–Whitney U</i>	$U = 11127.500$	$p = 0.000$	$U = 13039.500$	$p = 0.063$
<i>Monthly income perception</i>				
Good+moderate	8.93 \pm 3.96	9 (0–16)	9.14 \pm 3.65	9 (1–17)
Bad	8.64 \pm 4.21	9 (1–15)	9.61 \pm 3.70	9 (4–16)
<i>MannWhitney U</i>	$U = 5014.500$	$p = 0.829$	$U = 4766.000$	$p = 0.499$
<i>Family member living with</i>				
Spouse	9.05 \pm 3.84	9(1–16)	9.52 \pm 3.79	9(1–17)
Spouse and children	8.03 \pm 4.00	7(0–15)	9.38 \pm 3.76	9(2–16)

(continued)

Table 3. (continued)

Variable	TDAS Score		DDS Score	
	Mean \pm SD	Med (Min-Max)	Mean \pm SD	Med (Min-Max)
Alone	8.28 \pm 3.56	8(1–16)	8.08 \pm 3.35	8(3–15)
One of your children	11.49 \pm 3.80	14(1–15)	9.29 \pm 3.04	8(4–16)
Close relative/friend	10.64 \pm 4.19	10(5–16)	9.36 \pm 3.79	9 (3–16)
<i>Kruskal–Wallis H</i>	<i>KW</i> = 24.627	<i>p</i> = 0.000	<i>KW</i> = 5.687	<i>p</i> = 0.224

Table 4. Templer Death Anxiety Scale and Death Depression Scale scores according to some characteristics of the elderly regarding illness and COVID-19.

	TDAS Score		DDS Score	
	Mean \pm SD	Med (Min-Max)	Mean \pm SD	Med (Min-Max)
<i>Presence of chronic disease</i>				
Yes	9.05 \pm 4.15	9 (0–16)	9.25 \pm 3.71	9 (2–17)
No	8.42 \pm 3.36	8 (1–15)	8.99 \pm 3.50	8 (1–16)
<i>Mann–Whitney U</i>	<i>U</i> = 9833.500	<i>p</i> = 0.139	<i>U</i> = 10463.500	<i>p</i> = 0.492
<i>Regular medication use</i>				
Yes	9.10 \pm 4.11	9 (0–16)	9.20 \pm 3.66	9 (2–17)
No	8.28 \pm 3.47	8 (1–15)	9.15 \pm 3.66	8 (1–16)
<i>Mann–Whitney U</i>	<i>U</i> = 9491.000	<i>p</i> = 0.056	<i>U</i> = 10766.500	<i>p</i> = 0.761
<i>Situation of contracting COVID-19</i>				
Yes	9.14 \pm 3.98	9 (1–16)	10.03 \pm 3.42	10 (2–16)
No	8.84 \pm 3.98	9 (0–16)	8.99 \pm 3.68	8 (1–17)
<i>Mann–Whitney U</i>	<i>U</i> = 8800.000	<i>p</i> = 0.605	<i>U</i> = 7522.000	<i>p</i> = 0.022
<i>Hospitalization in intensive care due to COVID-19</i>				
Yes	9.64 \pm 3.55	9 (2–14)	9.16 \pm 2.71	9 (4–15)
No	8.79 \pm 4.03	9 (0–16)	9.19 \pm 3.77	9 (1–17)
<i>Mann–Whitney U</i>	<i>U</i> = 262.000	<i>p</i> = 0.034	<i>U</i> = 455.000	<i>p</i> = 0.253
<i>Thought about death</i>				
Yes	9.57 \pm 3.71	9 (1–16)	9.43 \pm 3.56	9 (1–17)
No	6.41 \pm 3.97	6 (0–15)	8.29 \pm 3.86	7 (2–16)
<i>Mann–Whitney U</i>	<i>U</i> = 5470.500	<i>p</i> = 0.000	<i>U</i> = 7813.000	<i>p</i> = 0.006

home and are unable to go out have physiological, biological, and spiritual regressions, and they appear to be the group most vulnerable to the pandemic (Ekici, 2020). Consequently, the elderly are increasingly experiencing severe death anxiety and death-related depression due to both the effects of the pandemic and many other factors that emerged during this pandemic (Yao et al., 2020).

