Factors affecting quality of life and hopelessness levels of patients with intravitreal injection

Esra Karabulut[1], Havva Gezgin Yazici[2], Saadet Gultekin Irgat[3]
[1]Lect., [2]Assoc. Prof.,Kutahya Health Sciences University, Faculty of Health Sciences, Department of Psychiatric Nursing, Kutahya, Turkey
https://orcid.org/0000-0002-3425-1129-https://orcid.org/0000-0001-8422-9686
[3]Assis. Prof., Kutahya Health Sciences University, Faculty of Medicine, Department of Ophthalmology, Kutahya, Turkey
https://orcid.org/0000-0001-5289-7962

SUMMARY

Objective: This study aimed to analyse the quality of life, level of hopelessness and factors affecting patients receiving intravitreal injections.

Method: This descriptive and cross-sectional study was conducted between 18.08.2022 and 10.10.2022 with 268 patients in Turkiye. Data were collected with the Personal Information Form, Beck Hopelessness Scale (BHS) and SF-36 Quality of Life Scale. T-test, one-way analysis of variance (ANOVA) and post hoc (Tukey, LSD) analyses were used to analyse the differences in scale levels according to the descriptive characteristics of the patients.

Results: 54.1% of the patients were receiving intravitreal injection treatment for diabetic retinopathy, 28.4% for age-related macular degeneration and 17.5% for branch retinal vein occlusion. The total mean BHS score was 11.45±2.71. Physical pain seems to affect the quality of life the most.

Discussion: This is the first study investigating hopelessness and quality of life in intravitreal injection patients. Hopelessness level of the patients was moderate. The lowest quality of life was found in the emotional role subscale. Age, gender, occupation, educational status and reason for intraocular injections affect the quality of life.

Key Words: Hopelessness, intravitreal injection, patient, quality of life.

INTRODUCTION

Intravitreal injection (IVI) is a treatment method for various retinal diseases. It was first used to treat retinal detachment in 1911. IVI is accepted as a treatment option for a variety of retinal diseases around the world. The substances used in the intravitreal injections are corticosteroids and vascular endothelial growth factor inhibitors (anti-VEGF). Many studies have found that these substances are effective in treating macular edema due to age-related macular degeneration (AMD), diabetic retinopathy (DRP), and retinal vein occlusion (RVO) (1-3). Intravitreal injections are continued at 4-12-week intervals, and patients are given repeated doses based on their different indications, diagnosis, state of progression, and drug selection. The number of patients undergoing IVI has been steadily increasing in recent years (1-3).

IVI treatment, which is used in the diseases encountered in the field of eye diseases, is included in the scope of chronic diseases due to its regular and continuous application in many patients. Chronic diseases are defined as those that usually have a progressive course, require regular care, follow-up, and treatment, and can cause disability in the individual (4, 5). Many negative factors can affect an individual's life, such as living with a chronic disease, overcoming disease symptoms, disabilities caused by the disease, and anxiety about the future. The inability of individuals to perform their responsibilities, roles and duties reduces their self-esteem. Decreased self-esteem leads to situations such as fear of being dependent on someone else and hopelessness. All these factors change the quality of life of the individual (6,7).

The purpose of this study was to examine the quality of life, hopelessness level, and the affecting fac-

DOI: 10.5505/kpd.2024.36043

Cite this article as: Karabulut E, Gezgin Yazici H, Gultekin Irgat S. Factors affecting quality of life and hopelessness levels of patients with intravitreal injection Turkish J Clin Psych 2024; 27:285-292

The arrival date of article: 20.06.2024, **Acceptance date publication:** 02.09.2024

Turkish J Clinical Psychiatry 2024;27: 85-292

tors of intravitreal injection patients. When the studies on individuals receiving regular IVI for their disease were analysed, it was observed that the literature on patients' quality of life (8,9), and hopelessness levels (4,10), was limited. The aim of this study was to analyse the factors affecting the quality of life, and hopelessness levels of patients receiving intravitreal injections.

METHOD

The population and sample

This descriptive, cross-sectional, and correlational study was carried out between 18.08.2022 and 10.10.2022. The study's population consists of patients who applied for intravitreal injection at an ophthalmology clinic of a training and research hospital in Turkiye. The total number of patients with intraocular injection treatment file records is 800. Using a sampling formula with a known population, the required sample size was calculated as n = 800 (1.96)2 (0.2) (0.8) / (0.5)2 (800-1) + (1.96)2 (0.2) (0.8)= 160 with a 95% confidence interval and ± 5% sampling error for the nonhomogeneous population. The study was carried out with 268 voluntary patients who met the research criteria (receiving intravitreal injection treatment with a diagnosis of DRP, AMD, and Macular Edema due to RVO).

