

## Original Article



## Death Anxiety and Life Expectancy among Older Adults in Iran

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## Abstract

**Introduction:** Life expectancy is one of the indices used to analyze health status. This index changes during aging as a result of a variety of incidents, diseases, stress, and anxiety. Death anxiety is one of the problems that can turn into a deadly fear. This study was aimed to determine the association between life expectancy and death anxiety among older adults in Tehran, Iran.**Methods:** In this correlational descriptive study, 208 older adults aged  $\geq 60$  years, who had referred to adult daycare centers in Tehran, were chosen by cluster random sampling. Data were collected using a demographic questionnaire, Temper's death anxiety scale and Snyder's life expectancy scale. Data analysis was completed through SPSS ver. 22.**Results:** The mean age of the older adults was 66.60 (6.58) years. The results showed a mean death anxiety of 12.21 mean life expectancy of 24.94. Furthermore, Pearson's correlation coefficient indicated a negative correlation between death anxiety and life expectancy. The results of multiple regression analysis revealed that the major predictor of life expectancy decline were death anxiety, age, and residential status.**Conclusion:** It can be concluded from the results that the negative correlation between death anxiety and life expectancy requires teaching coping methods for anxiety and using appropriate methods to improve life expectancy among older adults.

## Introduction

According to the World Health Organization (WHO), aging is defined as passing the age of 60 in developing countries. In 2000, older adults comprised 10% of the world's total population. This figure is estimated to escalate to 21% by 2050. Statistical indices show the onset of an aging trend in Iran's population.<sup>1</sup> Compared to western societies, Iran has a younger population, but the phenomenon of population aging has begun in Iran since a few decades ago. According to the 2016 census in Iran, 9.3% of Iranians (more than seven million) are  $\geq 60$  years old. Also, according to international estimates, the older adults population of Iran will grow more rapidly than in other areas.<sup>2</sup>

Aging is a stage of life accompanied by numerous medical problems such as loss of loved ones and loss of cognitive abilities.<sup>3</sup> These problems increase anxiety among older adults.<sup>4,5</sup> Anxiety is a reaction to an indefinite, internal and vague risk, unconsciously originated, uncontrollable, and is caused by various factors. Specific types of anxiety have been identified and named according to their origins, the most important of which is death anxiety.<sup>6</sup> Death anxiety is a multidimensional concept characterized by different definitions.<sup>7</sup> Yochim defined death anxiety as thoughts,

fears, and emotions related to the final event of life and beyond a healthy state of life.<sup>8</sup>

Death anxiety is a natural experience for human beings; however, it can turn into a crippling phobia for older adults.<sup>9</sup> Various factors affect death anxiety, such as life satisfaction, life quality, age, gender, religion, physical health, culture, etc.<sup>7</sup> Many studies have reported death anxiety in many cultures around the world, including the Iranian culture.<sup>10,11</sup> Death anxiety can influence health promotion behavior, life quality, and life expectancy.<sup>12</sup> Life expectancy, individuals' beliefs about their life span, is thought to be an important indicator of one's attitude toward death and may be related to the primary organization of one's life.<sup>13</sup> Reduced life expectancy is one of the consequences of aging. Life expectancy is an index for the average diagnosis of the longevity of people in a society. It shows how much a person expects to live in the country he/she is born in.<sup>14</sup> Studies have also shown that high levels of life expectancy are correlated with physical and psychological health, high self-worth, positive thinking and good social relations.<sup>15,16</sup> Considering the approaching end of life, the older adults may experience death anxiety or fear of death.<sup>5</sup>

However, in contrast with the life expectancy, anxiety,

and fear of death, that human experience van preoccupy them.<sup>17</sup> Various studies have been done on death anxiety and life expectancy in older adults under different conditions around the world. Missler et al., showed that older adults living in nursing homes in the Netherlands had higher death anxiety than other people. Physical weakness, low self-esteem, and mental poverty are factors affecting death anxiety.<sup>18</sup> Death anxiety is increased in older adults who have experienced the death of their spouses. In a study in Malaysia, Momtaz et al., reported that 52% of women and 45% of men who faced the death of their partners had higher death anxiety. The care for men and financial costs for older women can increase death anxiety due to the death of a spouse.<sup>19</sup>

Aging refers to a multidimensional process of physical, psychological, and social change. In this period, many disorders, diseases, and shortages cannot be prevented. Still, their effects can be reduced in the life of the older adults provided there is a correct understanding of the problem.<sup>20</sup> The current study was carried out to determine the association between death anxiety and life expectancy among older adults.

### Materials and Methods

In this correlational descriptive study, the subjects were chosen through cluster random sampling. First, five regions were selected from among the municipal districts by simple random sampling. Then, the older adults in daycare centers in the given areas were visited. The sample size calculation, based on previous studies in similar populations,<sup>21</sup> indicated that 200 participants would be sufficient for our analyses.

