

Research Article

Evaluation of the Quality of Life of Anophthalmic Patients

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Abstract

Objectives: The aim of this study was to assess the effects of prosthetic use, age, gender, and marital status on the quality of life of anophthalmic patients.

Methods: A total of 74 anophthalmic patients from the ophthalmology department of Izmir Ataturk Training and Research Hospital between January 2007 and August 2011 who were over 18 years of age were included in the study. The patients were classified as Group 1: those who underwent evisceration/enucleation surgery but did not use an ocular prosthesis, Group 2: those who underwent evisceration/enucleation surgery and then elected to use an ocular prosthesis, and Group 3: those who did not use a prosthesis and developed phytizis bulbi after ocular trauma. The 36-Item Short Form Health Survey (SF-36) and the Hospital Anxiety and Depression Scale (HADS) were administered to all participants.

Results: When the SF-36 subscales of 3 groups were compared, it was found that Group 2 had significantly higher quality of life scores on all subscales. In addition, the Group 2 scores were significantly lower than those of the other 2 groups in both the HADS-A and HADS-D subgroups of the HADS test.

Conclusion: The results indicated that anophthalmia is a condition that significantly reduces the quality of life of the patient. This was found to be particularly evident in elderly individuals. It was observed that prosthetic use increased quality of life and had a positive effect in both genders. Awareness should be raised of the difficulties that anophthalmic patients face in daily life while living with this disease and how these difficulties can be reduced.

Keywords: Anophthalmia, quality of life, ocular prosthesis, SF-36, ophthalmology, Hospital Anxiety and Depression Scale

Loss of sight for any reason can lead to physical, then cosmetics and also serious psychological problems accordingly. Although it is not possible to replace the lost function, the patient's gaining a close-up appearance facilitates his acceptance of the present situation, as well as social and psychological relief.

Anophthalmia causes the face to change with the loss of the vision function of the patient. This can lead to loss of self-esteem, deterioration in social relations, negative effects on business environment and marital status.

There are studies that suggest that prosthesis use improves the facial aesthetics of patients and also has positive effects

on social and psychological life and increases quality of life.^[1,2]

The aim of this study is to assess the effects of prosthesis use, age, gender and marital status on the quality of life of anophthalmic patients.

Methods

We retrospectively analyzed the data of patients who underwent enucleation/evisceration in Izmir Atatürk Training and Research Hospital Ophthalmology Clinic between January 2007 and August 2011 and who did use or did not use prosthesis and patients who developed phytizis bulbi after ocular trauma. Patients between the ages of 18 and

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85, who had the capacity to fill the research scales and who had at least six months of experience over the applied surgery were included in the study. Patients with any disease requiring treatment other than anophthalmia were not included in the study. An informed consent was obtained from the patients for the evisceration/enucleation surgery. The study was carried out according to the tenets of the Declaration of Helsinki.

A total of 74 patients (27 female, 47 male) who agreed to participate in the study were invited to the eye polyclinic. Complete ophthalmologic examination was performed on all patients and age, gender, marital status, prosthesis use status of the patients were recorded. Patients were divided into three groups as; group 1 who had evisceration/enucleation surgery but did not use ocular prosthesis (n=24), group 2 who had evisceration/enucleation surgery and used ocular prosthesis (n=25) and group 3 who did not use prosthesis developed after ocular trauma (n=25). All patients were classified as over 45 years old and below, while their quality of life tests were evaluated.

All patients participating in the study were administered short form 36 (Short-Form 36-Item) used in the analysis of quality of life of patients with loss of physical function and Hospital Anxiety and Depression Scale (HADS) measuring the anxiety and depression rate of patients with physical illness. Statistical analysis of the obtained data was performed with SPSS 15.0. Chi-Square and Fisher's Exact test were used for comparison of the classified variables, Kruskal Wallis for the comparison of the continuous variables between the three groups, and Mann Whitney U statistical analysis for the binary comparison of the groups. Pearson and Spearman correlation analysis was used in correlation of variables, $p < 0.005$ was considered as statistically significant.