Table 5. Correlation between Templer Death Anxiety Scale and Death Depression Scale scores.

Variable	n	Mean \pm SD	DDS Score
TDAS score	344	8.90 \pm 3.98	
DDS score	344	9.19 \pm 3.65	
TDAS score			$r = 0.643^a$ $p = 0.000$

^ar: Pearson correlation coefficient. Significance was evaluated at the 0.001 level.

In general, death fear is expected to rise as we get closer to the end of our lives. The variable most likely to be associated with death anxiety and death-related depression is age (Huppert, 2018). There are many results in the literature regarding how changes in age groups or age affect death anxiety and the level of death-related depression (Meng et al., 2020; Ertekin Pinar & Demirel, 2020; Say Şahin & Örnek Büken, 2020; Keskin et al., 2018). For example, there are studies in the literature showing that death anxiety decreases as age increases in the elderly (Ertekin Pinar & Demirel, 2020; Say Şahin & Örnek Büken, 2020). At the same time, there are studies in the literature that do not show that death anxiety decreases as age increases in the elderly (Meng et al., 2020; Keskin et al., 2018) that death anxiety decreases in the elderly increases as they age. According to the study, the age of the elderly did not affect the TDAS and DDS mean scores (Table 3).

The study indicated that the TDAS and DDS mean scores of women were significantly higher than those of men (Table 3, $p < 0.05$). Keskin et al. (2018) discovered a relationship between gender and death anxiety, Kurt Magrebi and Akçay (2020) discovered no relationship between gender and death anxiety and death-related depression, and Say Şahin and Örnek Büken (2020) discovered that older women had higher levels of death anxiety, while Ertekin Pinar and Demirel (2020) discovered in their study that men have a higher level of death anxiety. Studies reveal that the effect/relation of gender on death anxiety and death-related depression varies depending on the study. This is assumed to be related to the fact that the studies were conducted on elderly people from different periods, areas, and locations. Even though there was a COVID-19 pandemic at the time of the study and the male gender is related to mortality in COVID-19, men have lower levels of anxiety and depression than women, contrary to expectations.

In the study, the TDAS and DDS mean scores of married people were found to be significantly higher than those of singles (Table 3, $p < 0.05$), and the TDAS score averages of the elderly living with one of their children were found to be significantly higher than the other groups ($p < 0.05$). Although the mean DDS scores of the elderly living alone were not statistically different from those of the other groups, their scores were lower than those of the other groups. Keskin et al. (2018) discovered that death anxiety was more significant among divorced or lonely participants, contrary to the study's findings. Similar to the findings of this study, Say Şahin and Örnek Büken

(2020) discovered that having a child is one of the factors that enhances death anxiety in the elderly. The high rate of death anxiety and depression in married people and those living with their children is thought to be due to the high responsibilities of the married, particularly the elderly living with their children, as well as the fear of infecting their loved ones with COVID-19 or losing them due to infection. This conception is supported by the finding in [Table 2](#) that one of the anxieties of people who have caught COVID-19 is infecting their families and loved ones.

It was determined in the study that the education level, working status, and monthly income perception of the elderly did not affect the TDAS and DDS score averages. In a study, death anxiety was higher in people with high school or higher education degrees, although the DDS score averages were not affected by education level ([Ertekin Pınar & Demirel, 2020](#)). In their study, [Kurt Magrebi and Akçay \(2020\)](#) discovered that education did not affect death anxiety and death-related depression. In their study, [Shevlin et al. \(2020\)](#) found that low income and loss of income were associated with anxiety and depression. The fact that the elderly have a high level of education and work means that their everyday lives are likely to be active and varied, and as a result, they are less likely to think about death. The DDS and TDAS mean scores of the elderly who contemplated death were significantly higher than those of those who did not ([Table 4](#), $p < 0.05$) in the study. Similarly, it was discovered in a study that thinking about death frequently enhanced death anxiety and death-related depression in the elderly ([Say Şahin & Örmek Büken, 2020](#)).

