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THE GLAUCOMA QUALITY OF LIFE ASSESSMENT

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In the next 15 years, expected increase in incidence of glaucoma is predicted. The glaucoma results in changes of quality of life of patients deteriorating in parallel with progression of stage of disease. The presence of many concomitant diseases in patients has significant impact on survival, exacerbations. hospitalizations and quality of life of patients. The impact of glaucoma on implementation of everyday human activities determines relevance of studying issues of quality of life. The physical state of health level of males is lower than that of females. The vision of both eyes is higher in males than in females. The overall assessment of vision in case of glaucoma causes pronounced decrease in visual function both in males and females. The most patients with glaucoma suffer with decrease in performance and restriction of work. The irritation occurs especially in males and females have uncomfortable relationships due to eye pain and less housework due to vision problems. The overall assessment of vision in case of glaucoma causes violation of visual perception. The social and psychological components affecting quality of life are violated that affects both mental and physical health.

K e y w o r d s : glaucoma; vision; quality of life; visual impairment; open-angle glaucoma; blindness.

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Introduction

At least 2.2 billion people worldwide suffer from visual impairment human. At least 1 billion or almost half of these people's visual impairments could have been prevented or could still be corrected [1].

The main diseases causing long-range vision disorders and blindness among these 1 billion people cataract (94 million), refractive error (88.4 million), age-related macular degeneration (8 million), glaucoma (7.7 million) and diabetic retinopathy (3.9 million) *[2]*.

In recent years, there has been an increase in the number of cases of primary open-angle glaucoma (POAG), which occupies a leading place in the structure of eye diseases among the adult population of the Russian Federation, including among people of working age [3–5].

In general, it is not possible to assess the nature of the course of the disease due to the limited provision of official data (prevalence and morbidity). According to these indicators, it is difficult to imagine the scale of this problem in the country [6, 7].

For the first time, POAG is detected in more than 50% of cases at advanced and far-advanced stages [8].

The results of the study by Movsisyan A. B. et al. (2022) demonstrated an expected increase in the incidence and prevalence of glaucoma in the next 15 years. Due to this, an increase in visual disability should be expected, and consequently, a rapid loss of performance in patients of different age groups due to the delay in diagnosis and the start of treatment [9]. Therefore, the assessment of the quality of life should become one of the main tasks of the healthcare system aimed at improving the effectiveness of clinical and diagnostic examination of the patient [10–14].

The results obtained during the study conducted by Voronina A. E. et al. (2014) indicate that glaucoma is most common in respondents of working age, and cataracts with glaucoma are combined in patients over 60 years of age. There was a decrease in the quality of life of glaucoma patients and a lower quality of life of patients with a combination of cataract and glaucoma in all spheres of life. Along with objective methods of assessing the health status of patients with glaucoma, it is necessary to conduct a subjective assessment of the quality of life of this group of patients [15].

As noted by Gabdrakhmanova A. F. et al. (2013), glaucoma leads to a change in the quality of life of patients, it worsens in parallel with the progression of the disease stage [16]. According to Kurbanov S. A. et al. (2014), the quality of life of patients with primary open-angle glaucoma is characterized by low overall indicators on the scales: general health, general assessment of vision, peripheral vision, social functioning, mental health and role limitations [17].

The World Health Organization (WHO), in the World Vision Report (2019), as well as the resolution "Comprehensive human-centered ophthalmic care, including the fight against preventable blindness and preventable visual impairment", adopted at the seventy-third session of the World Health Assembly in 2020, notes the provision of comprehensive and human-centered ophthalmic care assistance as the preferred model and the widespread adoption of this model in countries [18].

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In the treatment of glaucoma, it is necessary to pay attention to the diagnosis and treatment of concomitant pathology, since the presence of many concomitant diseases has a significant impact on survival, the frequency of exacerbations and hospitalizations, and the quality of life of patients [19].

Visual impairment has a severe negative impact on the quality of life of adults. Adults with visual impairments are more likely to experience problems with employment and are more likely to suffer from depression and anxiety disorders [1, 14].

