

Prevalence and predictive factors of anxiety, depression and death anxiety in patients over 50-years of age at the tertiary care cancer center

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Abstract

Aim: This study was made to determine the frequency of the death anxiety, depression, and anxiety of the patients over the age of 50 years at the tertiary care cancer center in Turkey.

Material and Methods: Patients were divided into three groups as the ones with tumoral disease (group 1), the ones with fracture (group 2), and the ones who have not tumor or fracture. All the participants were evaluated with geriatric anxiety scale (GAS), geriatric depression scale (GDS), and death anxiety scale (DAS).

Results: There are 16(%17) patients in group 1, 27(%29) patients in group 2 and 50(%53) patients in group 3. Moreover, It was found that GAS, GDS, and DAS points were found to be similar and there was no significant difference between groups according to depression levels ($p>0.05$). It was found that age (OR=1.09; %95GA=1.01-1.19), tumor presence (OR=8.7; %95GA=1.02-74.43), GDS point (OR=1.21; %95GA=1.01-1.45) and being single/divorced (OR=0.05; %95GA=0.01-0.08) had significant effect on death anxiety.

Conclusion: Geriatric anxiety, death anxiety, and depression of patients over age of 50 years in our hospital's orthopedics clinic are similar independent of the presence of tumor, other diseases, tumor or fracture. And death anxiety is increasing with age in all the groups. Besides, old age, tumor presence, high level of GDS and being unmarried are the factors increasing the death anxiety.

Keywords: Geriatry; depression; death anxiety; tumor; fracture; orthopedics.

INTRODUCTION

Senescence is a period in which there is a general deterioration in physical and cognitive functions, health, income level, independence, social life, social supports (1). There is no consensus among developmental psychologists about when the concepts such as old age, middle age and older age exactly begin and end (2). For example, while the World Health Organization considers to be older than 65 years old, OECD considers older than 60 years old (3). In England the Friendly Societies Act adopted the definition of old age as "any age after the age of 50" (4).

Anxiety is a warning for "being alert". It is a difficult fear and concern emotion to define. The anxiety without any concrete danger, frequent and severe onset and life-affecting state all remind one that there is anxiety disorder.

Discomfort, will to hover around are also common signs of anxiety (5,6).

The most common psychiatric problem in senescence is the depression. 13.5% of all patients over 50 years in our country have depressive disorder (7).

When death statistics are evaluated, the most common mortality reason in 2015 is both benign and malignant tumors following circulatory system diseases (8). Psychiatric disorders are more common in elderly individuals with chronic diseases like cancer. The effect of death thought on life is inevitable. It is important to determine the limits of death thought is important in order to protect the balance of human (9).

We investigated anxiety, depression, and death anxiety of patients over 50 years in orthopedics and traumatology clinic of our third level oncologic hospital.

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MATERIAL and METHODS

Study Universe

The study universe of our research is composed of 127 elderly individuals who were under follow-up and treatment in our orthopedics and traumatology clinic of our hospital. In our study, the age limit was accepted as over 50 and patients over 50 ages were included in the study. No sample has been chosen, the all of the universe has been taken as sample however the sample was made up of 93 elderly individuals because 34 elderly individual had not participated into the research. The patients who did not participate into the research were the ones with exclusion criteria and who simply had not accepted to participate.

The reasons of patients who did not participate into the research (exclusion criteria) were as follows; the ones who did not accept to participate in, the ones who could not read and write, chronic terminal disease, severe heart failure. Moreover, patients with psychiatric disease or under the use of antidepressant drug were excluded.

The included patients were divided into three groups. They were patients with tumoral disease, fracture and the patients presented to polyclinic for the reasons other than tumor or fracture

Measurement tools

The data of the research were compiled using a death anxiety scale, geriatric depression scale, geriatric anxiety scale, and a demographic information form prepared by the researchers. The demographic information form and the scales were performed vis-a-vis during the hospital stay of the patients over the age of 50 years.

Demographic information form is composed of 5 rubric related to demographic characteristics of elderly patients such as age, sex, marital status, education status and whether there is a chronic disease.