Although the elderly living in apartments had a higher average DDS score than those living in detached houses, the difference between the two groups was found to be statistically insignificant in the study. On the other hand, the elderly living in apartments had significantly higher TDAS mean scores than those living in detached houses ([Table 3](#), $p < 0.05$). The quarantine (lockdown-voluntary quarantine) periods that appeared in our lives as a result of the pandemic, as well as the isolation procedure, exposed individuals to a process they were unfamiliar with ([Kılıçaslan & Of, 2020](#)). Due to the house's structure, it is assumed that this quarantine and isolation process is less stressful for the elderly living in a detached house than for those living in an apartment. At the same time, it is assumed that those who live in apartments are more likely to contract the virus than those who live in detached houses due to factors such as the presence of public places like elevators and more frequent face-to-face connections. As a result, it is considered that the type of residence impacts the elderly's TDAS and DDS mean scores.

Although the elderly with chronic disease had higher mean TDAS and DDS scores than those without chronic disease, and the elderly who take regular medication had higher mean TDAS and DDS scores than those who did not, the difference was not statistically significant. The chronic health problems of the elderly did not affect death anxiety and death-related depression, according to a study conducted with the elderly living in nursing homes ([Kurt Magrebi & Akçay, 2020](#)). Similarly, it was discovered in another study that the presence of a chronic health problem did not affect death anxiety ([Keskin et al., 2018](#)). Elderly people are more likely to have underlying chronic medical

problems that make them more sensitive to COVID-19. As a result, mortality and significant complications are more prevalent among the elderly, particularly those with chronic diseases (Chen et al., 2020; Yang et al., 2020; Ekici, 2020; Meng et al., 2020). The difference between the other groups was predicted to be statistically significant when the average of both TDAS and DDS scores of the elderly with a chronic disease during the COVID-19 pandemic were compared, but a different result was observed. These findings are considered to be attributable to the fact that almost half of the elderly (46.2%) are unaware that chronic illnesses are linked to COVID-19 due to a low level of education (literacy) (Table 1).

According to the study, the elderly who caught COVID-19 had higher DDS score averages than those who did not, and the difference was statistically significant. Even though the elderly who caught COVID-19 had higher TDAS scores than those who did not, no significant difference was found (Table 4). An intriguing discovery was that while hospitalization in the intensive care unit due to COVID-19 did not affect mean DDS scores, the elderly hospitalized due to COVID-19 had significantly higher mean TDAS scores than those who were not (Table 4). According to the study, death was stated to be the most dreaded fear by individuals who caught COVID-19 (Table 2). The virus's unknown nature and uncertainty are the familiar sources of anxiety among COVID-19 patients (Shojaei & Masoumi, 2020). Insufficient scientific understanding about the virus, the introduction of novel clinical symptoms, and variant viruses are considered to raise anxiety and death-related depression, especially among the elderly, despite the availability of a coronavirus vaccination at the same time.

While the mean TDAS score of the elderly was 8.90 ± 3.98 , the mean DDS score was found to be 9.19 ± 3.65 (Table 5). There are results in the literature that are compatible with our study findings (Kurt Magrebi & Akçay, 2020; Ertekin Pinar & Demirel, 2020). The elderly were found to have a mean TDAS score of 8.61 ± 2.97 and a mean DDS score of 9.45 ± 4.25 , which was similar to a study conducted in a nursing home (Ertekin Pinar & Demirel, 2020). In their study, Kurt Magrebi and Akçay (2020) discovered a moderately positive correlation between death-related depression and death anxiety among the elderly. In their study, Bektas et al. (2017) discovered a positive correlation between the geriatric depression scale and the death anxiety scale. The Spearman correlation analysis we performed in the study produced similar results, with a very significant positive correlation between the TDAS and DDS scores of the elderly ($r = 0.643, p < 0.001$). It has been discovered that as the average death anxiety score of the elderly rises, so does the degree of death-related depression. According to the findings of a meta-analysis study, the prevalence of stress, anxiety, and depression in the general population as a result of the pandemic were determined to be 29.6%, 31.9%, and 33.7 %, respectively (Salari et al., 2020).

As a result, it is recommended that healthcare professionals develop appropriate treatments and programs to prevent, diagnose, manage, and cure death anxiety and death-related depression in the elderly during the COVID-19 pandemic.

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