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Death Anxiety and Related Factors in Coronary Artery Bypass Grafting Candidates

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Authors
Rezaei G.[1] *MSc*
Salmani F.*[1] *PhD*

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[1]Department of Nursing, Nursing and Midwifery Sciences Development Research Center, Najafabad Center (Na.C.), Islamic Azad University, Najafabad, Iran

Correspondence
Address: Department of Nursing, Islamic Azad University, University Street, Najafabad, Iran. Postal Code: 8173763611
Phone: +98 (31) 42292207
fsalmani2000@iau.ac.ir

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ABSTRACT

Aims Coronary artery bypass grafting is a recommended and effective treatment for some heart patients. Among its psychological complications, death anxiety is one of the most common. Various factors can influence the development and severity of this anxiety. This study aimed to investigate death anxiety and its related factors in patients scheduled for coronary artery bypass grafting.

Instrument & Methods This descriptive-correlational study was conducted at Shariati Hospital in Isfahan in 2024. A total of 100 coronary artery bypass grafting candidates admitted to the cardiac intensive care unit were selected through convenience sampling. After obtaining informed consent, participants were instructed to complete a questionnaire, which consisted of two parts, including demographic data and Templer's Death Anxiety Scale. Data were analyzed using SPSS version 20 through descriptive statistics and the Pearson correlation coefficient.

Findings The overall level of death anxiety in patients was moderate. There was a significant relationship between death anxiety and parameters, such as age, sex, marital status, employment, and the presence of underlying disease ($p \leq 0.05$). However, no significant relationship was found with place of residence (urban/rural), education level, or duration of illness ($p > 0.05$).

Conclusion Death anxiety is influenced by various factors, such as age, gender, employment status, marital status, and religious beliefs.

Keywords Death Anxiety; Death; Coronary Artery Bypass

CITATION LINKS

[1] Internal nursing, cardiovascular ... [2] Braunwald's heart disease: A textbook ... [3] Association of educational status with cardiovascular disease ... [4] One-month survival after coronary artery bypass ... [5] Comparative study of the effect of muscle relaxation and music therapy on anxiety level in patients waiting ... [6] Lived experiences of cancer patients from death anxiety based on Jaspers ... [7] Relationship between emotional intelligence and religious orientation with death anxiety in retired male employees ... [8] Examination of the relationship among death anxiety, spirituality, religious orientation ... [9] The effect of supportive care plan on anxiety in patients with acute coronary ... [10] Death anxiety in the elderly: The role of cognitive ... [11] Spousal death anxiety in old age: Gender ... [12] Race and gender differences in correlates of death ... [13] Death anxiety in the elderly in Iran ... [14] The relationship between finding meaning in life ... [15] Relationship between religious attitude and ... [16] The prevalence of mild cognitive impairment in diverse geographical and ... [17] Comparing the level of death anxiety and the meaning of life ... [18] Death anxiety and self-esteem ... [19] In the shadow of death ... [20] Predicting the role of culture in death anxiety based on personality traits and ... [21] Modeling the relationships between cancer self-efficacy and treatment adherence in women with breast cancer ... [22] The construction and validation ... [23] Item factor analysis... [24] Death anxiety and related factor among older ... [25] Death anxiety among elderly people: Role of gender ... [26] Death anxiety in patients with ... [27] Death anxiety in a national sample of United ... [28] Death anxiety and its related factors ... [29] Investigating the role of predictive death anxiety ... [30] Relationship between death anxiety and ... [31] Examining death anxiety within the framework ... [32] A comparison of death anxiety and quality of life of patients with advanced ... [33] Factors influencing death anxiety among Chinese patients with cancer ...

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Introduction

Coronary artery disease (CAD) is a prevalent cardiovascular condition resulting from the accumulation of atherosclerotic plaque within the coronary arteries, which are responsible for delivering oxygen-rich blood to the myocardium. Plaque buildup in these arteries reduces blood flow, leading to symptoms such as chest pain, shortness of breath, nausea, vomiting, radiating pain to the arm, neck, jaw, or abdomen, and fatigue [1]. According to the American Heart Association, by 2030, approximately one in every three individuals will be affected by some form of cardiovascular disease [2]. In recent years, the prevalence of CAD in Iran has increased by an estimated 20-25% [3].