Geriatric anxiety scale (GAS) was defined in 2010 by Segal et al and Karahan et al reported their Turkish adaptation study in 2018. GAS, which observes anxiety symptoms and made up of 30 items. There are somatic, cognitive, emotional subscales. It is developed for the elderly and filled by the individual on him/her own (10,11). The total points are relying on the first 25 items in the original version of scale. The additional 5 items (between 26 and 30) are used for defining the scope of anxiety by the clinicians. These items cannot be included to the sum of the scale and subscales. The first 23 items are eligible for pointing. Each item can take a point between 0-3. The items between 24 and 28 are used for defining the scope of anxiety by the clinicians. These items cannot be included to the sum of the scale and subscales. There cannot be any reverse scoring. It is a quadruple likert scale. Scoring is as follows: Never as 0, sometimes as 1, frequently as 2, always as 3. The total point is the sum of the scores of the items between 1 and 23. The participants are asked how frequent they experienced each symptom during the last week. Total score can be changed between 0-75. A higher

score implies a higher level of anxiety.

GDS is developed by Yesevage et al in 1983. Ertan et al. Has carried out a validity and reliability study in 1997 (12,13). GAS is a self-reporting scale made up of 30 items to measure the anxiety symptoms especially in elderly adults (10). It contains 3 subscales corresponding to the common anxiety symptoms among elderly people. (That is, somatic, cognitive, emotional symptoms composed of 8 or 9 items each). Yochim et al has shown that GAS was a useful multidimensional anxiety scale among elderly people (14).

DAS is a 20-item-scale developed by Sarıkaya et al (15). It has 3 subdimensions: The uncertainty of death, death thought and death witnessing, suffering from pain. DAS items were prepared in the form of quşntet Likert form. Zero point is given to an answer of "never", 1 point is given to an answer of "rarely", 2 points are given to an answer of "sometimes", 3 points are given to an answer of "frequently", and 4 points are given to an answer of "always". As the scale is scored between 0-80, high scores imply high level of fear from death. Scores between 0 and 29 imply a low level of fear from death, scores between 30 and 59 imply a moderate level of fear from death and scores between 60 and 80 imply high level of fear from death.

Statistical Analysis

Statistical Package for Social Sciences (SPSS) version 22.0 for Windows was used (SPSS Inc. Chicago, USA) for statistical analysis of research data, The categorical variables were presented by number, percentage and the continuous variables were presented by mean \pm standard deviation and median (the smallest and the biggest values) in the descriptive statistics. The convenience of continuous variables to normal distribution has been evaluated using figures (histograms and probability graphics) and analytical methods (Kolmogorov-Smirnov/ Shapiro-Wilk tests) (Figure 1,2).