The research questions are given below;

a) How is the quality of life of intravitreal injection patients?

b) What is the hopelessness level of intravitreal injection patients?

c) What are the factors affecting the quality of life and hopelessness level of intravitreal injection patients?

d) Is there a relationship between quality of life and hopelessness level of intravitreal injection patients?

Data Collection

The data was gathered by the researcher using a face-to-face interview method in the patients' room. The research data was gathered via Personal Information Form (13 questions), BHS (20 questions), and SF-36 Quality of Life Scale (36 questions).

Materials

Personal Information Form: It is an information form consisting of 13 questions prepared by the researcher in accordance with the literature (1-3), and containing information about the individuals' sociodemographic characteristics, the reason for intravitreal injection, the number of times they had the intravitreal injection, and whether they have a family member who has been treated with intravitreal injection.

Beck Hopelessness Scale (BHS): The scale was developed by Beck et al. in 1974. Durak and Palabıyıkoglu conducted its validity and reliability study for Turkish in 1994 (11). According to the BHS scale answer key, which includes 11 "correct" and 9 "wrong" answers, "1" point is given for each suitable answer and "0" point is given for each unsuitable answer. According to the scale, answering no to questions 1,3,5,6,8,10,13,15 and 19 counts as 1 point; answering yes to questions 2,4,7,9,11,12,14,16,17,18, and 20 counts as 1 point. The resulting arithmetic sum forms the "Hopelessness Score". BHS does not have a clear scoring system; the potential range of scores is 0 to 20. A score range of 0-3 indicates a minimal level of hopelessness, a score range of 4-8 indicates a low level of hopelessness, a score range of 9-14 indicates a medium level of hopelessness, and a score of 15 and above indicates a high level of hopelessness. The high total score indicates a high level of hopelessness. Cronbach's alpha reliability coefficient was found as 0.85 (11). Cronbach's alpha reliability coefficient of this study was detected as 0.70.

SF-36 Quality of Life Scale: Ware et al. (1992) developed "The Quality of Life Scale (SF-36) (Short Form)", and Kocyigit et al. (1999) conducted its validity and reliability study for Turkish

(12,13). SF-36 is a self-assessment scale. It is comprised of 8 subscales. These subscales include ten questions about "Physical Functioning", two questions about "Social Functioning", four questions about "Role Physical", three questions about "Emotional Role", five questions about "Mental Health", four questions about "Vitality", two questions about "Bodily Pain", and five questions about "General Health" (14). The Cronbach's alpha coefficient of each subscale was calculated independently, and was found to be between 0.7324-0.7612. The results of this scale are scored out of 100. While 100 points indicate good health, low points indicate deterioration in health (15). The Cronbach's alpha reliability coefficient of this study was found as 0.93.

Ethical Approval

In order to conduct the study, Ethics committee approval (Date: 17.08.2022, decision no: 2022/08-33) from Non-Invasive Clinical Research Ethics Committee of the relevant university, institutional permission from the hospital where the study was conducted, and verbal and written informed consent were obtained from the patients participating in the study. The research was conducted in accordance with the Declaration of Helsinki.

Statistics

The research data were evaluated with SPSS 22.0 statistical programme. The descriptive characteristics of the participants were determined using frequency and percentage analyses, while the scale was analysed using mean and standard deviation statistics. Variables were normally distributed. The kurtosis and skewness values were analysed to determine whether the research variables were normally distributed. Data were analysed using parametric methods. Pearson Correlation analysis was used to measure the relationship between two variables. Correlation coefficients (r) were evaluated as 0.00-0.25 very weak; 0.26-0.49 weak; 0.50-0.69 medium; 0.70-0.89 high; 0.90-1.00 very high. T-test and One-Way Analysis of Variance (ANOVA) were used to examine the differences between descriptive characteristics and scale total score and sub-dimensions. Post-hoc (Tukey, LSD) analyses were used for differences within groups. Effect size was calculated using Cohen (d) and Eta squared ($\eta 2$) coefficients. The effect size indicates that the difference between the groups is not large enough to be considered significant. Cohen value 0.2: small; 0.5: medium; 0.8: large, while eta squared value 0.01: small; 0.06: medium; 0.14: large (16). It is considered significant when $p<0.05$.

RESULTS

The age average of the patients is 64.18±9.75 (39-83) (Min=39; Max=83). 54,9% of the patients are female, 45.1% are male, 81.7% are members of a nuclear family, 41,4% reside in downtown, 48.2% have 2 children, 49.6% are retired, 38.1% are primary school graduates, and 57.5% have less income than their expenses (Table 1).