Assessment of Quality of Life

Short form 36 (SF-36)

A short, yet comprehensive, general health questionnaire that is appropriate for use in clinical practice and research.^[3] The scale consists of 36 items, consisting of physical and mental components. This test is a multidimensional scale evaluating three main topics (functional status, well-being, general health understanding) and 8 health concepts (physical function, social function, physical role function, emotional role function, mental health, fitness fatigue, pain).^[4]

Hospital Anxiety and Depression Scale

This scale is a self-report scale designed to measure risk, change in level and intensity of anxiety and depression.

^[5] There are subscales of anxiety (HAD-A) and depression (HAD-D). It contains 14 items in total, seven (single numbers) measuring anxiety and seven (double numbers) measuring depression which provides quadruple Likert type measurement.

When both quality of life tests are used together, if HADS scores are low while SF 36 scores high, it indicates that the tests are compatible with each other.

Results

When we analyzed the demographics of the participants, we observed that 27 (36.5%) of the 74 patients were female, 47 (63.5%) were male and 34 (45.9%) were married, 40 (54.1%) were single. When participants were analyzed based on their groups it was seen that in Group 1 the mean age of female patients was 75.87 ± 2 years (n=15) and mean age of male patients was 80 ± 6 years (n=9), in group 2 mean age of female patients was 37.25 ± 2 years (n=8) and the mean age of male patients was 33 ± 1 years (n=17), in group 3 the mean age of female patients was 68.5 ± 2 years (n=4) and the mean age of male patients was 44.5 ± 2 years (n=21) (Table 1).

When SF-36 subscales of three groups were compared, it was found that group 2 had significantly higher quality of life scores in all subscales than the other two groups (Fig. 1). When SF-36 point distributions are analyzed according to groups; physical and mental scores were significantly higher in group 2 than the other two groups. When SF-36 subscales were evaluated, it was seen that group 2 scores were statistically higher in all sub scores except social function (Table 2).

In group 1, there was no difference in SF 36 scores above and below 45 years. In group 2 and group 3, physical and mental scores of patients below 45 years were higher than those of patients over 45 years of age (Table 3).

When the mean distribution of SF-36 scores according to sex was examined, it was found that SF-36 physical scores of female subjects in group 1 were statistically higher than male scores, and there was no significant correlation between mental score and sex. In group 2, while there was no significant correlation between mental score and physical score scores between male and female patients; mental health and social function scores of women were statistically significantly lower than male scores for SF-36 subscales. When the mean distribution of SF-36 scores according to sex was examined, there was no statistically significant difference between the groups (Table 4).

The marital status of Group 2 and SF-36 physical scoring scores were found statistically significant, but there was no significant difference between mental scoring scores.

Table 1. The number and the mean age of the participants based on their groups, gender and marital status

	Group 1		Group 2		Group 3		Total
	Female	Male	Female	Male	Female	Male	
N	15	9	8	17	4	21	74
	24		25		25		
Age (Mean±SD)	75.87±2	80±6	37.25±2	33±1	68.5±2	44.5±2	
	78.92±13.11		34.36±13.1		48.4±22.42		53.89±25

Table 2. Average distribution of SF-36 subscales according to groups

	Group 1 Mean±SD	Group 2 Mean±SD	Group 3 Mean±SD	p
SF 36 physical score	36.95±15.77	80.63±8.29	50.38±13.5	0.001
SF 36 mental score	35.26±6.06	73.55±8.25	32.66±6.03	0.001
Pain	55.4±23.64	82.7±13.13	60.7±25.46	0.001
General health	27.2±11.46	71±7.91	30.2±11.5	0.001
Emotional role difficulty	36±19.05	81.33±19.44	28±20.82	0.001
Vitality	15.8±8.38	82.8±10.61	24±14.36	0.001
Mental health	34.24±6.94	82.08±8.95	28.64±9.36	0.001
Social function	55±10.21	48±5.91	50±8.07	0.013
Physical function	33.2±20.15	87.8±11.64	74.6±26.41	0.001
Physical role difficulty	32±23.41	81±14.93	36±21.75	0.001

When SF-36 subscales were examined, physical role strength, general health and vitality scores were found to be statistically significantly higher in single patients than in married patients. There was no significant correlation between marital status of group 1 and group 3 and SF-36 physical and mental scores (Table 5).

