

NOSOLOGICAL STRUCTURE OF THE CAUSES FOR VISITS TO OPHTHALMOLOGISTS AT THE SECONDARY LEVEL



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ИККИНЧИ БОСҚИЧДА ОФТАЛЬМОЛОГЛАРГА МУРОЖААТ ҚИЛИШ САБАБЛАРИНИНГ НОЗОЛОГИК ТУЗИЛИШИ

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НОЗОЛОГИЧЕСКАЯ СТРУКТУРА ПРИЧИН ОБРАЩЕНИЯ К ВРАЧАМ ОФТАЛЬМОЛОГАМ НА ВТОРОМ ЭТАПЕ

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Резюме. Ушбу тадқиқот уч босқичли соғлиқни сақлаш тизимининг иккинчи босқичида офтальмологларга мурожаат қилиш сабабларининг нозологик тузилмасини баҳолашга қаратилган. Тадқиқот Боку шаҳридаги Бинагади тиббиёт маркази базасида олиб борилди. Ушбу марказ 250 мингдан ортиқ аҳолига ихтисослаштирилган тиббий ёрдам кўрсатади. Таҳлил 2022 календарь йили давомида кўз ва унинг қўшимча аппарати касалликлари бўйича офтальмологларга қилинган бирламчи мурожаатлар (жами 5581 ҳолат) асосида амалга оширилди. Натижалар шуни кўрсатдики, умумий беморлар тўпламида ҳам, жинсий гуруҳлар кесимида ҳам мурожаатларнинг асосий сабаблари кўз мушаклари касалликлари, кўзларнинг мувофиқлаштирилган ҳаракати бузилишлари, аккомодация ва рефракция бузилишлари ҳисобланади (мас равишида 27,7%, 28,1% ва 27,5%). Иккинчи ўринда кўз гавҳари (линза) касалликлари туради (мас равишида 24,0%, 22,4% ва 25,0%). Болалар (15 ёшгача) ва ўсмирлар (15–19 ёш) орасида мурожаатлар тузилмаси ўхшаш бўлиб, етакчи сабаблар сифатида кўз мушаклари касалликлари ҳамда аккомодация ва рефракция бузилишлари (38,6% ва 43,2%), конъюнктива касалликлари (18,6% ва 19,2%), кўз ёши йўллари ва кўз косаси патологиялари (12,8% ва 12,0%), шунингдек, кўз ва унинг қўшимча аппаратининг бошқа касалликлари (11,4% ва 7,2%) аниқланган. Аниқланишича, офтальмологик хизматнинг иккинчи босқичида мурожаат сабаблари тузилмасида кўз мушаклари касалликлари, кўзларнинг мувофиқлаштирилган ҳаракати бузилишлари, аккомодация ва рефракция бузилишлари (27,7%), кўз гавҳари касалликлари (24,0%) ва конъюнктива касалликлари (13,0%) устунлик қилади. Мурожаатлар тузилмасида жинсга боғлиқ фарқлар аниқланмади. Бироқ мурожаат сабаблари ёшига боғлиқ ҳолда сезиларли даражада фарқ қилади: болалар ва ўсмирлар орасида аметропия ва конъюнктива касалликлари етакчи бўлса, катта ёшдагиларда катаракта ва аметропия устунлик қилади.

Калит сўзлар: офтальмолог шифокор, нозологик тузилма, иккинчи босқич, кўз касалликлари.

Abstract. This study aims to assess the nosological structure of the reasons for visits to ophthalmologists at the second level of a three-tier healthcare system. The research was conducted at a second-level medical institution - the Bina-gadi Medical Center in Baku, which provides specialized medical care to a population of over 250,000. The analysis was based on data from primary visits to ophthalmologists during the 2022 calendar year related to diseases of the eye and its adnexa (a total of 5,581 cases). The results indicate that, in the overall patient population as well as across gender groups, the leading causes of primary visits are disorders of the eye muscles, disturbances of coordinated eye movement, accommodation, and refraction (27.7%, 28.1%, and 27.5%, respectively). The second most common cause is diseases of

the lens (24.0%, 22.4%, and 25.0%, respectively). The nosological structure of visits among children (under 15 years) and adolescents (15–19 years) is similar, with leading causes including eye muscle disorders and accommodation and refraction disturbances (38.6% and 43.2%), diseases of the conjunctiva (18.6% and 19.2%), disorders of the lacrimal pathways and orbit (12.8% and 12.0%), and other diseases of the eye and its adnexa (11.4% and 7.2%). It was established that the structure of reasons for visits to ophthalmologists at the second level of ophthalmic care is predominantly characterized by eye muscle disorders, disturbances of coordinated eye movement, accommodation and refraction (27.7%), lens diseases (24.0%), and conjunctival diseases (13.0%). No significant gender differences were identified in the structure of visits. However, the distribution of causes varies significantly by age: among children and adolescents, ametropia and conjunctival diseases predominate, whereas in older populations, cataract and ametropia are the leading causes.