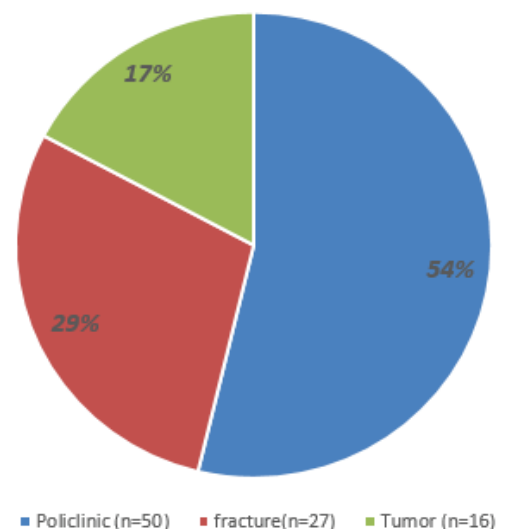


Figure 1. Distribution of patients according to the reasons for admission

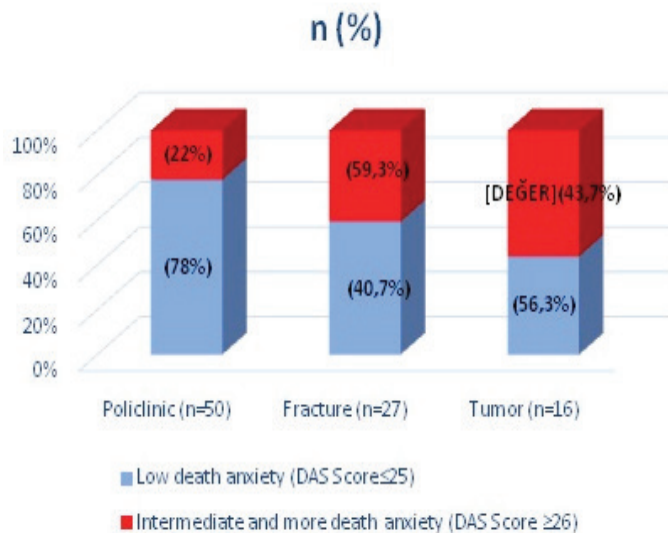


Figure 2. Death anxiety levels of patient groups

As a result of normality tests One Way ANOVA (post hoc test: Turkey HSD test) has been used in the data found to be normally distributed between groups for the analysis of comparison between 3 independent groups. Among the data that are not relevant to normal distribution, Kruskal-Wallis test has been used in the comparison analysis between 3 groups.

Chi-square test has been used in the comparison analysis for the categorical variables between independent groups. The relationship between some independent predictive factors irrelevant to normal distribution has been evaluated by Spearman correlation. If the absolute value of the correlation coefficient (ρ) $r \leq 0.30$, then there is a weak relationship, if it is $0.30-0.50$ then it means moderate and if $r \geq 0.50$ then there is strong relationship (16).

The factors influential over the death anxiety levels which were moderate or higher according to DAS of patients have been evaluated by Univariate and Multivariate Logistic Regression Analysis. The predictive factors which had been found to be statistically significant in the univariate logistic regression analysis ($p < 0.05$) has been included in multivariate logistic regression model.

RESULTS

The data belonging to 93 of 127 patients over the age of 50 years, who accepted to participate in the study, were analyzed. 63 (67%) female and 30 male patients whose mean age was 688 ± 9.5 (530-880) were included into the study. 66.7% of patients had some comorbidity. Six of the patients had also solid organ tumor other than bone tumor. Cardiovascular comorbidities have been the most common accompanying one with a percentage of 48.4% (Table 1).

The patients were divided into 3 groups according to their application reasons. The number of patients who applied to polyclinic with a reason other than fracture or tumor is

Table 1. Demographic characteristics

Variables (n=93)	
Age, years	
Mean \pm sd	68.8 \pm 9.5
Median(min-max)	68.0(53.0-88.0)
Sex, n(%)	
Male	30(32.3)
Female	63(67.7)
Family status, n(%)	
Single	4(4.3)
Divorced/divorcee	19(20.4)
Married	70(75.3)
Education, n(%)	
Cannot read/write	14(15.0)
Primary school	34(36.6)
Midschool	21(22.6)
High school	18(19.4)
University	6(6.4)
Application reason, n(%)	
Polyclinic	50(53.8)
Fracture	27(29.0)
Bone tumor	16(17.2)
Comorbidity, n(%)	
Yes	62(66.7)
No	31(33.3)
Other malignancies, n(%)	
Yes	6(6.5)
No	87(93.5)
Cardiovascular comorbidity, n(%)	
Yes	45(48.4)
No	48(51.6)
Diabetes mellitus, n(%)	
Yes	22(23.7)
No	71(76.3)
Renal insufficiency, n(%)	
Yes	7(7.5)
No	86(92.5)
Hyperlipidemia, n(%)	
Yes	16(17.2)
No	77(82.8)
Geriatric depression scale score	
Mean \pm sd	13.9 \pm 4.9
Median(min-max)	13.0(4.0-25.0)
Depression state according to GDS, n(%)	
No	22(23.7)
Possible depression	27(29.0)
Absolute depression	44(47.3)
Geriatric anxiety scale score	
Mean \pm sd	25.8 \pm 13.2
Median(min-max)	25.0(0-75.0)
Death anxiety scale score	
Mean \pm sd	25.7 \pm 15.8
Median(min-max)	20.0(6.0-67.0)
Anxiety level according to DAS, n(%)	
Very low (0-7)	3(3.2)
Low (8-25)	59(63.4)
Moderate (26-44)	18(19.4)
High (45-63)	10(10.8)
Very high (64-80)	3(3.2)

