

The Relationship Between Depression and Quality of Life in Elderly Patients with Glaucoma

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ABSTRACT

Purpose: To examine the relationship between depression and quality of life in elderly patients with glaucoma.

Materials and methods: The study was conducted as a descriptive and cross-sectional research. The sample of the work consists of 130 patients aged 60 years and over who were followed up at Mersin University Hospital Ophthalmology Department between 01 October 2016 and 31 March 2017. The data were gathered with Personal Information Form, Geriatric Depression Scale and Modifiye GLAU-QOL 17 Glaucoma Quality of life. Number, percentage, mean, Pearson Correlation, Student's t test, ANOVA test, Tukey and Games-Howell statistic were used in the evaluation of the data.

Results: The mean age of the patients was 67.9±7.27. The mean score of geriatric depression scale of the patients was 15,23±5,52. It was

determined that 16,2% of the patients had possible depression and 62,3% had definite depression. The median Glau-QOL-17 Glaucoma Quality of Life Questionnaire subscale scores of the patients were as follows: daily living (3,58±3,25), driving (3,23±2,53), worry (5,26±3,47), self-assessment (6,4±3,07), psychology (4,08±2,74), feeling oppressed (4,39±2,35) and taking responsibility (3,56±1,86). The mean total score was 34.44±15.29. There was a negative and statistically significant relationship between the age of the patients and the scores of geriatric depression and the scores of age and quality of life.

Conclusions: Elderly patients with glaucoma are at a major risk for depression and their quality of life is negatively affected.

Keywords: glaucoma, elderly patients, depression, quality of life, nursing

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INTRODUCTION

Glaucoma is a neurodegenerative disease caused by optical nerve damage resulting in cavitation of the optical disk as well as by eye sight disorders and congenital and environmental factors [1,2]. Glaucoma is the high fluid pressure in the eye. It happens when the circulation of the fluid in the front part of the eye is impaired. The fluid (aqueous humor) normally flows through a porous channel. If aqueous humor is blocked, liquid builds up there, which in turn leads to glaucoma [3].

The visual loss caused by glaucoma is a global problem affecting the physical and mental health of individuals negatively. It takes the 10th place among the visual disorders in the USA [4]. In 2011, 2.71 million people in the USA were primary open-angle glaucoma patients and their number is expected to reach 732 million by 2050 [5]. Approximately 79.6 million people worldwide are predicted to have glaucoma by 2020 with more than 11 million of these becoming blind due to glaucoma [2]. Its prevalence in Turkey is 2.5% and there are 140 thousand patients using medication for it. Those who have been diagnosed with it are only ¼ of these patients. Its prevalence in community is 3%, but the rate goes up in the older population [6]. The probability of having glaucoma increases with advancing age. Although it may occur at any age, 75% of the patients are over 65 years of age [7]. The rate of visual disorders and blindness has been reported to increase with aging of the population [8].

There is no United Nations (UN) standard numerical criterion, but the UN agreed cutoff is 60 years to refer to the older population. UN was reported elderly Population in Turkey, aged 60 years or over as %12 (9686 people) in 2017 and %26.6 (25428 people) in 2050 [9]. WHO, on the other hand, defines aging as “gradually decreasing ability of the individual to adapt to his environment” [10]. Quality of life is affected by decreased vision with aging. Healthy individuals want to lead a quality life. Even if the idea of quality life differs among people, having a good vision to do whatever they want is a quality of life component that is among the priorities of each individual [11].

Being a chronic eye disease, glaucoma reduces patients' quality of vision in time also affecting their quality of life. Individuals with glaucoma experience difficulties in their activities of daily living due to their reduced visual function. The serious outcomes caused by reduced vision particularly in older people include traffic accidents and injuries resulting from falls. Even if these individuals are independent in their activities of daily living, they need to exercise more mental and physical effort to be able to achieve this in a safe and proper way [12]. Individuals with glaucoma have a poorer perception of their disease because secondary

diseases will emerge due to the unfavorable outcomes such as vision loss and blindness [13].

Glaucoma is a chronic physical disease leading to a number of psychological and social problems in the patient. Reduced vision and loss of visual function caused by glaucoma may lead to psychiatric problems in the person affected [14]. Such problems include stress, anxiety and depression in particular. Although depression and anxiety is more common in older people, they are even more widespread in visually disabled older persons [15]. Depression may develop in patients with glaucoma due to the restrictions in their daily activities [16].