Hads-A and Hads-D Test Results

In Group 1, 6 patients had HADS-A scores between 0-7 and 18 patients had HADS-A scores 8-21. In group 2, 25 patients had HADS-A scores between 0-7. In group 3, 1 patient had HADS-A score between 0-7 and 24 patients had HADS-A scores 8-21 (Table 6).

In Group 1, 7 patients were found to have HADS-D between

0 and 7, and 17 patients had HADS-D between 8 and 21. In Group 2, all patients had HADS-D values between 0-7, and 3 patients in Group 3 patients had HADS-D values between 0-7 and 22 between 8-21.

When the results of correlation analysis between HADS-A scores of patients and SF-36 subscale scores were examined, group 1 HADS-A scores and SF-36 physical function, physical role strength, pain, general health, vitality and mental health, physical score and mental score scores were statistically significant. HADS-A scores and SF-36 physical function, general health, mental health, social functioning, mental and physical scoring scores of group 2 were found statistically significant, while HADS-A scores and SF-36, general health, emotional role weakness, mental health,

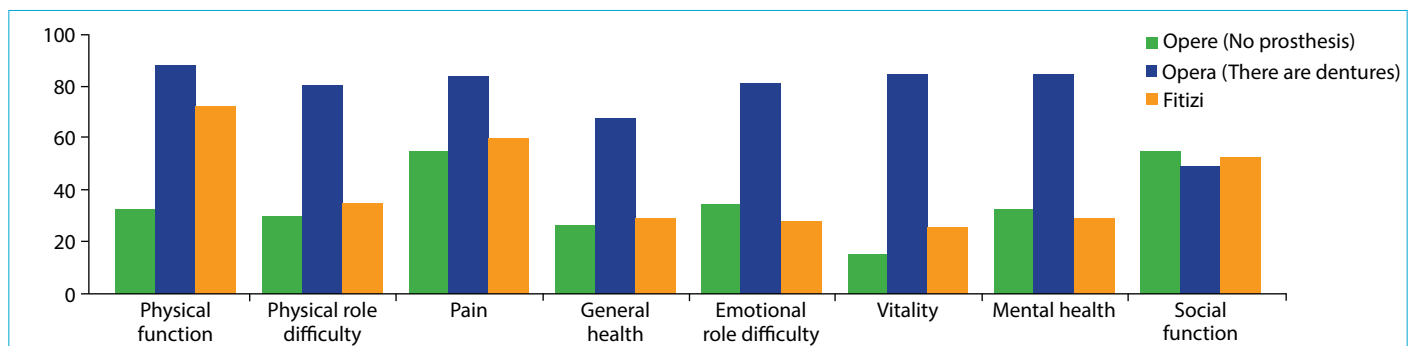
**Figure 1.** SF-36 subscale scores according to group's distribution of averages

Table 3. Average distribution of SF-36 scores according to age groups

	Group 1			Group 2			Group 3		
	<45 age	>45 age	p	<45 age	>45 age	p	<45 age	>45 age	p
Physical function	90	30.8±16.6	0.093	92.2±6	70±12.2	0.001	94.5±5.5	61.3±26	0.000
Physical role difficulty	75	30.2±22	0.094	83.7±15	70±11	0.066	40±17.5	33.3±24.4	0.300
Pain	100	53.5±22	0.086	83.1±13	81.5±14.8	0.649	70.75±17.3	54±28.25	0.102
General health	75	25.2±5.8	0.079	73±7	63±4.5	0.009	27.5±14.4	32±9.22	0.463
Emotional role difficulty	0	37.5±17.9	0.064	85±20	66.67	0.034	26.67±21	28.9±21	0.799
Vitality	45	14.6±5.9	0.083	86.5±8	68±5.7	0.001	36.5±9.7	15.67±10	0.000
Mental health	32	34.3±7	0.423	84±8.5	74.4±6.7	0.033	35.6±8.1	24±7.1	0.002
Social function	50	55.2±10	0.499	49.4±4.9	42.5±6.9	0.018	50±8.3	50±8.2	1.000
SF 36 physical score	85	34.9±12	0.096	83±6.6	71.13±7.8	0.006	58.19±6	45.17±14	0.024
SF 36 mental score	31.75	35.4±6	0.487	76.2±6.9	62.89±2	0.001	37.19±3.7	29.64±5	0.001