* Ccolumn percentage

Table 2. Relationship between age and scale scores

	Age n=93 (All patients)	Age n=50 (Polyclinic)	Age n=27 (Fracture)	Age n=16 (Tumor)
	r (p)	r (p)	r (p)	r (p)
Geriatric depression scale score	0.133 (0.205)	-0.087 (0.549)	0.365 (0.061)	0.024 (0.930)
Geriatric anxiety scale score	0.140 (0.179)	0.155 (0.281)	0.448 (0.019)	-0.183 (0.497)
Death anxiety scale score	0.367 (0.001)	0.315 (0.026)	0.365 (0.060)	0.296 (0.265)

r: Spearman correlation coefficient
(Correlation coefficient (rho) absolute value $r \leq 0.30$ means weak relationship. $0.30-0.50$ means moderate and $r \geq 0.50$ means powerful relationship)

50 (53.8%), the number of patients presented with fracture is 27 (29%), and the number of patients with bone tumor is 16 (17.2%). There was femoral fracture in 66.7% (n=18) of all patients and tibial fracture in 18.5% (n=5) of all patients. While the patient had a mean score of 13.9 ± 4.9 (4.0-25.0) from GDS, they had that of 25.8 ± 13.2 (0-75.0) from GAS. Moreover, the depression state of the patients was evaluated according to the scores they got from GDS. According to this, it has been found that 22 patients (23.7%) had no depression but 44 patients (47.3%) had absolute depression signs.

The patients had a mean DAS of 25.7 ± 15.8 (6.0-67.0) and the patients with ages of ≥ 80 had that of 40.4 ± 20.2

Table 3. Comparison of some clinical and demographic characteristics of the patient groups

	N=93	Polyclinic N=50	Fracture N=27	Bone tumor N=16	P
Age, years					0.011 ¹
Mean±sd		66.4±7.8	73.1±10.5	68.8±10.4	
Median(min-max)		65.5(55.0-83.0)	71.0(54.0-88.0)	68.0(53.0-86.0)	
				Polyclinic vs. Fracture 0.008² Polyclinic vs. Tumor 0.622 ² Fracture vs. Tumor 0.302 ²	
Sex, n(%)					0.638 ³
Male		14(28.0)	10(37.0)	6(37.5)	
Female		36(72.0)	17(63.0)	10(62.5)	
Family status, n(%)					0.096 ³
Single		3(6.0)	0	1(6.2)	
Divorced/divorcee		6(12.0)	10(37.0)	3(18.8)	
Married		41(82.0)	17(63.0)	12(75.0)	
Comorbidity, n(%)					0.090 ³
Yes		18(36.0)	5(18.5)	8(50.0)	
No		32(64.0)	22(81.5)	8(50.0)	
Geriatric depression scale score					0.527 ⁴
Mean±sd		13.4±4.6	14.7±5.7	14.0±4.7	
Median(min-max)		13.0(4.0-25.0)	15.0(4.0-25.0)	13.5(7.0-25.0)	
Depression state according to GDS,(%)					0.792 ³
No		12(24.0)	6(22.2)	4(25.0)	
Possible depression		17(34.0)	6(22.2)	4(25.0)	
Absolute depression		21(42.0)	15(55.6)	8(50.0)	
Geriatric anxiety scale score					0.396 ⁴
Mean±sd		27.5±12.2	24.3±15.7	22.7±11.4	
Median(min-max)		26.0(5.0-75.0)	24.0(0-70.0)	25.0(2.0-43.0)	
Death anxiety scale score					0.094 ⁴
Mean±sd		22.1±13.2	28.1±17.6	33.1±17.5	
Median(min-max)		19.0(6.0-64.0)	20.0(6.0-67.0)	32.0(11.0-62.0)	
Anxiety level according to DAS, n(%)					0.026 ³
Low		39(78.0)	16(59.3)	7(43.7)	
Moderate-High		11(22.0)	11(40.7)	9(56.3)	

* Column percentage

¹One-way ANOVA Test²Post Hoc Test: Tukey HSD³Pearson Chi-Square Test⁴Kruskall Wallis Test