Provision of the care and treatment needed by those with glaucoma is important for improving their quality of life and preventing any mental problems. Nurses should provide integrative healthcare with a holistic view to people with glaucoma. We think that the results obtained in this study will provide guidance for the nurses looking after elderly patients with glaucoma in the fields of psychosocial assessment of patients, early diagnosis and treatment of psychiatric disorders, planning and implementation of appropriate nursing services, taking measures to make patients' lives easier in the period after discharge and reducing their burden of care.

Wilson et al. [15]. reported in their study that the depressive symptoms of patients with glaucoma did not significantly differ from those free of glaucoma. In a study, the effect of the prescribed treatment on the eyesight-related quality of life of patients with early glaucoma was evaluated [17]. In the study of Onakoya et al. [18]. quality of life and factors affecting it were evaluated in patients with primary open-angle glaucoma. Lester and Zingirian [19] assessed in their study quality of life in patients with glaucoma using two different measurement tools. Factors associated with quality of life in individuals with glaucoma have also been investigated [20,21]. In a study in Turkey, the mean depression and state-trait anxiety scores were found significantly higher in patients with glaucoma than in individuals with a chronic disease [13]. Kocak et al. [22]. found significantly more depression and anxiety symptoms in patients with glaucoma who were also being treated for age-related macular degeneration as compared to the control group. Their quality of life scores in physical, social, environmental and psychological areas were also significantly lower than those of the control group. In a study, depression and state-trait anxiety symptoms were found significantly more in patients with glaucoma than in individuals with a chronic disease [23]. Çelik [24] assessed in their study health-related quality of life in patients with glaucoma. In a study, it has been shown that the quality of life of patients with glaucoma and

age-related macular degeneration is impaired compared to the normal population, and these patients have more depressive symptoms and anxiety symptoms [22].

We have not encountered any study in Turkey dealing with both quality of life and depression in older people with glaucoma. The present study has a special value in exploring quality of life and depression in individuals with glaucoma who are older than 60 in Turkey. Therefore, we aimed to examine the relationship between depression and quality of life in elderly patients with glaucoma.

Study questions

- What are the levels of depression and quality of life of elderly patients with glaucoma?
- Is there a relationship between the depression, quality of life levels, duration of disease and age of elderly patients with glaucoma?
- Is there a difference between the depression and quality of life levels of individuals with respect to Elderly individuals' marital status, gender, education and income?

MATERIALS AND METHODS

Participants

This is a descriptive and cross-sectional study. The study population consisted of patients with glaucoma who were older than 60 and were being treated in the Ophthalmology Outpatient Clinic of Mersin University Hospital between 01 October 2016 and 31 March 2017 (N=352).

The study sample consisted of patients who presented to the outpatient clinic between the same dates, who met the inclusion criteria and who agreed to take part in the study (n=130).

Inclusion criteria for the subjects:

- Ability to speak and understand Turkish,
- Age over 60 years,
- Having been diagnosed with glaucoma at least 6 months ago,
- No prior diagnosis of a psychiatric disease,
- Cognitive condition allowing giving answers to the questions,
- Volunteering to take part in the study.

Data Collection Forms

The study data were collected with 3 forms, a "Personal Information Form" for descriptive information on the subjects, the "Geriatric Depression Scale (GDS)" for assessing the severity of depression and the "Modified GLAU-QOL 17 Glaucoma-Specific Quality of Life Questionnaire for rating quality of life of patients.

Personal Information Form: The personal

information form was prepared by the investigator based on the literature and it includes 14 questions about the socio-demographic characteristics of patients such as age, gender, occupation, marital status, education, income and social security, and their health-related characteristics.

Geriatric Depression Scale (GDS): The Geriatric Depression Scale (GDS) was developed by Yesavage (1983). The validity and reliability study of the scale in our country was performed by Ertan et al. in 1997. It measures depression in the elderly population. The Geriatric Depression Scale consists of 30 self-reporting questions that can be easily marked by older people as "yes" or "no". Questions 3, 4, 5, 6, 8, 10, 11, 12, 13, 14, 16, 17, 18, 20, 22, 23, 24, 25, 26 and 28 in the scale have reverse expressions. The scale is scored by giving 1 point for each answer in favor of depression and 0 points otherwise and the total score found in the end is considered as the depression score. Minimum 0 and maximum 30 points in total are obtainable from the scale. Scores between 0 and 10 are rated as "no depression", between 11 and 13 as "possible depression" and 14 and over as "definite depression" [25]. The alpha reliability coefficient of the scale was found to be 0.90 in the study of Ertan et al. [25], whereas it turned out to be 0.79 in the present study.