Keywords: ophthalmologist, nosological structure, secondary level, eye diseases.

Introduction. One of the complex challenges of modern healthcare is ensuring the accessibility of ophthalmological care within a multi-level system, which becomes increasingly complicated with the development of high-tech medical services. The multi-level organization of medical care in many countries is regulated by legislative acts. The most widespread model of a multi-level healthcare system is the three-tier system [1–3]. The first level includes primary health care. The second level includes the provision of medical care by specialists in outpatient and inpatient institutions. The third level involves the delivery of medical care by specialized professionals using high-tech medical services. A multi-level system of ophthalmological care has been established in almost all countries [4].

In the literature, materials on the functioning of the primary and tertiary levels of ophthalmological services are comparatively widely represented [5–9]. The secondary level of ophthalmological care has been analyzed in a limited number of studies [10,11]. The incidence of eye diseases in the population is well reflected in the works of Russian researchers [12–14]. In Azerbaijan, in connection with the introduction of medical insurance, the issue of the staged organization of ophthalmological care has become particularly relevant. The primary and tertiary levels of ophthalmological care have been addressed in a number of publications [8,9].

Objective of the study. To assess the nosological structure of reasons for visits to ophthalmologists at the secondary level of the three-tier healthcare system.

Materials and Methods. The study was conducted at a secondary-level medical institution - the Binagadi Medical Center of the city of Baku, which provides specialized medical care to a population of more than 250,000. For analysis, records of visits to ophthalmologists during the calendar year 2022 for diseases of the eye and its adnexal apparatus were collected (5,581 primary visits). The principal diagnosis, which constituted the reason for the primary visit, was coded in accordance with the three-character categories of ICD-10. Patients were distributed by gender (3,371 visits by women and 2,210 visits by men) and by age (0–15, 15–19, 20–24, 25–29, 30–34, 35–39, 40–44, 45–49, 50–54, 55–59, 60–64, 65–69, 70 years and older). The number of patient

visits in the specified age groups was, respectively: 70; 125; 186; 199; 279; 312; 296; 306; 390; 558; 808; 819; 1,233. The nosological structure across all age and gender groups was presented as percentages. Statistical analysis was performed using methods for the analysis of qualitative variables [15]. The statistical significance of differences in the nosological structure among age and gender groups was assessed using the chi-square test. The critical level of statistical significance was set at $p \leq 0.05$.

Results. The distribution of reasons-diagnoses for primary visits at the secondary level of the ophthalmological service among men and women, according to the three-character categories of ICD-10, is presented in Table 1.

The first place in the nosological structure of the causes of visits, both in the overall patient population and in gender groups, is occupied by disorders of the ocular muscles, disorders of binocular eye movements, accommodation, and refraction (27.7%, 28.1%, and 27.5%, respectively). The second place is held by diseases of the lens (24.0%, 22.4%, and 25.0%, respectively).

In the nosological structure of the causes of primary visits, the third place is occupied by diseases of the choroid and retina (10.5%, 11.2%, and 10.2%, respectively). The fourth place is held by diseases of the conjunctiva (13.0%, 14.1%, and 12.3% in the respective groups).

The proportion of diseases of the eyelids, lacrimal apparatus, and orbit (8.6%, 8.5%, and 8.7%, respectively) and other diseases of the eye and its adnexal apparatus (8.2%, 7.6%, and 8.6%, respectively) was practically identical. For all these nosological forms, their proportion did not differ between male and female groups ($p > 0.05$). The proportion of the remaining pathologies according to the three-character categories was low, and the differences between gender groups were also not statistically significant.

Thus, the nosological structure of the reasons for primary visits to ophthalmologists did not differ significantly between men and women.

The distribution of patients of different age groups at the secondary level of ophthalmological care according to the three-character categories of ICD-10 is presented in Table 2.