The patients' mean total hopelessness" is 11.45±2.71, their mean "feelings about the future" is 1.97±0.99, their mean "loss of motivation" is 5.58±1.29, and their mean "future expectations" is 3.29±0.68.

The age range of the patients affects total hopelessness, feelings about the future, loss of motivation and future expectations. The number of intravitreal injections administered to the patients affects the future expectations subscale of the hopelessness scale ($p<0.05$) (Table 2).

The following are the patients' mean scores for the SF-36 Quality of Life scale subscales: "physical functioning" is 75.97±32.95, "role physical" is 53.73±47.21, "bodily pain" is 87.25±10.16, "general health" is 56.06±15.60, "vitality" is 54.42±7.21, "Social functioning" is 83.21±22.49, "emotional role" is 50.75±16.68, and "mental health" is 57.76±6.23 (Table 3).

The age range of the patients has a relationship with general health, vitality and mental health. Gender, educational status and reason for injection affect physical functioning, role physical, general health, social function and emotional role. Occupation has an effect on physical functioning, physical role, general health and emotional role

Table 1. Distribution of Patients According to Descriptive Characteristics.

	Mean–SD
Age	64.180–9.759
	N (%)
Age	
50 And Below	29(10.8)
51-60	53(19.8)
61-70	109(40.7)
Over 70	77(28.7)
Gender	
Female	147(54.9)
Male	121(45.1)
Family Type	
Core	219(81.7)
Wide	49(18.3)
Where lived	
Village/town	75(28.0)
District	82(30.6)
City Centre	111(41.4)
Number of Children	
1	12(4.5)
2	130(48.5)
3 And Above	126 (47.0)
Profession	
Employee (civil servant Labourer Freelance)	29(10.8)
Pensioner	133(49.6)
Unemployed	106(39.6)
Education Status	
Illiterate	38(14.2)
Literate	68(25.4)
Primary School	102(38.1)
Middle School	16(6.0)
High School	24(9.0)
University	20(7.5)
Economic Situation	
Income Less Expenditure	154(57.5)
Equal and Excess	114(42.5)

(Table 4).

A weak negative correlation was discovered between all of the subscales of the SF-36 quality of life scale and all of the subscales of the Hopelessness scale ($p=0.000<0.05$) (Table 5).

DISCUSSION

The hopelessness of intravitreal injection patients was found to be moderate. Intravitreal injection is a procedure performed in patients diagnosed with macular oedema due to AMD, DRP and RVO and is a treatment process lasting 4 to 12 weeks. This may reduce the patients' hope for treatment and recovery (17). It was also stated in the literature that intravitreal injection patients experience hopelessness, lose their hopes for recovery, lose motivation, lose consistency with treatment and are affected mentally due to psychological disorders such as depression (7, 10, 18).

In this study, it was observed that the hopelessness level increased in the hopelessness scale total score and all of its subscales as the age of the patients increased. According to a study conducted by Enoch et al., patients over the age of 50 get hopeless upon the intravitreal injection treatment plan (10). In the study conducted by Deswal et al. with two hundred and fifty intravitreal patients, with an average age of 57, and psychological disorder morbidity was mentioned, as well as the diseases that required intravitreal injections (17).

Patients' future expectations decrease as the number of injections increases. Verrecchia et al. discovered a positive correlation between the number of injections and patients' hopelessness and loss of motivation in their study on repeating intravitreal injections (19). According to another study, an increase in the number of injections and excessive time spent in the hospital causes hopelessness in patients (10).

The scores of general health, vitality, and mental health subscales of the SF-36 quality of life scale decrease as the age increases. Individuals with vision problems or loss tend to withdraw from social activities and reduce their physical activity. While living an involuntary isolated life has an

Table 2. Differentiation of Hopelessness Scores by descriptive characteristics.

Demographic Features	n	Hopelessness Total	Feelings About the Future	Loss of Motivation	Future Expectations
Age		Mean–SD	Mean–SD	Mean–SD	Mean–SD
50 and less	29	10.28–2.83	1.59–0.95	5.21–1.63	3.07–0.65
51-60	53	10.36–2.27	1.60–0.91	5.26–1.15	3.11–0.42
61-70	109	11.54–2.77	2.00–0.91	5.58–1.36	3.35–0.77
Over 70	77	12.52–2.44	2.32–1.06	5.96–1.04	3.44–0.66
F		9.54	7.68	4.25	3.85
p		0.000	0.000	0.006	0.010
PostHoc		3>1, 4>1, 3>2, 4>2, 4>3 (p<0.05)	3>1, 4>1, 3>2, 4>2, 4>3 (p<0.05)	4>1, 4>2, 4>3 (p<0.05)	3>1, 4>1, 3>2, 4>2 (p<0.05)
The Number of Intravitreal Injections					
1-5	83	11.37–2.50	1.94–0.95	5.67–1.31	3.13–0.58
6-10	71	11.48–2.37	2.04–0.90	5.58–1.18	3.25–0.53
11-15	41	10.98–3.04	1.73–1.02	5.41–1.41	3.24–0.58
15 and more	73	11.78–3.05	2.07–1.10	5.59–1.32	3.56–0.88
F		0.80	1.18	0.37	5.74
p		0.493	0.319	0.775	0.001
PostHoc		4>1, 4>2, 4>3, 1>3, 2>1, 2>3 (p>0.05)	4>1, 4>2, 4>3, 2>1, 2>3, 1>3 (p>0.05)	1>2, 1>3, 1>4, 4>2, 4>3, 2>3 (p>0.05)	4>1, 4>2, 4>3 (p<0.05)