Modified GLAU-QOL 17 Glaucoma-Specific Quality of Life Questionnaire: The long form of Modified GLAU-QOL 17 Glaucoma-Specific Quality of Life Questionnaire was developed by Rouland et al. in 2002 [26]. The 17-item short version of the questionnaire was prepared by Zanlonghi et al. in 2003 [27]. The questionnaire measures quality of life in glaucoma patients. The validity and reliability study of the questionnaire in our country was performed by Çelik et al. in 2008. The Modified GLAU-QOL 17 Glaucoma-Specific Quality of Life Questionnaire consists of 17 questions on 7 subjects, daily living, driving, worry, self-assessment, psychology, feeling oppressed, and taking responsibility. During the study of its adaptation to Turkish, a question on drug side effects and another on the patient's own assessment of his/her eye health (to be answered by anybody as an option to the last question) were added to the self-assessment section and a question on each of night and day conditions distance acuity to the driving section considering patients who do not drive, raising the total number of questions to 21. Modified in this way, the questionnaire was then called Modified GLAU-QOL 17 questionnaire. In the driving subscale, Questions 5, 6, 7 and 8 are those relating to the driving habits of the individual. When answering these questions, 2 of these 4 questions are marked by the person depending on whether he/she drives or not. In the self-assessment subscale, the person is asked to choose one of the 14th and 15th questions to mark. Therefore, the number of questions the person actually answers is 18. The total

minimum score obtainable from the questionnaire is 0 and maximum 72 [24]. Higher mean scores obtained from the questionnaire are interpreted as higher quality of life. In the study of Bechetoilleve et al. [28], the alpha reliability coefficient of the questionnaire was reported to be 0.70. The alpha reliability coefficient of the Modified GLAU-QOL 17 Glaucoma-Specific Quality of Life Questionnaire turned out to be 0.88 in the present study.

Data collection

The data were collected by the investigator in an outpatient clinic setting by way of face-to-face interviews with the patients who presented to the Ophthalmology Outpatient Clinic of Mersin University Hospital.

Data analysis

Professional service was received from AEK Research Ltd. Mersin Technopark for the statistical analyses of data. Since the scales were of Likert-type and their validity studies were completed, and their total scores showed continuity, parametric tests were used for comparing the means. For socio-demographic variables that are categorical, number (n) and percentage (%) values are given as descriptive statistics, and mean±standard deviation values as descriptive statistics for continuous socio-demographic variables. Statistical significance level was taken as p=0.05 for all comparisons. To determine the relationship between two continuous variables; Pearson Correlation test, Student's t test statistic was used to compare the averages of the two groups (gender and income). ANOVA test statistics were

used to compare the averages of more than two groups (marital status and education). In case of difference with ANOVA, as Post Hoc test; Tukey statistics were used when group variances were homogeneous and Games-Howell statistics were used when group variances were heterogeneous.

Ethical considerations

Before starting the study, an approval was obtained from the Clinic Trials Ethics Committee of Mersin University (numbered 2016/334 and dated 20.10.2016) and permission from the institution. The verbal consents of the participants were also obtained.

RESULTS

The age interval of the patients participating in the study was 60-87 and their mean age 67.9±7.27. Half of the patients with glaucoma were female, 71.5% married, 44.6% graduates of primary school, 60% retired, 73.1% had income equal to their expenses, 77.7% lived with their families and 91.5% had health insurance.

It was found that the patients had been receiving glaucoma treatment for 6-480 months and the mean treatment time was 57.17±65.54 months. It was found that 73.1% of the patients did not have an operation; 63.8% of them were administered drops, 1.5% tablets and 34.6% both drops and tablets. Of the patients, 59.2% applied drops on their own without any help and 82% took tablets on their own without any help (Table 1).