Table 4. Distribution of SF-36 scores of the groups according to gender

	Group 1			Group 2			Group 3		
	Female	Male	p	Female	Male	p	Female	Male	p
Physical function	38.75±22.5	23.3±9.7	0.035	84.4±12.9	79.41±15.9	0.481	58.75±40.29	77.62±23.11	0.191
Physical role difficulty	37.5±24.1	22.2±19.5	0.115	83.4±11.57	82.35±14.13	0.810	50±35.36	33.33±18.26	0.392
Pain	63.6±21.7	40.8±20.4	0.018	68.13±5.94	72.35±8.5	0.112	71.88±21.54	58.57±26.05	0.407
General health	30±13.4	22.2±3.6	0.031	79.17±17.25	82.35±20.81	0.598	27.5±9.57	30.71±11.97	0.497
Emotional role difficulty	35.4±22.6	37±11.1	0.891	78.75±9.16	84.71±10.96	0.153	25±16.67	28.57±21.82	0.799
Vitality	17.5±9.1	12.9±6.9	0.289	77±7.63	84.47±8.7	0.036	17.5±15.55	25.24±14.18	0.370
Mental health	36.5±5.8	30.2±7.2	0.037	43.75±6.68	50±4.42	0.012	30±6.93	28.38±9.87	0.600
Social	53.9±9.9	56.9±11	0.540	79.92±7.46	80.96±8.85	0.558	53.13±6.25	49.4±8.36	0.398
SF 36 physical score	42.5±16.8	27.2±6.7	0.012	69.67±7.35	75.38±8.2	0.096	52.03±19.73	50.06±12.63	0.882
SF 36 mental score	35.8±5.9	34.25±6.5	0.334	84.38±12.94	79.41±15.9	0.481	31.41±3.32	32.9±6.44	0.528

social functioning, mental and physical scores were found statistically significant (Table 7).

When the results of the correlation analysis between the HADS-D scores and the SF-36 subtest scores were examined, the HADS-D scores and the SF-36 physical function, pain, general health, vitality, social function, physical score

and mental score were found statistically significant. The HADS-D scores of group 2 were statistically significant between the SF-36 pain, social function, general health mental score, and physical scoring scores. SF-36 physical role severity, pain, general health, emotional role weakness, social function, mental score and physical scoring scores of Fitzis bulbi cases were statistically significant (Table 7).

Discussion

Anophthalmia is a condition that can lead to a number of physical, psychological, social, cosmetic and psychosexual

Table 5. Correlation analysis between marital status and SF-36 subscales

	Group 1		Group 2		Group 3	
	r	p	r	p	r	p
Physical function	0.302	0.142	-0.353	0.084	-0.302	0.142
Physical role difficulty	0.460	0.021	-0.127	0.546	0.201	0.334
Pain	0.321	0.118	0.143	0.496	-0.017	0.936
General health	0.528	0.007	-0.149	0.478	0.328	0.110
Emotional role difficulty	-0.297	0.150	-0.262	0.206	-0.140	0.505
Vitality	0.578	0.002	-0.513	0.009	-0.129	0.540
Mental health	0.239	0.250	-0.135	0.521	-0.269	0.193
Social function	-0.240	0.247	0.062	0.768	-0.253	0.222
SF 36 physical score	0.506	0.010	-0.145	0.489	0.133	0.525
SF 36 mental score	-0.084	0.691	-0.341	0.095	-0.350	0.086

Table 6. Distribution of HADS-A and HADS-D ratios according to groups

HADS scores	Group 1		Group 2		Group 3		Total	p	
	n	%	n	%	n	%			
HADS-A (Anxiety)									
0-7	6	25.0	25	100.0	1	4.0	32	42.7	0.001
8-21	18	75.0	0	0.0	24	96.0	43	57.3	
HADS-D (Depression)									
0-7	7	29.1	25	100.0	3	12.0	35	46.7	0.001
8-21	17	70.8	0	0.0	22	88.0	40	53.3	
Total	24	33.3	25	33.3	25	33.3	75	100.0	