F: One-Way Analysis of Variance (ANOVA); PostHoc: LSD, p<0.05

Table 3. The mean scores of the SF-36 Quality of Life Scale.

	n	Mean–SD	Min.-Max.	Kurtosis	Skewness
Physical Functioning	268	75.97–32.95	0.00-100.00	-0.17	-1.03
Role Physical	268	53.73–47.21	0.00-100.00	-1.03	-0.14
Bodily Pain	268	87.25–10.16	0.00-90.00	0.87	0.85
General Health	268	56.06–15.60	10.00-92.00	-0.71	-0.21
Vitality	268	54.42–7.21	0.00-85.00	0.99	-1.16
Social Functioning	268	83.21–22.49	0.00-100.00	1.87	-1.54
Emotional Role	268	50.75–16.68	33.33-66.67	-1.13	-0.09
Mental Health	268	57.76–6.23	28.00-88.00	0.84	0.05

impact on their general health, it can also have an impact on their mental health. Patients receiving intravitreal injections may experience a decline in quality of life as they age (17). According to the findings of the study conducted by Inan et al., general health and mental health scores were significant by age (20). In their study about patients with AMD, Enoch et al. reported that patients experienced hopelessness and depression and their quality of life declined (10). According to a qualitative study regarding the life experiences of patients who were diagnosed with macular degeneration, there was a decline in their quality of life due to their diseases (4).

This study discovered that women with AMD, DRP, or macular edema due to RVO were affected much more than men in terms of physical functio-

Table 4. Differentiation of Quality of Life Scale Scores based on descriptive characteristics.