Table 1. Characteristics of patients with glaucoma with respect to their treatment statuses

Characteristics	Min. & Max. Values	$\bar{X}\pm SD$
Duration of glaucoma treatment (months)	6-480	57.17±65.54
	n	%
Having had an operation		
Yes	35	26.9
No	95	73.1
Type of Treatment Administered		
Eye drops	83	63.8
Tablets	2	1.5
Drops and tablets	45	34.6
Person Administering Drops to Patient		
Someone else	23	17.7
Him/herself with the help of someone else	30	23.1
Him/herself	77	59.2
Person Administering Tablets to Patient		
Someone else	5	10
Him/herself with the help of someone else	4	8
Him/herself	41	82

The mean GDS score of the patients with glaucoma was 15.23±5.52. The mean subscale scores obtained by the individuals with glaucoma from the Modified GLAU-QOL 17 Glaucoma-Specific Quality of Life Questionnaire were 3.58±3.25 for daily living, 3.23±2.53 for driving, 5.26±3.47 for worry, 6.4±3.07 for self-assessment, 4.08±2.74 for psychology, 4.39±2.35 for feeling

oppressed and 3.56±1.86 for taking responsibility. The mean total score of the Modified GLAU-QOL 17 Glaucoma-Specific Quality of Life Questionnaire was 34.44±15.29 (Table 2).

It was found that 21.5% of the patients had no depression (0-10 points), 16.2% possible depression (11-13 points) and 62.3% definite depression (14 points and over).

Table 2. The Mean Geriatric Depression Scale and the Modified GLAU-QOL 17 Glaucoma-Specific Quality of Life Questionnaire scores of patients with glaucoma

Geriatric Depression Scale	Min. & Max. values Obtainable	$\bar{X}\pm SD$	Min. & Max. Values Obtained
Total Scale Score	0-30	15.23±5.52	3-26
Modified GLAU-QOL 17 Glaucoma-Specific Quality of Life Questionnaire			
Daily Living	0-16	3.58±3.25	0-12
Driving	0-8	3.23±2.53	0-8
Worry	0-12	5.26±3.47	0-12
Self-Assessment	0-12	6.4±3.07	0-12
Psychology	0-8	4.08±2.74	0-8
Feeling Oppressed	0-8	4.39±2.35	0-8
Taking Responsibility	0-8	3.56±1.86	0-8
Total Scale Score	0-72	34.44±15.29	1-61

A positive, negligible (0.18) and statistically significant correlation was found between the age of the patients with glaucoma and their geriatric depression score ($p<0.05$). There was a negative, weak (-0.22) and statistically significant correlation between the age of the patients and their total quality of life score ($p<0.05$). The duration of

disease had no statistically significant correlation with the geriatric depression score or the mean total quality of life score ($p>0.05$). A negative, moderate (-0.61) significant correlation was found between the total quality of life score and the geriatric depression score ($p<0.001$) (Table 3).

Table 3. Correlations between age, duration of disease, depression and quality of life in individuals with glaucoma

		Geriatric Depression	Quality of Life Total Score
Age	r	0.18	-0.22
	p	0.04*	0.01*
Duration of Disease	r	0.12	-0.11
	p	0.17	0.23
Quality of Life Total Score	r	-0.61	1
	p	<0.001**	

* $p<0.05$, ** $p<0.001$

The mean scores obtained by the individuals with glaucoma from the self-assessment subscale of the Glaucoma-Specific Quality of Life Questionnaire with respect to their marital statuses turned out the lowest in those who were widowed (4.96±2.70). The difference between the groups was found to be significant ($p<0.05$). A Tukey Test was performed to determine from which group the difference originated and the difference between

“married” and “widowed” was found to be significant ($p<0.05$). An evaluation of the patients with glaucoma with respect to their gender showed that female patients had lower mean scores in the driving, worry, self-assessment, feeling oppressed subscales and a lower mean total scale score in the Glaucoma-Specific Quality of Life Questionnaire. The difference between the groups was found to be statistically significant ($p<0.05$, $p<0.01$). When the

patients with glaucoma were compared with respect to their education, the mean daily living, driving, worry, self-assessment, psychology, feeling oppressed subscale scores and the mean total scale score were found to be lowest in the “unable to read or write” and “literate” groups. The difference between the groups was statistically significant ($p < 0.05$, $p < 0.01$, $p < 0.001$). A Games-Howell and a Tukey Test were performed to determine from which

group the difference originated and the difference between the “unable to read or write”, “literate” groups and the “primary school” group was found significant ($p < 0.05$, $p < 0.01$). An evaluation of the patients with glaucoma with respect to their income showed that there was no statistically significant difference between their mean Glaucoma-Specific Quality of Life Questionnaire scores ($p > 0.05$) (Table 4).