After obtaining permission from the authorities and seeking the participants' cooperation, the questionnaires were completed and collected. The inclusion criteria consisted of people aged  $\geq 60$  years living in Tehran in the past year, the ability to answer the questions, and the older adults or their relatives' consent for participation in the study. The participants were informed that their responses would remain confidential. The researchers completed the questionnaires through an interview with the participants. The exclusion criteria involved unwillingness to cooperate in the study, the older adults with psychological and physical problems, and unwillingness to continue the interview at any stage of the study.

The data were collected using a demographic questionnaire (including age, gender, marital status, education, and residential status), Templar's death anxiety scale (1970), and Snyder's life expectancy scale (1991), they were completed through the self-report method.

To measure death anxiety in this study, Templar's death anxiety scale (DAS), which has had the highest application in its kind, was used. This scale is a self-report questionnaire consisting of 15 true-false items, in which true items show the presence of anxiety in the person. This scale was scored from 0 to 15, and is classified into three

levels: low (score: 0-6), moderate (score: 7-9), and severe (score: 10-15). Templer obtained a test-retest coefficient of 0.83 for this scale.<sup>22</sup> This scale has been translated into Persian, and Cronbach's alpha coefficients obtained for the triple factors by content analysis have been found to be 0.49, 0.68, and 0.60, respectively.<sup>23</sup>

Snyder's life expectancy scale (SLES) includes 12 items and two subscales designed for those aged above 15 years. It is rated based on an 8-point Likert scale from completely agree (score 1) to completely disagree (score 8). The motivation subscale includes four items (2, 9, 10, and 12); the pathways subscale includes four items (1, 4, 7, and 8), and items 3, 5, 6, and 11 are included as distractors.<sup>24</sup> Items 1, 5, 7, and 11, used as distractors to increase the test accuracy, were not scored. Therefore, the scores ranged from 8 to 64. Snyder et al.,<sup>25</sup> reported reliability rates of 0.85 for the main scale, 0.81 for motivation subscale, and 0.74 for pathways subscale, using the test-retest method. Kermani et al., calculated the internal consistency rates 0.77-0.86 for the scale, using Cronbach's alpha and reliability coefficient of 0.81 by the test-retest method.<sup>26</sup>

The data were analyzed using SPSS 22.0 software (Armonk, NY: IBM Corp.). Kolmogorov-Smirnov test was used to analyze the normal distribution of variables. After confirming the normality of data, Pearson's correlation coefficient, Independent *t* test, one-way analysis of variance (ANOVA) and multiple regression analysis were applied to determine the association and correlation among variables.

### Results

A total of 208 participants were chosen, consisting of 55.3% male and 44.7% female participants, 67.3% married, and the others, single. The mean (SD) age of the older adults was 66.60 (6.58) years (range: 60-89, SE: 0.45). About 14.9% were illiterate, 60.1% had finished guidance school, and 25% had postgraduate degrees. The residential status of older adults was as follows: living in a nursing home (8.2%), alone (21.6%), with a spouse (64.9%), and with relatives (5.3%).

The mean of SLES and DAS score in the participants was 24.94 and 12.21, which indicated a high level of life expectancy and death anxiety. As Table 1 illustrates, there is a negative significant correlation between death anxiety, life expectancy, and age, respectively.

Table 2 shows that there was a significant relationship

**Table 1.** Correlation of the age, Death Anxiety Scale, and Snyder's Life Expectancy Scale

Variable	DAS	SLES
Age	$r=-0.77^a$ $P=0.036$	$r=-0.35^a$ $P=0.029$
SLES	$r=-0.50^a$ $P=0.030$	

DAS: Templar Death Anxiety Scale, SLES: Snyder's Life Expectancy Scale, <sup>a</sup> $P < 0.05$ .

**Table 2.** Association of the demographic variables with Death Anxiety Scale, and Snyder's Life Expectancy Scale

Statistical indicators	DAS				SLES			
	Gender	Marital status	Education	Residential status	Gender	Marital status	Education	Residential status
Test value	- 0.833 <sup>a</sup>	1.249 <sup>a</sup>	0.302 <sup>b</sup>	1.286 <sup>b</sup>	- 0.107 <sup>a</sup>	- 2.630 <sup>a</sup>	1.460 <sup>b</sup>	8.101 <sup>b</sup>
df	206	206	205	204	206	206	205	204
P value	0.406	0.213	0.740	0.280	0.915	0.009 <sup>*</sup>	0.235	<0.001 <sup>*</sup>

<sup>a</sup> Independent t-test, <sup>b</sup> ANOVA test, <sup>\*</sup>Statistically significant.

between SLES scores and factors such as marital and residential status. It means single older adults and living in a nursing home experienced low life expectancy.

The results of multiple regression analysis revealed that the major predictor of life expectancy decline were death anxiety, age, and residential status (Table 3).