Visual impairments in older people can exacerbate social isolation, cause difficulty walking, increase the risk of falls and fractures, as well as the likelihood of earlier placement in nursing homes and long-term care facilities.

Undoubtedly, the influence of glaucoma on the implementation of daily human actions determines the relevance of studying the quality of life.

Materials and methods

A survey was conducted of 318 patients before glaucoma treatment who applied to the eye microsurgery department of the National Hospital of the Ministry of Health of the Kyrgyz Republic using an adapted questionnaire. The quality of life of 318 patients before glaucoma treatment who applied to the eye microsurgery department of the National Hospital of the Ministry of Health of the Kyrgyz Republic was studied, of whom 49.1% (n=156) were men and 50.9% (n=162) were women.

The results of the study

The physical component of men was assessed as a satisfactory state of health — 29.8±2.5 (n=95), those of women were slightly higher — 31.1±2.5 (n=99), p>0.05, while no significant difference in responses was revealed (Table 1).

Good health was found in 15.4±2.0 (n=49) men and 17.0±2.1 (n=54) women, also without significant difference, p>0.05.

Poor health, according to patients, was more often noted by men — 3.8±2.0 (n=12) than by women — 2.8±0.9 (n=9), p>0.05.

The assessment of the vision of both eyes showed that the majority of men surveyed were more likely to indicate poor eyesight — 21.4±2.2 (n=68) than women — 8.1±1.5 (n=108), which indicates a greater reliability of differences, p<0.001. Whereas, in a significant proportion of women, 34.0±2.6 (n=108) satisfactory vision was observed, and men with satisfactory vision were 16.7±2.0 (n=53), p<0.001.

It should be noted that men had good eyesight more often than women (11.0±1.7, n=35 and 8.8±1.5, n=28, respectively), p>0.05.

The overall assessment of the quality of life (Table 2) of patients related to visual function showed that many indicators were reduced. Visual impairment was more often observed in men than in women who stopped reading due to vision problems — 4.4±1.1 (n=14) and 2.2±0.8 (n=7), p>0.05, and most men and women indicated in the questionnaire that it was not difficult for them to read — 25.5±2.4 (n=81) and 27.4±2.4 (n=87), p>0.05. Approximately equal answers were given by men and women on the question that sometimes there are extreme difficulties with reading in 19.2±2.2 (n=61) and 21.3±2.2 (n=68), p>0.05.

For the majority of patients, doing what they love was not affected by the disease and related vision problems (37.7±2.7 (n=120) men and 29.8±2.5 (n=95) women, respectively), p>0.05.

Women are more likely (17.6±2.1, n=56) than men (8.5±0.9, n=27) with high confidence, it is extremely difficult to do what they love in everyday life, p<0.001. Almost the same number of men and women stopped doing what they love (2.8±0.9, n=9 and 3.5±1.0, n=11, respectively), p>0.05.

Vision problems for 30.2±2.5 (n=96) men and 25.5±2.4 (n=81) women did not affect minor repairs in the house, p>0.05. But for 18.3±2.1 (n=58) women and 12.2±1.8 (n=39) men, it is extremely difficult to carry out even minor repairs, p>0.05 and only 6.6±1.3 (n=21) men and 7.2±1.4 (n=23) women cannot carry out repairs, due to vision problems, p>0.05.

Ophthalmological problems associated with glaucoma in the early stages of the disease do not cause difficulty in finding an item on the shelf. This was noted by 26.1±2.4 (n=83) men and 24.6±2.4 (n=78) women, p>0.05. It is extremely difficult to do this for 10.4±1.7 (n=33) women and 6.9±1.4 (n=22) men, p>0.05. They cannot find at all, especially small objects 16.0±2.0 (n=51) men and women, p>0.05.