Table 4. Comparison of the Modified GLAU-QOL 17 Glaucoma-Specific Quality of Life Questionnaire mean subscale scores with respect to age, marital status, gender, education and income of patients with glaucoma

Characteristics	n	Daily Living	Driving	Worry	Self-Assessment	Psychology	Feeling pressed	Responsibility Taking	Total Score
		$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	
Marital status									
Married	93	3.76±3.42 ^a	3.43±2.64	5.63±3.46	6.68±3.11 ^a	4.11±2.74	4.53±2.32	3.42±1.96	31.53±14.35
Single	14	4.07±2.89	3.21±2.11	5.07±3.91	6.93±2.84	4.29±2.73	4.07±2.37	3.93±1.54	31.57±12.75
Widowed	23	2.52±2.54	2.43±2.21	3.87±2.99	4.96±2.70	3.83±2.87	4.04±2.53	3.91±1.56	25.57±12.70
P		0.22	0.24	0.09	0.04*	0.87	0.59	0.39	0.18
Gender									
Female	65	3.18±2.84	2.65±2.26	4.57±3.11	5.6±3.11	3.65±2.55	3.8±2.44	3.55±1.84	27±12.39
Male	65	3.97±3.59	3.83±2.67	5.95±3.70	7.2±2.83	4.51±2.88	4.98±2.12	3.57±1.90	34.03±14.73
P		0.17	0.008**	0.02*	0.003**	0.07	0.004*	0.96	0.004**
Education									
Unable to read or write	31	2.58±2.47	2.10±1.92 ^b	3.61±2.64	4.90±2.82 ^b	3.48±2.35	3.81±2.43	3.5±1.67	24.03±10.77 ^b
Literate	16	1.81±1.94 ^b	1.63±1.82 ^b	3.94±3.40 ^b	5.63±2.03	2.56±2.53 ^b	2.63±1.86 ^b	3.56±1.67	21.75±11.97 ^b
Primary School	58	4.22±3.15	4.07±2.52	6.05±3.50	7.16±3.26	4.66±2.69	5.02±2.12	3.66±2.01	34.88±13.28
High School	11	4.36±4.39	3.36±2.62	6.18±4	6.82±3.25	4.18±2.99	4.82±2.48	3.36±1.29	33.09±17.07
University	14	4.5±4.29	4.07±2.81	6.43±3.30	7.14±2.48	4.64±3.23	4.79±2.49	3.36±2.34	34.93±14.37
P		0.02*	<0.001***	0.004*	0.01*	0.05*	0.002**	0.98	<0.001***
Income									
Income less than expenses	35	3.51±2.93	3.14±2.33	4.94±3.40	6.14±2.79	3.51±2.43	4.91±1.98	4.06±2.06	30.23±11.58
Income equal to expenses	95	3.6±3.37	3.26±2.61	5.38±3.51	6.49±3.18	4.28±2.83	4.2±2.46	3.38±1.76	30.55±14.86
p		0.89	0.82	0.53	0.56	0.16	0.13	0.07	0.91

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, ^a statistically significant as opposed to the “widowed group”, ^b statistically significant as opposed to the “primary school”

The mean GDS score of the patients with glaucoma with respect to their marital status was found highest (17.81±3.88) in the widowed group. The difference between the groups was found to be statistically significant ($p < 0.05$). A Tukey Test was performed to determine from which group the difference originated and the difference between “married” and “widowed” was found to be significant ($p < 0.05$). The mean geriatric depression scale scores of the patients with glaucoma with respect to their gender were higher in females than males. The difference between the groups was found to be statistically significant ($p < 0.05$, $p < 0.01$). The mean geriatric depression scale scores of the patients

with glaucoma with respect to their education were found highest in the “unable to read or write” (17.81±3.88) and “literate” (18.94±5.23) groups. The difference between the groups was found to be statistically significant ($p < 0.05$). A Tukey Test was performed to determine from which group the difference originated and the difference between the “unable to read or write”, “literate” groups and the “primary school”, “university” groups was found to be significant ($p < 0.001$). No significant difference was found between the mean geriatric depression scale scores of the patients with glaucoma with respect to their income ($p > 0.05$) (Table 5).