Demographic Features	n	Physical Functioning	Role Physical	Bodily Pain	General Health	Vitality	Social Functioning	Emotional Role	Mental Health
Age		Mean–SD	Mean–SD	Mean–SD	Mean–SD	Mean–SD	Mean–SD	Mean–SD	Mean–SD
50 and Less	29	87.93–27.14	68.10–44.27	87.93–.72	64.48–15.33	57.93–9.21	87.93–22.78	56.32–15.69	60.97–8.53
51-60	53	78.02–33.43	59.43–.79	87.30–8.57	57.09–14.73	55.28–6.46	85.38–21.75	49.69–16.82	58.04–5.24
61-70	109	72.75–36.13	53.21–47.15	86.31–13.42	54.77–14.73	53.76–7.88	79.93–25.69	50.46–16.74	57.28–6.44
Over 70	77	74.61–29.15	45.13–48.33	88.27–6.44	54.00–16.66	53.44–5.27	84.58–17.19	49.78–16.77	57.04–5.21
F		1.75	2.03	0.61	3.70	3.41	1.46	1.25	3.23
p		0.158	0.110	0.608	0.012	0.018	0.225	0.292	0.023
PostHoc		1>2, 1>3, 1>4 (p>0.005)	1>2, 1>3, 1>4 (p>0.05)	4>1, 4>2, 4>3 (p>0.05)	1>2, 1>3, 1>4 (p<0.05)	1>3, 1>4 (p<0.05)	1>2, 1>3, 1>4 (p>0.05)	1>2, 1>3, 1>4 (p>0.05)	1>2, 1>3, 1>4 (p<0.05)
Gender									
Female	147	68.16–36.23	44.389–44.43	86.41–12.16	52.29–15.46	53.91–7.39	78.66–24.92	46.48–16.35	57.12–5.71
Male	121	85.45–25.58	65.08–44.54	88.26–6.90	60.64–14.57	55.04–6.97	88.74–17.71	55.92–15.64	58.55–6.75
t		-4.42	-3.65	-1.49	-4.51	-1.28	-3.74	-4.79	-1.88
p		0.000	0.000	0.118	0.000	0.202	0.000	0.000	0.061
Occupation									
Employee (Officer, Worker, Freelance)	29	82.59–33.24	73.28–40.60	84.10–19.70	64.76–18.45	54,48–15,72	87,07–26,83	57.47–15.16	59.45–11.65
Retired	133	79.51–29.88	56.58–47.26	87.69–8.13	56.96–14.37	54.36–5.16	84.21–19.94	52.13–16.59	58.10–5.47
Unemployed	106	69.72–35.73	44.81–47.15	87.55–8.52	52.55–15.30	54.48–5.73	80.90–24.16	47.17–16.50	56.87–4.81
F		3.32	4.75	1.57	7.79	0.01	1.12	5.42	2.38
p		0.038	0.009	0.210	0.001	0.991	0.328	0.005	0.095
PostHoc		2>3 (p<0.05)	1>3 (p<0.05)	2>3 (p>0.05)	1>2, 1>3, 2>3 (p<0.05)	1>2, 3>2 (p>0.05)	1>3 (p>0.05)	1>3, 2>3 (p<0.05)	1>3 (p>0.05)
Educational Status									
Illiterate	38	63.16–36.18	32.89–45.43	87.13–9.19	46.71–14.99	53.16–5.12	71.71–26.10	46.49–16.51	57.16–4.64
Literate	68	77.21–31.66	54.04–49.17	88.68–8.46	52.88–14.26	54.26–5.48	84.93–19.14	50.98–16.76	57.47–4.78
Primary School	102	72.79–34.95	51.47–46.38	85.43–12.80	56.98–15.91	54.02–8.36	82.35–23.56	49.35–16.74	57.18–7.44
Secondary School	16	80.94–24.78	60.94–46.52	90.00–0.00	55.87–11.71	54.69–9.74	93.75–10.21	50.00–17.21	58.25–6.53
Highschool	24	95.00–14.14	72.92–41.65	89.25–2.03	64.33–12.42	56.87–7.19	87.50–22.12	54.17–16.48	60.33–7.17
University	20	85.50–31.53	75.00–40.55	87.25–10.97	70.15–10.71	56.25–7.05	90.00–20.52	61.67–12.21	59.40–4.36
F		3.52	3.35	1.35	9.20	1.12	3.49	2.64	1.40
p		0.004	0.006	0.242	0.000	0.349	0.004	0.024	0.223
PostHoc		2>1, 5>1, 6>1, 5>2, 5>3 (p<0.05)	2>1, 3>1, 4>1, 5>1, 6>1, 5>3, 6>3 (p<0.05)	2>1, 4>1, 5>1, 6>1 (p>0.05)	2>1, 3>1, 4>1, 5>1, 6>1, 5>2, 6>2, 5>3, 6>3, 6>4 (p<0.05)	2>1, 3>1, 4>1, 5>1, 6>1 (p>0.05)	2>1, 3>1, 4>1, 5>1, 6>1 (p<0.05)	6>1, 6>2, 6>3, 6>4 (p<0.05)	2>1, 3>1, 4>1, 5>1, 6>1 (p>0.05)
Reason for Injection									
Diabetic Retinopathy	145	71.14–34.76	44.83–48.31	86.34–11.95	53.48–15.62	53.97–6.97	79.91–23.21	47.13–16.47	57.46–5.75
Age-Related Macular Degeneration	76	80.66–29.67	60.85–45.89	88.41–6.41	57.84–15.53	54.54–6.17	86.18–21.07	52.63–16.57	58.05–6.28
Macular Edema due to Branch Retinal Vein Occlusion	47	83.30–30.35	69.68–40.02	88.15–8.90	61.13–14.26	55.64–9.24	88.56–21.15	58.86–14.27	58.21–7.54
F		3.56	6.37	1.26	5.10	0.97	3.62	10.11	0.37
p		0.030	0.002	0.286	0.007	0.381	0.028	0.000	0.690
PostHoc		2>1, 3>1 (p<0.05)	2>1, 3>1 (p<0.05)	2>1, 3>1 (p>0.05)	2>1, 3>1 (p<0.05)	2>1, 3>1 (p>0.05)	2>1, 3>1 (p<0.05)	2>1, 3>1, 3>2 (p<0.05)	2>1, 3>1 (p>0.05)

F: One-Way Analysis of Variance (ANOVA); t:Independent Samples T-Test; PostHoc:Tukey, LSD

Table 5. Correlation analysis of patients Quality of Life and Hopelessness Scale Scores.