Coronary artery bypass grafting (CABG) remains the most commonly performed surgical intervention for patients with coronary artery stenosis [4]. This procedure can be performed either with cardiopulmonary bypass (on-pump) or without it (off-pump) [5]. CABG significantly improves myocardial perfusion, enhances patients' quality of life, extends life expectancy, and reduces mortality. However, it is also associated with various psychological challenges, among which death anxiety is particularly significant.

Death anxiety is defined as a persistent fear, worry, or distress triggered by thoughts of death or dying [6]. It is a universal phenomenon that manifests differently across individuals. Some may experience intense fear, while others report mild concern [7, 8]. The causes of death anxiety vary and may include fear of the unknown, separation from loved ones, or anticipated pain and suffering before death.

In patients undergoing CABG, death anxiety may lead to anxiety disorders, depression, hopelessness, increased stress, social isolation, decreased quality of life, panic attacks, non-adherence to treatment, and physiological changes, such as elevated blood pressure and heart rate [9, 10]. Numerous factors can influence the development and intensity of death anxiety, including age (with older adults experiencing higher levels due to proximity to the end of life) [11-13], gender (with some studies suggesting higher rates in women) [14], and the individual's religious and spiritual beliefs (where stronger beliefs are often associated with lower anxiety) [15].

Additionally, physical and mental health status, the presence of chronic diseases, psychological disorders, fear of surgery, socio-economic status, and unfavorable cultural attitudes toward death can contribute to increased anxiety levels [16-20]. A lack of social support is also a critical factor, while the presence of strong support networks can mitigate anxiety and enhance coping mechanisms [21].

Despite the clinical significance of death anxiety in CABG candidates, limited research has been conducted on this topic. Understanding its contributing factors is essential for developing effective psychological and therapeutic interventions. Therefore, the present study was designed to investigate the level of death anxiety and its related factors among patients scheduled for CABG at Shariati Hospital in 2024.

Instrument and Methods

Design

This correlational descriptive study was conducted on patients hospitalized in the heart surgery department of Shariati Hospital in Isfahan in 2024.

Sample

The sample size was calculated using the Cochran formula, with a standard deviation of 0.26 and an error rate of 0.05 for 100 samples. Sampling was performed using a convenience method, and individuals who met the criteria for inclusion were selected. The researcher entered the study environment after obtaining permission from the vice president of research and hospital officials and receiving written informed consent from the research participants.

Inclusion criteria

The criteria for inclusion in the study included the patient being a candidate for CABG, the patient being hospitalized in the surgical department, being literate, and being willing to participate in the study. The exclusion criteria included the death or transfer of the patient to other medical centers and failure to complete the questionnaires.

Data collection

To conduct the study, the process for completing the questionnaire was explained to the patients. The data collection tool consisted of a questionnaire that included two parts.

The first part gathered the demographic characteristics of the research samples, including age, gender, marital status, number of children, education level, place of residence, employment status, economic status, duration of illness, and duration of treatment. The personal profile form contained objective and clear questions; thus, content validity was employed to determine the validity of this section.

In the second part of the questionnaire, Templer's Death Anxiety Scale was used, which includes 15 questions. The score range for this scale varies between 0 and 15, with a higher score indicating greater anxiety about death. This questionnaire was first introduced in 1970 [22].

It is a standardized tool that has been widely used in research globally, and it has been translated and validated in Iran. Its internal consistency was reported in Rajabi & Bohrani's study [23].

To estimate the reliability of the questionnaire, it was initially administered to 30 patients (who did not participate in the study) as a pilot test. The reliability for the death anxiety questionnaire was obtained using Cronbach's alpha, which was found to be 0.88.

Data analysis

Descriptive statistical methods were used to calculate the mean, standard deviation, and absolute frequency distribution tables of the results. Pearson's correlation coefficient was applied to examine the relationships between the parameters. The data were then analyzed using SPSS version 20 software.