Table 1. Distribution of Reasons for Primary Visits at the Secondary Level of the Ophthalmological Service According to Three-Character Categories (ICD-10) of Eye Diseases (%)

Category	Name of Category	Name of Category	Men	Women
H00–H06	Diseases of the eyelids, lacrimal apparatus, and orbit	8.6	8.5	8.7
H10–H13	Diseases of the conjunctiva	13.0	14.1	12.3
H15–H22	Diseases of the sclera, cornea, iris, and ciliary body	1.9	1.8	1.9
H25–H28	Diseases of the lens	24.0	22.4	25.0
H30–H36	Diseases of the choroid and retina	10.5	11.2	10.2
H40	Glaucoma	2.5	2.4	2.6
H43–H45	Diseases of the vitreous body and eyeball	1.1	1.4	0.9
H46–H48	Diseases of the optic nerve and visual pathways	1.5	1.5	1.5
H49–H52	Disorders of extraocular muscles, binocular movement disorders, accommodation and refraction	27.7	28.1	27.5
H55–H59	Other diseases of the eye and its adnexal apparatus	8.2	7.6	8.6
T15	Foreign body in the external part of the eye	0.9	1.1	0.8
Total		100.0	100.0	100.0

Table 2. Distribution of Patients of Different Age Groups at the Secondary Level of Ophthalmological Care According to Three-Character Categories (ICD-10) of Eye Diseases (%)

ICD-10 Category	Age, years												
	<15	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70 and older
H00–H06	12,8	12,0	7,5	8,0	7,2	8,9	10,5	11,4	8,2	7,7	7,5	7,8	9,2
H10–H13	18,6	19,2	14,0	13,1	14,0	14,7	11,5	12,4	12,6	13,1	13,5	13,1	11,6
H15–H22	4,3	1,6	2,2	1,0	3,9	1,3	3,7	2,6	1,5	0,9	1,8	1,2	1,9
H25–H28	2,9	3,2	6,4	7,0	8,6	9,6	16,8	28,4	27,4	26,0	29,3	31,2	30,0
H30–H36	7,1	7,2	8,1	8,5	14,0	11,2	8,8	9,1	13,3	14,3	11,4	9,5	9,2
H40	1,4	1,6	2,1	3,0	2,5	2,2	2,7	2,3	1,8	3,0	2,5	2,6	2,6
H43–H45	—	—	1,1	—	1,1	0,6	1,7	1,3	1,3	0,2	0,9	1,2	1,7
H46–H48	1,4	—	1,6	1,0	0,7	0,6	1,0	1,3	0,5	2,7	1,5	1,7	1,8
H49–H52	38,6	43,2	51,6	50,7	38,7	43,3	33,8	24,5	24,6	21,3	22,7	23,2	21,2
H55–H59	11,4	7,2	5,4	7,5	8,2	8,3	9,1	6,5	7,4	10,4	7,8	7,9	8,6
T15	1,4	4,8	—	—	1,1	—	0,3	—	1,3	0,3	1,0	0,5	1,8
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

The nosological structure of the causes for visits among children (under 15 years) and adolescents (15–19 years) is similar. The leading causes are disorders of extraocular muscles, binocular movement disorders, accommodation and refraction (38.6% and 43.2%), diseases of the conjunctiva (18.6% and 19.2%), diseases of the lacrimal apparatus and orbit (12.8% and 12.0%), and other diseases of the eye and its adnexal apparatus (11.4% and 7.2%).

The nosological structure of the causes for visits among children and adolescents differs from that of adults primarily due to the high proportion of disorders of the ocular muscles, disorders of binocular eye movements, accommodation, and refraction, and the low proportion of diseases of the lens.

The leading causes of visits among adults of different age groups were disorders of extraocular muscles, binocular movement disorders, accommodation and refraction (21.2–51.6%). The proportion of these pathologies was highest in the 20–24 age group and lowest in individuals aged 70 years and older.

The proportion of diseases of the lens, which ranks first among the reasons for visits in the overall population (Table 1), varied widely across age groups (from 2.9% to 31.2%). In the 45–59 age group, the proportion of lens diseases among the nosological causes of visits did not differ significantly from their proportion in individuals aged 70 years and older.

Disorders of the ocular muscles, disorders of binocular eye movements, accommodation, and refraction account for the highest proportion in the structure of reasons for visits in the 20–24 age group; with increasing age, their proportion decreases to 21.2%.

The proportion of diseases of the choroid and retina in the nosological structure of the reasons for visits among different age groups ranges from 7.1% (under 15 years) to 14.3% (55–59 years).

The range of variation in the proportion of diseases of the eyelids, lacrimal apparatus, and orbit (from 7.2% in the 30–34 age group to 12.8% in those under 15 years), as well as diseases of the conjunctiva

(11.5% in the 40–45 age group and 19.2% in the 15–29 age group), is relatively narrow.