		Hopelessness Total	Feelings About the Future	Loss of Motivation	Future Expectations
Physical Functioning	r	-0.085	-0.047	-0.062	-0.063
	p	0.168	0.448	0.310	0.305
Role Physical	r	-0.170**	-0.135*	-0.101	-0.131*
	p	0.005	0.027	0.101	0.032
Bodily Pain	r	-0.031	-0.038	-0.018	-0.007
	p	0.611	0.537	0.774	0.904
General Health	r	-0.209**	-0.165**	-0.160**	-0.135*
	p	0.001	0.007	0.009	0.027
Vitality	r	-0.268**	-0.321**	-0.130*	-0.239**
	p	0.000	0.000	0.033	0.000
Social Functioning	r	-0.062	-0.027	-0.045	-0.017
	p	0.314	0.664	0.460	0.783
Emotional Role	r	-0.152*	-0.036	-0.145*	-0.140*
	p	0.013	0.554	0.018	0.021
Mental Health	r	-0.279**	-0.216**	-0.259**	-0.265**
	p	0.000	0.000	0.000	0.000

*<0,05; **<0,01; Pearson Correlation Analysis

ning, general health, social functioning, and emotional role. According to a study analyzing the relationship between the quality of life of patients with macular degeneration and sociodemographic data, women were much more affected by their eye disease (21). Another study that examined the quality of life of the patients with macular degeneration mentioned that women with eye diseases were more affected mentally than men (22).

It was discovered that the majority of the patients who participated in the study were not actively working or were retired. The physical functioning, physical role, and general health subscale scores on the SF-36 quality of life scale were lower in these patients. This situation could be attributed to the patients' advanced age, poor economic conditions as a result of not working, vision problems and an elderly sedentary lifestyle. According to the study by Deswal et al., the lack of physical activity and social isolation due to visual impairment, as well as poor economic status, have a negative impact on the quality of life of retired patients in old age (17). Another study discovered striking results that the patients, the majority of whom were retired or unemployed, received low scores on all subscales of the quality of life The role physical, physical activity, and general health subscales had the lowest scores (20).

As the educational status of the patients who participated in the study increases, so do their scores on the subscales of physical functioning, general health, social functioning, and emotional role subscales of the SF-36 quality of life scale. An individual with a higher level of education is expected to have higher social roles and functioning. The higher level of income and social interactions, as a result of educational status makes it possible to have a high quality of life in patients with higher education. In their study, Bian et al. reported that quality of life also increased in patients with higher education level (23). In some studies, however, it is stated that educational status does not have an impact on the quality of life (17, 24).

In this study, there were significant differences in the SF-36 quality of life subscale scores of patients who were diagnosed with AMD, DRP, and macular edema due to RVO depending on the reason for injection. Macular edema due to RVO, AMD, and DRP affect the quality of life of the patients, respectively. There are studies in the literature that macular edema due to RVO (25-27), AMD (28, 29), and DRP (17, 24), all have a negative impact on patients' quality of life. Macular oedema due to RVO has a much greater impact on patients' quality of life compared to other diagnoses. This greater impact is thought to be due to the sudden onset of the disease. Patients diagnosed with diabetes are aware that their eyes may be affected during the course of the disease. Older people can anticipate that their vision will deteriorate. However, because people with macular oedema due to RVO experience this unexpectedly, their quality of life may be more affected.

There was a weak negative correlation between all of the subscales of SF-36 quality of life scale and all of subscales of the hopelessness scale of the patients participating in the study. A negative correlation was found between the patients' quality of life and their psychological disorders, in a study examining vision-related quality of life in patients diagnosed with retinal disease who underwent intravitreal injection (9). Deswal et al. also found

that patients with high quality of life experience less hopelessness and motivation loss (17). The results of Rezapour et al.'s study on the prevalence of depression and anxiety in AMD patients show parallelism (30).

The limitations of this study are that it was conducted in a single centre. It is recommended that studies with a larger sample size and in more than one centre should be conducted in order to understand the effect of intravitreal injection on patients more clearly.

In conclusion, this is the first study to investigate hopelessness and quality of life in intravitreal injection patients. Hopelessness levels of the patients were moderate. Age of the patients affected all subscales of the hopelessness scale. High number of intravitreal injections decreases the future expectations subscale of the hopelessness scale. The lowest quality of life was found in the emotional role subscale. Age, gender, occupation, educational status and the reason for intravitreal injection are effective on quality of life. In order to prevent the mental state of the patients from being negatively affected by the disease process, it is recommended that they should be directed to a professional where they can receive psychiatric support after diagnosis and that the patient's social support mechanisms should be active.

Correspondence address: Lect., Esra Karabulut, Kutahya Health Sciences University, Faculty of Health Sciences, Department of Psychiatric Nursing, Kutahya, Turkey
esra.karabulut@ksbu.edu.tr

REFERENCES

1. Garweg JG, Stefanickova J, Hoyng C, Schmelter T, Niesen T, Sowade O, Sivaprasad S; AQUA Investigators. Vision-Related Quality of Life in Patients with Diabetic Macular Edema Treated with Intravitreal Aflibercept: The AQUA Study. Ophthalmol Retina. 2019 Jul;3(7):567-575. doi: 10.1016/j.oret.2019.03.012. Epub 2019 Mar 21. PMID: 31080168.