Difficulties in reading street signs were positively responded to by 24.5±2.4 (n=78) men, 21.7±2.3 (n=69), p>0.05 women with glaucoma. It does not cause particular difficulty when reading street signs 17.0±2.1

Table 1

Assessment of the quality of life before treatment (n=318)

№	Criteria	Men (n=156)						Women (n=162)					
		Good		Satisfactory		Bad		Good		Satisfactory		Bad	
		The absolute number	P±m	The absolute number	P±m	The absolute number	P±m	The absolute number	P±m	The absolute number	P±m	The absolute number	P±m
1	The state of your health	49	15.4±2.0	95	29.8±2.5	12	3.8±2.0	54	17.0±2.1*	99	31.1±2.5*	9	2.8±0.9*
2	Vision of both eyes	35	11.0±1.7	53	16.7±2.0	68	21.4±2.2	28	8.8±1.5*	108	34.0±2.6**	26	8.1±1.5**

Note. P±m is an intensive indicator and an error of representativeness; * — p>0.05; ** — p<0.001.

Table 2

General assessment of vision (*n*=318)

№	Criteria	Men (*n*=156)						Women (n=162)					
		It's not difficult		Extremely difficult		They stopped because of their eyesight		It's not difficult		Extremely difficult		They stopped because of their eyesight	
		The absolute number	*P*±*m*	The absolute number	*P*±*m*	The absolute number	*P*±*m*	The absolute number	*P*±*m*	The absolute number	*P*±*m*	The absolute number	*P*±*m*
1	Difficulty reading	81	25.5±2.4	61	19.2±2.2	14	4.4±1.1	87	27.4±2.4*	68	21.3±2.2*	7	2.2±0.8
2	Doing what you love	120	37.7±2.7	27	8.5±1.5	9	2.8±0.9	95	29.8±2.5**	56	17.6±2.1**	11	3.5±1.0
3	Minor repairs in the house	96	30.2±2.5	39	12.2±1.8	21	6.6±1.3	81	25.5±2.4	58	18.3±2.1*	23	7.2±1.4
4	Difficulty finding anything on the shelf	83	26.1±2.4	22	6.9±1.4	51	16.0±2.0	78	24.6±2.4*	33	10.4±1.7	51	16.0±2.0
5	Difficulty reading street signs	47	14.8±2.0	78	24.5±2.4	31	9.7±1.6	54	17.0±2.1*	69	21.7±2.3*	39	12.3±1.8*
6	It's hard to walk down the stairs	59	18.5±2.1	97	30.5±2.5	—	—	82	25.8±2.4*	73	23.0±2.3*	7	2.2±0.8
7	It is difficult to notice objects on the sides	26	8.1±1.5	101	31.7±2.6	29	9.1±1.6	31	9.8±1.6*	98	30.9±2.5*	33	10.4±1.7*
8	The difficulty of choosing clothes	83	26.1±2.4	59	18.5±2.1	14	4.4±1.1	65	20.5±2.2*	18	5.7±1.3**	79	24.8±2.4
9	Difficulty communicating with people	128	40.2±2.7	28	8.8±1.5	—	—	151	47.5±2.8*	9	2.8±0.9**	2	0.7±0.4
10	It's hard to go to the cinema	29	9.1±1.6	103	32.4±2.6	24	7.5±1.4	58	18.3±2.1	24	7.5±1.4	80	25.2±2.4**
11	The difficulty of driving cars	67	21.0±2.2	31	9.7±1.6	58	18.3±2.1	28	8.8±1.5	22	7.0±1.4*	112	35.2±2.6*
12	The difficulty of driving a car at night and in bad weather	57	17.9±2.1	24	7.5±1.4	75	23.6±2.3	24	7.5±1.4	21	6.6±1.3*	117	36.8±2.7*

Note. *P*±*m* is an intensive indicator and an error of representativeness.

(*n*=54) for women and 14.8±2.0 (*n*=47) for men, *p*>0.05. 9.7±1.6 (*n*=31) men and 12.3±1.8 (*n*=39) women cannot read street signs, *p*>0.05.