Table 4. Factors effective on death anxiety level being moderate or above according to the DAS of the patients in orthopaedics clinic

	Univariate Logistic regression analysis			Multivariate Logistic regression analysis model	
	OR(95% CI)	P		Adjusted OR(95% CI)	P
Sex(Female vs Male)	1.0(0.40-2.52)	1.000	Sex(Female vs Male)		
Age*	1.10(1.04-1.16)	0.001	Age	1.09(1.01-1.19)	0.042
Comorbidity*	2.82(1.01-7.85)	0.048	Comorbidity	2.05(0.32-13.05)	0.449
Application reason*(ref:polyclinic)			Application reason*(ref:polyclinic)		
Fracture	4.44(0.88-6.75)	0.086	Fracture	1.38(0.24-7.22)	0.702
Tumor	4.56(1.38-15.03)	0.013	Tumor	8.70(1.02-74.43)	0.048
Geriatric anxiety scale**	1.04(1.01-1.08)	0.037	Geriatric anxiety scale		
Geriatric depression scale*	1.16(1.05-1.28)	0.004	Geriatric depression scale	1.21(1.01-1.45)	0.035
Family status*(ref:single)			Family status*(ref:single)		
Divorced-divorcee	0.18(0.04-0.731)	0.017	Divorced-divorcee	0.48(0.09-2.66)	0.400
Married	0.05(0.01-0.049)	0.001	Married	0.05(0.01-0.08)	0.001

*Univariate logistic regression analysis variables with $p < 0.05$ were included into multivariate logistic regression analysis model.

**Only geriatric depression score was included into the study in order not to disturb the concordance of the model because there is a powerful relationship between geriatric anxiety score and geriatric depression score.

(11.0-67.0) (n=16). Death anxiety levels of 66.6% (n=62) of patients were evaluated as very low and low. The number of patients whose death anxiety was found to be moderate was (table 1) 18 (19.4%). The number of patients whose death anxiety was found to be high and very high was 13(14%).

In table 2, the relationship between age and the scores that the patient had from those 3 scales has been evaluated. It was found that there was not any significant relationship between age and GDS and GAS in all the patients that are included into the study ($p=0.205$; $p=0.179$). A moderate degree statistically significant relationship between age and DAS has been found however ($r= 0.367$, $p=0.001$). In other words, the patients who had older ages had also higher scores of DAS. When the relationships between age and scale scores were evaluated separately in the groups, there was no significant relationship in tumor patients (the reason is that these scale scores are high independent of age in tumor patients). In fracture patients on the other hand, a moderate degree statistically significantly positive relationship was found only between GAS and age ($r= 0.315$, $p=0.026$).

The demographical and clinical comparison results of the patient groups according to application reasons have been presented in table 3. According to this, mean ages have been found to be significantly different among groups ($p=0,011$). When it was evaluated with post hoc Turkey test where the difference stemmed from, the patients with fracture had statistically higher mean age as 73.1 ± 10.5 than polyclinic patients ($p=0.008$).

The distributions of sex, marital status and comorbidities were found to be similar (sirasıyla $p=0.638$, $p=0.96$ ve $p=0.090$). Moreover, it was found that GDS, GAS, DAS scores were similar and that there was no significant difference between groups according to depression states

($p > 0.05$). While a death anxiety level equal to or over 56.3% of tumor patients was found, 40.7% of fracture patients and 22% of polyclinic patients had a moderate level of death anxiety.

Consecutively, the factors effective on the death anxiety of patients equal to or over the moderate levels were evaluated with univariate and multivariate regression analysis according to DAS. The predictors that were found to be statistically significant in univariate logistic regression analysis ($p < 0.05$) were included into logistic regression model.

Age, comorbidities, application reason, GDS score and marital status which all were found statistically significant in the univariate logistic regression analysis were included into regression model. And confounding factors with the multivariate logistic regression analysis and the factors effective on death anxiety were also all included into regression model.