Findings

The mean age of participants was 59.55±17.74 years. A total of 88 individuals (60.3%) were male, 92 individuals (63%) were married, 103 individuals (70.5%) lived in the city, 60 individuals (41.1%) were self-employed, 67 individuals (45.9%) had an average economic status, 60 individuals (41.1%) were illiterate, 79 individuals (54.1%) had a disease duration of less than 6 months, and 81 individuals (55.5%) were treated in less than 6 months. Additionally, 100 individuals (68.5%) had underlying diseases, and 39 individuals (26.7%) had 5 to 6 children (Table 1).

Table 1. Frequency of demographic parameters of the research samples (n=146)

Parameter	Group	Values
Gender	Female	58(39.7)
	Male	88(60.3)
Place of residence	City	103(70.5)
	Village	43(29.5)
Marital status	Married	92(63)
	Single	25(17.1)
	Divorced	23(15.8)
	Widow	6(4.1)
Employment status	Unemployed	42(28.8)
	Employed	60(41.1)
	Retired	44(30.1)
Educational level	Illiterate	60(41.1)
	Under diploma	48(32.9)
	Diploma	19(13)
	Higher than a diploma	19(13)
Economic situation	Good	22(15.1)
	Average	67(45.9)
	Weak	57(39)
Other disease	Yes	100(68.5)
	No	46(31.5)
Duration of heart disease	<6 months	79(54.1)
	6 months to 1 year	29(19.9)
	1-5 years	9(6.2)
	>5 years	29(19.9)
Duration of medical or surgical treatment	<6 months	81(55.5)
	6 months to 1 year	29(19.9)
	1-5 years	9(6.2)
	>5 years	27(18.5)
Number of children	Without children	31(22.2)
	1-2	24(16.5)
	3-4	38(26)
	5-6	39(26.7)
	>6	14(9.6)

The independent t-test showed a significant difference in death anxiety between the male and female groups, with the level of death anxiety being higher in women than in men (p<0.001). Furthermore, the independent t-test indicated a significant difference in death anxiety between the two groups with and without underlying diseases, revealing that the level of death anxiety is higher in individuals with underlying diseases (p<0.001).

The independent t-test showed no significant difference in death anxiety between the two groups living in the city and the village. The one-way ANOVA indicated that death anxiety had a significant relationship with marital status, with higher levels of death anxiety observed in widowed individuals (p=0.002). Additionally, the one-way ANOVA demonstrated that death anxiety was significantly related to employment status, with higher levels of death anxiety found in unemployed individuals (p=0.002). The one-way ANOVA also revealed a significant relationship between death anxiety and treatment duration, indicating that individuals who have been receiving treatment for less than 6 months experience higher levels of death anxiety (p=0.05).

Furthermore, the one-way ANOVA showed that death anxiety had no significant relationship with education level. Death anxiety had no significant relationship with the duration of illness. Pearson's correlation coefficient revealed an inverse and significant relationship between death anxiety and age, indicating that as age increases, death anxiety also increases (p=0.05; Table 2).

Table 2. Relationship between demographic information and death anxiety in samples

Parameter		Mean death anxiety	F	p-value
Gender	Female	9.50±2.63	-5.85	<0.001
	Male	6.76±2.85		
Place of residence	City	8.13±2.45	-1.76	0.08
	Village	7.16±4.00		
Marital status	Married	7.09±3.00	4.35	
	Single	8.96±1.80		0.002
	Widow	9.43±3.50		
Employment status	Unemployed	8.86±3.40	6.62	0.002
	Employed	6.73±2.60		
	Retired	7.47±2.50		
Educational level	Higher than a diploma	8.52±2.00	1.37	0.25
	Diploma	6.84±1.40		
	Primary	7.56±3.20		
	Illiterate	8.18±3.50		
Other diseases	Yes	8.62±3.00	4.8	<0.001
	No	6.17±2.30		
Duration of illness	<6 months	8.32±2.70	2.13	0.09
	1 year	7.75±2.10		
	1-5 years	6.11±2.90		
	>5 years	7.17±4.20		
Time of treatment	<6 months	8.37±2.60	2.58	0.05
	1 year	7.75±2.10		
	1-5 years	6.20±2.80		
	>5 years	7.80±3.00		

Discussion

This study was conducted to investigate death anxiety and related factors in CABG candidates admitted to the surgery department of Isfahan Shariati Hospital in 2024. There was a significant difference in death anxiety between male and female

groups, with the level of death anxiety being higher in women than in men. These findings are consistent with the study by Nafei *et al.*, showing that death anxiety among elderly women is greater than among men, thereby confirming our results, although Nafei *et al.* conducted their intervention on the elderly population [24].