Unfortunately, a disease such as glaucoma for 30.5±2.5 (*n*=97) men and 23.0±2.3 (*n*=73) women causes difficulty moving up stairs, *p*>0.05. Women were more likely to respond (25.8±2.4, *n*=82) than men (18.5±2.1, *n*=59), that the disease does not yet affect their movements, *p*>0.05, and 2.2±0.8 (*n*=7) women cannot move down the stairs at all, no such men have been identified.

Almost the same answers were given by men and women on the question "It is difficult to notice objects on the sides". It is extremely difficult to do this for 31.7±2.6 (*n*=101) men and 30.9±2.5 (*n*=98) women, *p*>0.05. It is not difficult to look in both directions 8.1±1.5 (*n*=26) for men and 9.8±1.6 (*n*=31) for women, *p*>0.05. They do not notice objects on the sides of 9.1±1.6 (n=29) and 10.4±1.7 (*n*=33) women, *p*>0.05.

It should be noted that the disease does not cause difficulty in choosing clothes, both for 26.1±2.4 (*n*=83) men and 20.5±2.2 (*n*=65) women, *p*>0.05. It is extremely difficult to choose clothes indicated by 18.5±2.1 (*n*=59) men and only 5.7±1.3 (*n*=18) women, *p*<0.001. 24.8±2.4 (*n*=79) women and only 4.4±1.1 (*n*=14) men, *p*<0.001, cannot make a choice of clothes.

Glaucoma did not affect communication with people, 40.2±2.7 (*n*=128) men and 47.5±2.8 (*n*=151) women indicated it was not difficult to communicate, *p*>0.05. It became extremely difficult to communicate mainly for men — 8.8±1.5 (*n*=28) and only 2.8±0.9 (*n*=9) for women, *p*<0.001. For this reason, 0.7±0.4 (*n*=2) women do not communicate, no such men were identified.

It is extremely difficult to visit the cinema due to the disease, this was noted by 32.4±2.6 (*n*= 103) men, and there are much fewer women — 7.5±1.4 (*n*=24), *p*<0.001. Stopped visiting the cinema due to vision problems 25.2±2.4 (*n*=80) women and 7.5±1.4 (*n*=24) men, *p*<0.001. Out of the total number of respondents, it is not difficult to watch movies in the cinema 9.1±1.6 (*n*=29) men and 18.3±2.1 (*n*=58) women, *p*>0.05.

The difficulties of driving a car and in this regard, extreme difficulties were noted by 9.7±1.6 (*n*=31) men and 7.0±1.4 (*n*=22) women, *p*>0.05, most of them cannot travel by car 18.3±2.1 (*n*=58) and 35.2±2.6 (*n*=112), *p*>0.05. It is not difficult to drive a car — 21.0±2.2 (*n*=67) for men and 8.8±1.5 (*n*=28) for women, *p*<0.001.

The difficulty of driving at night and in bad weather was noted by 7.5±1.4 (*n*=24) and 6.6±1.3 (*n*=21) men and women, *p*>0.05. Whereas, for most men — 17.9±2.1 (*n*=57) and 7.5±1.4 (*n*=24) women does not cause driving difficulties, *p*>0.05. It should be noted that 23.6±2.3 (*n*=75) men and 36.8±2.7 (*n*=117) women cannot drive a car under these circumstances, *p*>0.05.

Vision problems in glaucoma cause significant changes in the quality of life in the social and household sphere (Table 3). The majority of women — 33.7±2.6 (*n*=107) than men — 29.2±2.5 (*n*=93), *p*>0.05 noted that due to vision problems it is often possible to do less scheduled homework. Responses were received with the same frequency from men and women who noted "sometimes" they perform less various household chores — 10.7±1.7 (*n*=34) and 9.4±1.6 (*n*=30), *p*>0.05 and rarely 9.1±1.6 (*n*=29) and 7.9±1.5 (*n*=25), *p*>0.05.