Table 5. Comparison of the Geriatric Depression Scale scores of patients with glaucoma with respect to their age, marital status, gender, education and income

Characteristics	n	Geriatric Depression Scale $\bar{X}\pm SD$
Marital status		
Married	93	14.40±5.94 ^a
Single	14	17.36±3.89
Widowed	23	17.30±3.98
p		0.03*
Gender		
Female	65	16.83±4.73
Male	65	13.63±5.93
p		0.001**
Education		
Unable to read or write	31	17.81±3.88 ^{b,c}
Literate	16	18.94±5.23 ^{b,c}
Primary school	58	14.19±5.45
High school	11	13.73±5.57
University	14	10.79±5.25
p		<0.001***
Income		
Income less than expenses	35	15.91±5.35
Income equal to expenses	95	14.98±5.67
p		0.4

p<0.05, **p<0.01, ***p<0.001; ^a Its difference from “widowed” group is statistically significant, ^b Its difference from “primary school” and “university” groups is statistically significant

DISCUSSION

The mean GDS score of the individuals with glaucoma was 15.23±5.52. Considering the lowest and highest scores obtainable from the scale, it can be said that the mean GDS score of the patients was close to the median. There was possible depression in 16.2% of the patients and definite depression in 62.3% of them. In a study, the mean GDS score of the patients older than 65 was 10.27±5.48 and 45.5% of them had moderate depressive complaints while 7.9% had depressive complaints [22]. In a study, the mean GDS score was found to be 10.26±5.48 in individuals older than 65 years, 45.5% of them having moderate depression and 7.9% having depressive complaints [29]. Demir et al. [30] found in their study that the mean GDS score of the elderly staying in a nursing home was 11.27±6.79 and that of the elderly living at home 14.11±8.00. Definite depression was found in 35.7% of those staying in a nursing home and 55% of those living at home. In Turkey, the mean depression scores and depression levels have been found lower in the studies made with individuals over 60-65 years of age using the same measurement tool. We think that the difference in the results originated from sample groups and regional differences. It can be said that elderly patients with glaucoma are at a major risk for depression.

A statistically significant positive correlation was found between the ages and GDS scores of individuals with glaucoma. A statistically significant negative correlation was found between the ages and the total quality of life scores of the patients. It can be said that as the ages of elderly patients with glaucoma advance, their depression levels go up and quality of life decline. A statistically significant negative correlation was found between the total quality of life scores and the geriatric depression scores. It can be said that as the depression levels of patients with glaucoma increase, their quality of life declines. It can be said that as the ages of patients with glaucoma who are elder, their quality of life will decline, hence their depressive symptoms will increase. In the study of Çetinkaya et al. [23], it was found that as the depression levels of the individuals with glaucoma went up, their quality of life declined. With advancing age, the prevalence of glaucoma increases. Unlike this study, Zhou et al. [31] did not find in their study any significant correlation between age and depression in individuals with glaucoma. We think that the difference in the results may have originated from socio-cultural and regional differences.

The mean geriatric depression scale score of the individuals with glaucoma with respect to their marital status was found significantly the highest in those who were widowed. It can be said that elderly patients with glaucoma those who were widowed,

experience more depressive symptoms. We think that this may be because those who are widowed in our country are affected more from the prejudiced views of people towards this segment, they have more family responsibilities and they suffer more economic distress. Similar to the results of this study, in a study it was found that the depression level of individuals with glaucoma was the lowest in those who were married and highest in those who were widowed [13]. In a study on patients with glaucoma, the risk of depression was found 2.94 times more in those who were not married than in those who were married [32].

The mean GDS scores of the individuals with glaucoma were found significantly higher in female than in men. It can be said that women with glaucoma who are elderly have more depressive symptoms. Women with glaucoma were found to have 7.5 times more anxiety risk than men [32]. We think that higher depression rate found in women may have originated more from the presence of social factors such as not being able to benefit from the educational and social facilities than from biological variables.