As a result when the model is evaluated, age (OR=1.09; %95 GA=1.01-1.19), tumor presence (OR=8.7; %95 GA=1.02-74.43), GDS score (OR=1.21; 95% GA=1.01-1.45), and being married (OR=0.05; 95% GA=0.01-0.08) were all found to be statistically associated on death anxiety. Among these criteria, while tumor presence and high GDS score were increasing the death anxiety, being married had a relatively decreasing effect on death anxiety compared to being unmarried. Moreover, the patients with bone tumor were found to have a death anxiety level nine times higher than the polyclinic patients (OR=8.7) (Table 4).

DISCUSSION

The elderly population is the group that has the most health problems and needs care the most. Depression has the

first place among the psychiatric problems. Uçku et al. has found depressive symptoms as 11%, the prevalence of major depression as 6%(17).

Productivity and physical strength both decrease in senility. Struggling with various diseases and death awareness lead the person to see oneself weak (18). In our study, 66.7% of the patient had at least one chronic disease to struggle with.

There is a bilateral relationship between pain and psychiatric state. A painful disease may disturb one's psychological state, and those disturbances may affect the perception of pain. As the duration of pain increases, so do depression and anxiety level. And that also leads to isolation from the social life and an increase in dealing with one's own body (19).

There is a prominent similarity between anxiety disorders and the symptoms of depression. Besides, these two disorders frequently occurs together (5). For instance, 75% of first level application patients have found to have anxiety disorder (20-22). There couldn't be found any statistically significant difference between three groups in this study. The most interesting result in our study is the increase in the level of anxiety of the patients as the age increases.

The most common bone tumors are metastases, and when a bone tumor is detected in older patients, it is a malignant tumor metastasis unless proven otherwise. Clinicians should try to improve the general condition of patients with bone metastases to improve the quality of life of patients (23,24). Local tumor prevalence studies in our country show that the tumor data of our country are compatible with the literature (23-28).

Depression has been found to be more common especially in middle-aged population, in females, in the divorced and the divorcee, even if it is seen all socio-economic levels (7-17). When the recent studies in Turkey about the frequency of depression are evaluated, Kocataş et. al. have found it as %36, and Maral et. al. found it as %41, and Mamurekli et. al. found it 37% (21-22). Absolute depression diagnosis was given to 44 patients (%47) in our study. We report that the reasons of this high percentage may have been stemmed from the fact that all the patients who participated in the study had an acute and chronic disease or disorder, and that half of the patients had major bone fracture or tumor or the fact that the time of the questionnaire crushed into the hospital stay(23).

Female gender has been reported in many studies to be significant risk factors in many societies. In our patient population, even if still the numbers of females are higher than that of male patients, it was not evaluated as a significant risk factor. Kocataş et. al. have found that being divorced was a significant risk factor compared to being married(1). In our study death anxiety was higher in divorced patients compared to married patients too.

Death anxiety is a feeling that exists from the birth, longing through all life, lying under the basis of all fears and having

an importance in the development of character. However, an excessive or pathological death anxiety may affect human psychology in a negative way (29).

When the studies about death anxiety were evaluated, it was noticed that there is a multi dimensional structure related to death anxiety. Age, sex, personality characteristics, sociocultural factors, developmental process, religious beliefs and having a mortal disease all have been found to be related with death anxiety (30,31). The death anxiety level was found as 56% in patients with tumor, however it was 40% in patients with fracture. It was even less in the patients applying to polyclinic with other orthopedic problems %20.

Even if there are studies in the literature that report the death anxiety level is decreasing with the aging due to facing the difficulties of life and admittance, there are also studies reporting the results vice versa(29,32). In this study it was found that the death anxiety level has been significantly increasing over the age of 80.

There are some limitations of this study. Our study has been concerning with a narrow time period, that's why a relatively small number of patients was included. We report that the results may have been affected by the fact that all the patients who participated in the study was being evaluated during the onset of their complaints for a reason rather than a chronic illness or the fact that the time of the questionnaire crushed into the hospital stay. So, further studies with more patients are needed.

CONCLUSION

Anxiety, depression and death anxiety of the patients over 50 years in our hospital's orthopaedics and traumatology clinic have been similar independent of possessing tumor, fracture or any other disease. And death anxiety has been increasing with the increasing age. Besides, old age, tumor presence, a high GDS score and being unmarried are all the factors increasing the death anxiety.

Competing interests: The authors declare that they have no competing interest.

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