Table 7. P values of correlation analysis between groups HADS-A and HADS-D scores and SF-36 subscale scores

	Group 1		Group 2		Group 3	
	HADS-A	HADS-D	HADS-A	HADS-D	HADS-A	HADS-D
Physical function	0.008	0.012	0.029	0.515	0.146	0.525
Physical role difficulty	0.042	0.287	0.216	0.723	0.025	0.021
Pain	0.025	0.008	0.670	0.044	0.819	0.011
General health	0.000	0.000	0.035	0.022	0.019	0.010
Emotional role difficulty	0.193	0.017	0.987	0.255	0.007	0.027
Vitality	0.001	0.000	0.093	0.710	0.416	0.624
Mental health	0.036	0.389	0.017	0.103	0.014	0.473
Social function	0.835	0.027	0.018	0.024	0.110	0.021
SF-36 physical score	0.001	0.003	0.044	0.011	0.022	0.018
SF 36 mental score	0.025	0.012	0.017	0.515	0.018	0.525

problems and complaints. It can cause problems in daily life, business life and quality of life by affecting the social life of the person. The treatment of anophthalmic patient as a whole requires diagnosis and treatment of mental, psychological and psychosocial parameters accompanying the disease as well as physical treatment.

M.C.Goiato et al.^[6] mentioned that the use of prostheses had positive effects on the psychological state of the patients in their study on 40 anophthalmic patients. They found that patients using prostheses fit into social settings more easily and have increased self-confidence. Likewise, Song JS and colleagues surveyed 78 anophthalmic patients using ocular prostheses and reported a 78.8% satisfaction rate.^[2] In their study, Cabral and colleagues worked with 84 anophthalmic patients and found that 66% satisfaction rate in prostheses use.^[7] In our study, we also found that the quality of life in the prosthetic group was significantly higher than the other groups, and we attributed this result to having better aesthetic appearance due to the prosthesis used by the patients.

Marie L. Rasmussen and her colleagues compared the quality of life 159 anophthalmic patients and healthy subjects in Denmark.^[8] Participants were administered SF-36 quality of life test and perceived stress scale (PSS) test. It was observed that anophthalmic patients had significantly lower quality of life scores and high PSS scores. In the same study; SF-36 values of individuals under the age of 44 were compared with individuals over 45 years of age, and mental health and physical function scores were found significantly higher in individuals under the age of 44.^[8] Ji Ming Ahn et al. applied SF-36 and HADS scales to 134 monocular anophthalmic patients with ocular prostheses and 48 healthy volunteers in their study. When the age and quality of life scores are evaluated, there was a negative correlation between age and SF-36 scores. It was reported that the

group below 40 years had a higher quality of life than the group of 40 years and older.^[9] In our study, when the average distribution of SF-36 were examined, we found a negative correlation between the physical and mental scores of patients older than 45 years and the physical score of 45 years. When we examine all these scores, we can conclude that as the age of the patient increases, the physical functions of the people decrease, the general health conditions deteriorate due to the addition of systemic diseases, the patient increase their dependency on the other members of the family and this may cause the scores to be lowered.

In the study of M.C.Goiato et al.,^[6] the positive effect of prosthetic use on the psychosocial status of patients was significantly higher in females than in males. In their study, Ji Ming Ahn and friends applied SF-36 test; and observed that the quality of life score was significantly lower in female anophthalmic patients than male anophthalmic patients.^[9] In the study of Song JS et al.,^[2] there was no significant relationship found between gender and patient satisfaction in patients using prosthesis. In our study, we found no significant correlation between male and female patients in SF 36 test scores in operated/prosthesis use group and developing phytizis bulbi group. On the other hand, SF-36 scores of female patients were significantly higher than male patient's scores in operated/no use prosthesis group.

In their study, Song JS et al.^[2] mentioned that there was no significant relationship between marital status and patient satisfaction. Ji Min Ahn and colleagues found married and prosthesis-user patients have lower quality of life scores than single and prosthesis-user patients.^[9] In our study, married patients were found to be similarly low in the first group compared to single patients, whereas in the second and third groups, there was no correlation between marital status and quality of life scores, which we attributed to socio-cultural differences.