The mean GDS scores of the people with glaucoma with respect to education were found significantly the highest in the “unable to read or write” and “literate” groups. We think that low level of education in individuals with glaucoma who are elderly may cause an increase in their depressive symptoms. Higher levels of education may enable having an income-generating job, and improve economic earnings and quality of life. This in turn may reduce depressive symptoms.

The mean subscale scores obtained by the individuals with glaucoma from the Modified Glau-QOL-17 Glaucoma-Specific Quality of Life Questionnaire were 3.58 ± 3.25 for daily living, 3.23 ± 2.53 for driving, 5.26 ± 3.47 for worry, 6.4 ± 3.07 for self-assessment, 4.08 ± 2.74 for psychology, 4.39 ± 2.35 for feeling oppressed and 3.56 ± 1.86 for taking responsibility. The mean total score of the Modified Glau-QOL-17 Glaucoma-Specific Quality of Life Questionnaire was 61 ± 30.46 . Considering the minimum and maximum scores obtainable from the questionnaire, it can be said that the mean total and subscale scores obtained by the patients from Glaucoma-Specific Quality of Life were close to the median with the exception of “daily living”. The number of studies using the Modified Glau-QOL-17 Glaucoma-Specific Quality of Life Questionnaire is very limited in Turkey. In the study of Çelik (2008) where they assessed health-related quality of life in patients with glaucoma using the same measurement tool, the total score of the Modified Glau-QOL-17 Glaucoma-Specific Quality of Life Questionnaire was found to be 77.6 ± 12.4 [24]. The mean quality of life score is reported to be higher in the literature. We think that the differences in results are due to the ages of the subjects and regional differences. It can

be said that quality of life is affected more negatively in individuals with glaucoma who are at advanced ages compared to younger age groups.

The mean scores obtained by the individuals with glaucoma from the self-assessment subscale of the Glaucoma-Specific Quality of Life Questionnaire with respect to their marital status turned out significantly low in those who were widowed. It can be said that quality of life is poorer in those with glaucoma who are widowed. At advanced ages, death of the spouse may result in the loss of spouse support and a decline in quality of life. It can be said that marriage provides an emotional protection for the individual and increases their social support, resulting in a positive effect on their quality of life [24].

Among individuals with glaucoma, female patients had significantly lower mean scores than males in the driving, worry, self-assessment, and feeling oppressed subscales of the Glaucoma-Specific Quality of Life Questionnaire and in the mean total scale score. It can be said that quality of life is poorer in women with glaucoma who are elderly. We think that due to their social gender roles in Turkey, men give less support to their wives and women who are deprived of husband support have poorer quality of life.

The mean daily living, driving, worry, self-assessment, psychology, feeling oppressed subscale scores and the mean total scale score obtained by the patients with glaucoma from the Glaucoma-Specific Quality of Life Questionnaire were found to be significantly lowest in the “unable to read or write” and “literate” groups. It can be said that a low education level in elderly patients with glaucoma is a factor lowering their quality of life. With advancing age, there may be troubles in the skills of an individual to have access to information on subjects they need and to receive the education given to them, which affects their quality of life negatively. Similar to this study, the quality of life scores of the patients who had a high level of education were found significantly high in the study of Onakoya et al. (2012) where they worked with patients having primary open-angle glaucoma [18].

CONCLUSIONS

According to the study that elderly patients with glaucoma are at a major risk for depression and their quality of life is negatively affected. The ages of elderly patients with glaucoma advance, their depression levels go up and quality of life decline. Elderly patients with glaucoma, who are widowed, are female and have lower education level experience more depressive symptoms, and their quality of life decline. In view of the results obtained from this study, we can recommend the following:

- When giving care to elderly patients with glaucoma, nurses working in eye clinics

should take into consideration that the patients who are at an advanced age, are widowed, have lower education level and are female are under a greater risk in terms of their quality of life and depressive symptoms.

- Nurses should regularly assess the mental conditions and quality of life of individuals with glaucoma with relevant measurement tools employing a holistic and humanistic approach.
- Nurses should provide information to patients with glaucoma and their families about the care and treatment of the patient at home.
- They should conduct qualitative studies to determine the psychosocial problems experienced by individuals with glaucoma.

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Conflicts of Interest

The authors declare that they have no conflicts of interest.

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