Additionally, our findings align with those of Kakabaraei & Maazinezhad [14] and Sharma *et al.* [25]. However, the findings contradict those of Khalvati *et al.*, reporting that death anxiety is lower in women than in men among Iranian elderly individuals [13]. Similarly, the findings are contrary to those of Salehi *et al.*, reporting no significant relationship between death anxiety and gender in cancer patients in Kermanshah [26].

The differences in findings across various studies may be attributed to the differing roles of men and women, as well as the varying levels of expression of fear and anxiety between genders. Women are generally more willing to express feelings, such as fear, while men tend to be less inclined to share their emotions [27].

Death anxiety had an inverse and significant relationship with age, indicating that as age increases, death anxiety also increases. Our findings are consistent with those of Shahbazpour *et al.,* demonstrating that death anxiety increases with age [28]. These findings also align with those of Nafei *et al.* [24]. However, Chegini *et al.*'s study does not support the relationship between death anxiety and age [29], which contradicts the present study's findings. Additionally, Kakabaraei & Maazinezhad explored the relationship between age and finding meaning in life, concluding that it is not consistent with death anxiety in elderly men and women. They found that, with increasing age, death anxiety decreases almost equally in elderly men and women. The elderly are more susceptible to death anxiety due to various factors such as loneliness, physical illnesses, disabilities, increased dependence on others, and the death of loved ones [14].

Death anxiety had a significant relationship with marital status, indicating that death anxiety is higher in widowed individuals. Our findings align with the study by Nafei *et al.*, reporting that single individuals and those who have lost a spouse experience higher levels of death anxiety compared to married individuals [24]. It appears that having companionship and communicating with others at home positively affects the level of death anxiety. The findings of the present study also align with those of Salehi *et al.* [26]. However, they are contrary to the study by Moudi *et al.*, showing no significant relationship between death anxiety and marital status [30].

There was a significant difference in death anxiety between the two groups with underlying diseases, with the level of death anxiety being higher in individuals with underlying conditions. This finding aligns with that of Valikhani & Firouzabad, indicating that death anxiety in cancer patients is higher than in healthy individuals [31].

Our findings are also consistent with those of Sherman *et al.* [32]. Masoudzadeh *et al.* demonstrated that the risk of death is high in the majority of patients with the disease [17], which aligns with the present study. Patients with serious illnesses, such as cancer or heart disease, tend to experience higher levels of death anxiety. This anxiety may stem from concerns about their illness, the consequences of the disease, an uncertain future, and feelings of hopelessness.

Death anxiety had a significant relationship with employment status, with levels of death anxiety increasing among unemployed individuals. This finding is consistent with that of Nafei *et al.*, reporting that employed and retired elderly individuals have lower anxiety levels than unemployed elderly individuals and those covered by a support organization (aid committee) [24]. However, the findings of this study are inconsistent with those of Gong *et al.*, showing no significant relationship between employment status and death anxiety [33].

One limitation of this study was that the patients participating in the research were culturally, socially, and emotionally diverse. Efforts were made to control for this issue by randomly selecting samples. Additionally, some patients may have a history of living in stressful family environments.

CABG surgery is a major operation that induces fear and anxiety in patients, including death anxiety. Death anxiety is influenced by various factors, such as age, gender, employment status, marital status, and religious beliefs. Therefore, paying attention to these factors and providing appropriate psychological interventions can help reduce death anxiety and improve the mental health of patients after CABG surgery. It is recommended that the effective and beneficial solutions implemented in other countries be adopted by the health system in our country.

Conclusion

Death anxiety is influenced by various factors, such as age, gender, employment status, marital status, and religious beliefs.

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