### Discussion

The current study determined the relationship between life expectancy and death anxiety among older adults in Tehran, Iran. The findings showed no significant association between age and death anxiety. Death anxiety is a feeling that exists from birth, longing through all life, lying under the basis of all fears, and having importance in the development of character. Most studies reported the moderate-to-high prevalence of death anxiety among older adults.<sup>27</sup> Various studies have reported different results on the relationship between age and death anxiety. Some have shown a positive relationship,<sup>28,29</sup> while others have reported an increasing association between them with a rise in the age, peaking in middle age, and dropping afterward.<sup>30</sup> Masoudzadeh et al., indicated no relationship between age and death anxiety.<sup>31</sup> These findings were not in line with those of Shapiro and Keyes.<sup>32</sup> It seems that factors such as different research environments, sample size, and type of population are involved in these differences.

Some studies have shown higher death anxiety in women than in men, and in general, there are more sources of death anxiety in women than in men.<sup>33,34</sup> A study by Fortner and Neimeyer showed no significant association between men and women in death anxiety.<sup>35</sup> This is due to the heterogeneous nature of death anxiety across different cultures and in unique individual understanding and behaviors. Comstock and Partridge conducted a longitudinal study for over eight years on 50 000 mature individuals. They observed less death anxiety and fear of death in women who regularly attended

religious ceremonies.<sup>36</sup> The researchers came to think that the differences among various studies may be due to the role of culture, religion, and rituals governing the society, differing roles of men and women, and fear and anxiety levels expressed by men in the community.

Moreover, the results showed a higher life expectancy for married older adults. Life expectancy in older adults living with their spouses was higher than for those living alone. Martikainen et al., argued that life expectancy in married people was 4-7 years more than in single individuals.<sup>37</sup>

The findings indicated that death anxiety, age, and residence were factors reducing life expectancy in older adults. It can be argued that life trend affects the physical and psychological health of the older adults. These are in agreement with the findings of Mackenbach et al., and Griffin et al., which indicated a significant relationship between life expectancy and healthcare indices, mental health, familial relationships, social participation, marital status, and social relations.<sup>38,39</sup>

Also, there was a significant relationship between life expectancy and marital status and residence. Older adults living in nursing homes had lower life expectancy. Furthermore, older adults showed a high level of life expectancy. Also, there was a negatively significant correlation between death anxiety and life expectancy. The ability to cope with stress affects the whole life of older adults.

Given that death anxiety has the potential to influence the human psyche either overtly or covertly, it must be considered a significant issue.<sup>40,41</sup> Anvar et al., revealed a positive correlation between death anxiety and depression and disease severity in older adults.<sup>42</sup> Bahrami et al., stated that death anxiety affected the behaviour, life expectancy, life quality, and decisions of the older adults,<sup>43</sup> thus confirming the results of the present study. Ghorbanalipoor indicated that death anxiety could be a determinant of health-promoting behaviors.<sup>12</sup>

A limitation of this study was the small sample size. Also, the concept of life expectancy is influenced by numerous factors, all of which were not possible to be evaluated in this study. Hence, more comprehensive studies on older adults using census sampling are recommended to be designed. Moreover, further studies are suggested to teach proper behaviors to deal with death anxiety in older adults and to take the required measures to improve their life expectancy.

**Table 3.** Multiple regression analysis for the association of life expectancy and death anxiety with socioeconomic characteristics

Model	B	Beta	t	P	R
(Constant)	56.234		7.757	<0.001 <sup>*</sup>	
Death anxiety	- 0.460	- 0.229	- 3.469	0.001 <sup>*</sup>	0.380
Age	- 0.253	- 0.119	- 1.690	0.043 <sup>*</sup>	
Residential status	2.147	0.233	2.832	0.005 <sup>*</sup>	

<sup>\*</sup>Statistically significant.

## Research Highlights

### What is the current knowledge?

Life expectancy is one of the indices used to analyze health status. This index changes during aging as a result of a variety of incidents, diseases, stress, and anxiety.

### What is new here?

When life expectancy is low in older adults, the effect of death anxiety will be higher on the life of older adults. Hence, it is necessary to improve life expectancy and reduce death anxiety by appropriate measures and policymaking.

## Conclusion

It can be concluded from the results that the negative correlation between life expectancy and death anxiety requires teaching coping methods for anxiety and using appropriate methods to improve life expectancy in older adults. Death anxiety is one of the problems that people encounter during their aging period. When life expectancy is low in older adults, the effect of death anxiety will be higher on the life of older adults. Hence, it is necessary to improve life expectancy and reduce death anxiety by appropriate measures and policymaking.

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## Ethical Issues

Permission was obtained from the Institutional Review Board of the University of Social Welfare and Rehabilitation Sciences (Code: IR.USWR.REC.1395.327).

## Conflict of Interest

The authors declared no potential conflicts of interest.

## Author's Contributions

VR and MH designed and directed the study; BE participated in data collection; MShM did data analysis; VR and MH participated in drafting of the manuscript; all authors read and approved the final manuscript.

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