2. Gültekin Irgat S, Altunel O, Özcura F. Short-term real-life data of intravitreal bevacizumab ranibizumab and aflibersept treatment in diabetic macular oedema. MN Ophthalmology 2021; 28(4):220-225.

3. Herranz-Heras JC, de-Pablo-Cabrera A, Alonso-Martín B, de-Lucas-Viejo B, de-Castro-Liébana M, Mencía-Gutiérrez E, Ferro-Osuna MJ, Romero C, Sambricio J. Evaluation of Anxiety Levels in Patients Undergoing Intravitreal Injections and Associated Risk Factors Related to the Disease. J Ophthalmol. 2020 Oct 19;2020:4375390. doi: 10.1155/2020/4375390. PMID: 33145102; PMCID: PMC7596427.

4. Taylor DJ, Jones L, Binns AM, Crabb DP. 'You've got dry macular degeneration, end of story': a qualitative study into the experience of living with non-neovascular age-related macular degeneration. Eye (Lond) 2020; 34(3):461-473. doi:10.1038/s41433-019-0445-8

5. Wong YL, Sabanayagam C, Ding Y, Wong CW, Yeo AC, Cheung YB, Cheung G, Chia A, Ohno-Matsui K, Wong TY, Wang JJ, Cheng CY, Hoang QV, Lamoureux E, Saw SM. Prevalence, Risk Factors, and Impact of Myopic Macular Degeneration on Visual Impairment and Functioning Among Adults in Singapore. Invest Ophthalmol Vis Sci. 2018 Sep 4;59(11):4603-4613. doi: 10.1167/iovs.18-24032. PMID: 30242361.24032

6. Gürhan N, Beşer NG, Polat Ü, Koç M. Suicide risk and depression in individuals with chronic illness. Community Ment Health J 2019; 55(5):840-848. doi:10.1007/s10597-019-00388-7

7. Parravano M, Petri D, Maurutto E, Lucenteforte E, Menchini F, Lanzetta P, Varano M, van Nispen RMA, Virgili G. Association Between Visual Impairment and Depression in Patients Attending Eye Clinics: A Meta-analysis. JAMA Ophthalmol. 2021 Jul 1;139(7):753-761. doi: 10.1001/jamaophthalmol.2021.1557. PMID: 34042966; PMCID: PMC8160932.

8. Bian W, Wan J, Smith G, Li S, Tan M, Zhou F. Domains of health-related quality of life in age-related macular degeneration: a qualitative study in the Chinese cultural context. BMJ Open 2018; 8(4):e018756. doi:10.1136/bmjopen-2017-018756

9. Kim H, Ha Y. Factors influencing on vision-related quality of life in patients with retinal diseases receiving intravitreal injections. Journal of Korean Clinical Nursing Research 2021; 27(1):54–65. doi:10.22650/JKCNR.2021.27.1.54

10. Enoch J, Ghulakhszian A, Crabb DP, Dinah C, Taylor DJ. Acceptability of intravitreal injections in geographic atrophy: protocol for a mixed-methods pilot study. BMJ Open 2021; 11(4):e049495. doi:10.1136/bmjopen-2021-049495

11. Durak A, Palabıyıkoğlı R. Validity and reliability study of beck hopelessness scale. Crisis Journal 1994; 2(2):311-319.

12. Ware JE Jr, Sherbourne CD. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. Med Care 1992; 30(6):473-83.

13. Koçyiğit H, Aydemir Ö, Fişek G, Ölmez N, Memiş A. Reliability and validity of the Turkish version of the short form-36. Journal of Medicine and Treatment 1999; 12(2):102-106.

14. Karagülle Ç, Can Çiçek S. The effect of disease perception on the quality of life of individuals with chronic obstructive pulmonary disease. Turkish Journal of Science and Health 2020; 1(2):36-49.

15. Çam R, Salık Asar A. The effect of discharge education given to patients with total hip prosthesis on activities of daily living and quality of life. Dokuz Eylül University Faculty of Nursing Electronic Journal 2019; 12(4):220-233.