A similar pattern is observed for the remaining pathologies, with a narrow range of variation in their proportion within the nosological structure of the reasons for visits to ophthalmologists at the secondary level.

Discussion of the results. Comparison of our findings with the limited available data on the structure of reasons for visits at the secondary level of ophthalmological care [10,11] indicates the absence of common characteristics. Thus, in Kenya, at the secondary level, patients most frequently consult ophthalmologists due to allergic conjunctivitis. In this country, at the secondary level, visits related to ocular trauma are more common than those due to cataract and refractive disorders.

A.G. Zabolotny and co-authors [12], without taking into account the level-based organization of ophthalmological care, present data on the structure of morbidity according to healthcare-seeking patterns. It is noted that among individuals of working age (18–65 years for men and 18–60 years for women), ametropia and cataract predominate in the structure of ocular pathologies, which is consistent with our findings. A similar conclusion follows from comparison with the data of a number of other authors [13]. Comparison of the structure of ocular pathologies at the secondary and tertiary levels [8] demonstrates significant differences between them. At the tertiary level, cataract ranks first, whereas disorders of accommodation and refraction occupy the last position. At the tertiary level, there are no visits related to diseases of the conjunctiva, whereas at the secondary level their proportion among the reasons for visits is 8.6%. At the tertiary level, visits related to diseases of the choroid and retina are observed twice as frequently as at the secondary level.

Thus, the nosological structure of ocular pathologies among patients seeking care from ophthalmologists at the secondary level has specific features that may influence decision-making regarding organizational issues within the healthcare system.

Conclusions:

1. In the nosological structure of the reasons for visits to ophthalmologists at the secondary level, disorders of the ocular muscles, disorders of binocular eye movements, accommodation, and refraction (27.7%), diseases of the lens (24.0%), and diseases of the conjunctiva (13.0%) predominate.

2. There is no gender-based difference in the structure of reasons for visits to ophthalmologists at the secondary level.

3. The structure of reasons for visits to ophthalmologists at the secondary level depends on age: in children and adolescents, the leading causes of visits are ametropia and diseases of the conjunctiva,

whereas in older age, cataract and ametropia predominate.

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НОЗОЛОГИЧЕСКАЯ СТРУКТУРА ПРИЧИН ОБРАЩЕНИЯ К ВРАЧАМ ОФТАЛЬМОЛОГАМ НА ВТОРОМ ЭТАПЕ

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Резюме. Настоящее исследование направлено на оценку нозологической структуры причин обра-

щения к врачам-офтальмологам на втором этапе трёх-уровневой системы здравоохранения. Исследование проведено на базе медицинского учреждения второго уровня - Бинагадинского медицинского центра города Баку, который обеспечивает специализированную медицинскую помощь более чем 250 тысячам населения. В рамках исследования были проанализированы материалы первичных обращений к врачам-офтальмологам за календарный 2022 год по поводу заболеваний глаз и их придаточного аппарата (всего 5581 случай). Результаты исследования показали, что в нозологической структуре причин первичных обращений как в общей совокупности пациентов, так и в гендерных группах первое место занимают болезни мышц глаза, нарушения содружественного движения глаз, аккомодации и рефракции (27,7%; 28,1% и 27,5% соответственно), на втором месте - болезни хрусталика (24,0%; 22,4% и 25,0%). При этом нозологическая структура причин обращения детей (до 15 лет) и подростков (15–19 лет) имеет сходный характер: ведущими причинами являются болезни мышц глаза и нарушения аккомодации и рефракции (38,6% и 43,2%), заболевания конъюнктивы (18,6% и 19,2%), патологии слёзных путей и глазницы (12,8% и 12,0%), а также другие заболевания глаз и их придаточного аппарата (11,4% и 7,2%). Установлено, что в структуре причин обращения к офтальмологам на втором этапе офтальмологической службы преобладают болезни мышц глаза, нарушения содружественного движения глаз, аккомодации и рефракции (27,7%), болезни хрусталика (24,0%) и конъюнктивы (13,0%). Гендерные различия в структуре причин обращений не выявлены. В то же время структура причин обращений существенно зависит от возраста: у детей и подростков ведущими причинами являются аметропии и заболевания конъюнктивы, тогда как в пожилом возрасте преобладают катаракта и аметропии.

Ключевые слова: врач-офтальмолог, нозологическая структура, второй этап, болезни глаз.