Visual impairments often cause work restrictions in 36.8±2.7 (*n*=117) men and 18.5±2.1 (*n*=59) women, *p*>0.05. Rare limitations in activity were observed in 8.5±1.5 (*n*=27) men and 10.1±1.6 (*n*=32) women, *p*>0.05. Women were more likely to respond that ophthalmological problems sometimes occurred in 22.3±2.3

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Table 3

The social component of the quality of life of glaucoma patients (*n*=318)

№	Criteria	Men (*n*=156)						Women (*n*=162)					
		Often		Sometimes		Rarely		Often		Sometimes		Rarely	
		The absolute number	*P*±*m*	The absolute number	*P*±*m*	The absolute number	*P*±*m*	The absolute number	*P*±*m*	The absolute number	*P*±*m*	The absolute number	*P*±*m*
1	Due to vision problems, it is possible to do less	93	29.2±2.5	34	10.7±1.7	29	9.1±1.6	107	33.7±2.6*	30	9.4±1.6*	25	7.9±1.5*
2	Limitation of work	117	36.8±2.7	12	3.8±1.0	27	8.5±1.5	59	18.5±2.1*	71	22.3±2.3**	32	10.1±1.6*
3	Uncomfortable relationships due to eye pain	85	26.7±2.4	58	18.3±2.1	13	4.0±1.0	127	40.0±2.7*	24	7.5±1.4**	11	3.5±1.0*
4	Irritability	99	31.1±2.5	21	6.6±1.3	36	11.3±1.7	64	20.2±2.2*	61	19.2±2.2**	37	11.6±1.7*
5	The necessary help from others	82	25.8±2.4	35	11.0±1.7	39	12.2±1.8	33	10.4±1.7**	78	24.6±2.4**	51	16.0±2.0*

(*n*=71), and in men in 3.8±1.0 (*n*=12 In cases, *p*<0.001. Women also experience uncomfortable relationships with others more often — 40.0±2.7 (*n*=127) than men — 26.7±2.4 (*n*=85), *p*>0.05. Uncomfortable relationships caused by pain occur in 18.3±2.1 (*n*=58) men and 7.5±1.4 (*n*=24) women, *p*<0.001 and rarely such problems occur in 4.0±1.0 (*n*=13) men and 3.5±1.0 (*n*=11) women, *p*>0.05.

Irritability due to visual impairment is experienced more often by men (31.1±2.5, *n*=99) than by women (20.2±2.2, *n*=64), *p*>0.05. Sometimes women experience irritability in communication more often (19.2±2.2, *n*=61) than men (6.6±1.3, *n*=21), *p*<0.001 and rarely almost the same answers were received from both men and women (11.3±1.7, *n*=36 and 11.6±1.7, *n*=37), *p*>0.05.

Men need outside help more often — 25.8±2.4 (*n*=82) than women — 10.4±1.7 (*n*=33), *p*<0.001. Whereas the majority of women — 24.6±2.4 (*n*=78) than men — 11.0±1.7 (*n*=35), *p*<0.001, noted that they need help and rarely need it 12.2±1.8 (*n*=39) men and 16.0±2.0 (*n*=51) women, *p*>0.05.

Discussion

In ophthalmic diseases, in particular open-angle glaucoma, the quality of life of patients is of great importance [11]. The physical state of men's health is lower than that of women, and the vision of both eyes is higher in men than in women. It should be noted that the general assessment of vision in glaucoma causes a marked decrease in visual function, both in men and women.

According to many authors, glaucoma patients have a reduced quality of life, not only when performing certain skills in everyday life, but also in the industrial sphere [12, 15, 16, 20, 21]. This is confirmed by our results. Thus, in most patients with glaucoma, there is a decrease in efficiency and work restriction, irritability occurs especially in men, and in women uncomfortable relationships due to eye pain and vision problems do less homework. The general assessment of vision in the disease causes a violation of visual perception, and, in this regard, the social and psychological components affecting the quality of life are disrupted, which affects not only mental, but also physical health.

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