16. Büyüköztürk Ş, Çokluk Ö, Köklü N. Statistics for Social Sciences. 16th ed. Ankara: Pegem Akademy; 2018.

17. Deswal J, Narang S, Gupta N, Jinagal J, Sindhu M. To study the impact of diabetic retinopathy on quality of life in Indian diabetic patients. Indian J Ophthalmol 2020; 68(5):848-853. doi:10.4103/ijo.IJO_1553_19

18. Mimouni M, Meshi A, Vainer I, Gershoni A, Koren T, Geffen N, Nemet AY, Segal O. Bevacizumab dosing every 2 weeks for neovascular age-related macular degeneration refractory to monthly dosing. Jpn J Ophthalmol. 2018 Nov;62(6):652-658. doi: 10.1007/s10384-018-0619-0. Epub 2018 Sep 29. PMID: 30269186.

19. Verrecchia S, El Chehab H, Chudzinski R, Chaperon M, Levron A, Agard E, Dot C. Does repeated intravitreal injections impact the quality of life of patients, about 40 patients?. Invest. Ophthalmol Vis. Sci. 2019; 60(9):4471.

20. Inan S, Cetinkaya E, Duman R, Dogan I, Inan UÜ. Quality of life among patients with age-related severe macular degeneration assessed using the NEI-VFQ, HADS-A, HADS-D and SF-36 tests. A cross-sectional study. Sao Paulo Med J 2019; 137(1):25-32. doi:10.1590/1516-3180.2018.0195071218

21. Schippert AC, Jelin E, Moe MC, Heiberg T, Grov EK. The impact of age-related macular degeneration on quality of life and its association with demographic data: results from the nei vfq-25 questionnaire in a norwegian population. Gerontology and Geriatric Medicine 2018; 4. doi:10.1177/2333721418801601

22. Doğan L, Tanrıverdi D, Güngör K. Evaluation of the factors affect vision related quality of life and level of depression in the patients with age-related macular degeneration. Research Square 2024; 72(Suppl2): S293-S297. doi:10.21203/rs.3.rs-1398833/v2

23. Bian W, Wan J, Tan M, Su J, Yuan Y, Wang Z, Li S. Predictors of health-related quality of life in Chinese patients receiving treatment for neovascular age-related macular degeneration: a prospective longitudinal study. BMC Ophthalmol. 2020 Jul 16;20(1):291. doi: 10.1186/s12886-020-01561-3. PMID: 32677913; PMCID: PMC7364534.

24. Ligda G, Ploubidis D, Foteli S, Kontou PI, Nikolaou C, Tentolouris N. Quality of life in subjects with type 2 diabetes mellitus with diabetic retinopathy: A case-control study. Diabetes Metab Syndr 2019; 13(2):947-952. doi:10.1016/j.dsx.2018.12.012

25. Chatzirallis A., Varaklioti A., Sergentanis T. N., Theodossiadis P. & Chatziralli I. Quality of life among patients with retinal vein occlusion: a case-control study. Seminars in Ophthalmology 2021; 36:8:658-664. doi:10.1080/08820538.2021.1896750

26. Okamoto F, Tomioka M, Murakami T, Morikawa S, Sugiura Y, Hiraoka T, Oshika T. Relationship between stereopsis and vision-related quality of life following intravitreal ranibizumab injections for central retinal vein occlusion. Sci Rep. 2021 Oct 14;11(1):20475. doi: 10.1038/s41598-021-00094-z. PMID: 34650099; PMCID: PMC8516903.

27. Prem Senthil M, Khadka J, Gilhotra JS, Simon S, Fenwick EK, Lamoureux E, Pesudovs K. Understanding quality of life impact in people with retinal vein occlusion: a qualitative inquiry. Clin Exp Optom. 2019 Jul;102(4):406-411. doi: 10.1111/cxo.12875. Epub 2019 Jan 29. PMID: 30695815.

28. Lane J, Rohan EMF, Sabeti F, Essex RW, Maddess T, Dawel A, Robbins RA, Barnes N, He X, McKone E. Impacts of impaired face perception on social interactions and quality of life in age-related macular degeneration: A qualitative study and new community resources. PLoS One. 2018 Dec 31;13(12):e0209218. doi: 10.1371/journal.pone.0209218. PMID: 30596660; PMCID: PMC6312296.

29. Sabeti F, Lane J, Rohan EMF, Essex RW, McKone E, Maddess T. Relationships between retinal structure and function and vision-related quality of life measures in advanced age-related macular degeneration. Graefes Arch Clin Exp Ophthalmol 2021; 259(12):3687-3696. doi:10.1007/s00417-021-05296-9

30. Rezapour J, Schuster AK, Nickels S, Korb CA, Elbaz H, Peto T, Michal M, Münzel T, Wild PS, König J, Lackner K, Schulz A, Pfeiffer N, Beutel ME. Prevalence and new onset of depression and anxiety among participants with AMD in a European cohort. Sci Rep. 2020 Mar 16;10(1):4816. doi: 10.1038/s41598-020-61706-8. PMID: 32179798; PMCID: PMC7075932.