When we examined the results of three groups in general in our study, we found that the scores of 'physical score' and 'mental score' were significantly higher in the quality of life score of the group using the prosthesis compared to the other two groups. Likewise, when SF-36 subscales are evaluated; we found that the groups using prosthesis were significantly higher in the 'physical role strength', 'pain', 'general health', 'emotional role strength', 'vitalite' and 'mental health' subscale scores were significantly higher than the other two groups without prosthesis. In interviews with patients, the majority of patients stated that they did not use prostheses due to economic reasons, while some patients stated that they did not need prosthesis because of having advanced age. When the average age of the patients participating in the study is taken into consideration; the mean age of group 1 was 76.92 ± 13.39 and the majority of patients in this group consisted of patients who did not work as pensioners or housewives, supporting the idea that patients did not use prosthetics for economic and social reasons.

Ji Min Ahn and colleagues conducted an anophthalmia study which 38 patients (28.4%) from HADS-D and 40 patients (29.9%) from HADS-A received a score above the threshold, and 42% of patients stated that they did not positively affect prosthetic eye experience.^[9] Juan Ye et al.^[10] found that anxiety and depression were more prevalent in the patients who underwent enucleation surgery compared with the general population in the study of 195 monocular enucleated and ocular prosthesis patients, and that the prevalence rates of anxiety and depression varied according to age, education level and state of other patients. In the same study, it was determined that anxiety and depression levels were not related to gender, anophthalmus cause, duration of prosthesis wear and comfort or prosthesis resemblance to normal eyes as a result of HADS test applied to 195 patients. Anxiety and depression have been associated with greater concerns about vision-related poor quality of life and facial appearance.

In our study, 18 patients (72%) had a HAD-D score above threshold and 19 patients (76%) had a HAD-A score above the threshold in the group operated/ without prosthesis. Twenty-two patients (88%) were found to have HAD-D scores above the threshold and 24 patients (96%) were found to have HAD-A scores above the threshold in the group with fitizis bulbi. All of the patients in the operated/ with prosthesis group were found to be below the threshold of HADS-D and HADS-A scores. This result shows that our patients have a positive effect on the experience of using prosthesis. According to these findings, the use of prosthesis seems to have a positive effect on the lives of our patients.

When we examined the correlation analysis results of HADS-D and HADS-A scores and SF-36 subscale scores in the cases, we found that the group with high quality of life score operated/ with prosthesis group had low anxiety and depression rate, the operated/without prosthesis group and fitizis bulbi group with low quality of life score had statistically high anxiety and depression rates, which was seen as a factor supporting the positive effect of prosthetic use on patients.

As a result, anophthalmia is a condition in which the patient is greatly reduced in quality of life due to psychological problems and bad aesthetic appearance that affect the social lives of patients in addition to their physical problems. This negativity was found to be more pronounced in elderly individuals. The use of prostheses has been found to reduce the anxiety given to poor outward appearance significantly and improve the quality of life. Prosthetic use was found to have a positive impact on quality of life in both sexes, and there was no significant difference between the quality of life scores of male and female prosthesis users. Similarly, the rate of anxiety and depression was found to be lower in prosthetic users.

In clinical practice, anophthalmic patients need to be aware of the difficulties they face in daily life while living with this disease, and what measures they should take to reduce these difficulties. In this context, psychiatric interventions for patient groups that can be accepted as a risk group are gaining importance in order to ensure the physical health of the patient, as well as to improve quality of life, decrease anxiety and depression risk.

Disclosures

Ethics Committee Approval: The study was approved by the Local Ethics Committee.

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

Authorship contributions: Concept – O.E., S.U., L.E.E.; Design – O.E., S.U., L.E.E.; Supervision – O.E., S.U., L.E.E.; Materials – O.E., S.U., L.E.E.; Data collection &/or processing – O.E., L.E.E.; Analysis and/or interpretation – O.E., S.U., L.E.E.; Literature search – O.E., L.E.E.; Writing – O.E., L.E.E.; Critical review – O.E., S.U., L.E.E.

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