UDC 616.323-002.2-053.2-003.96-008.5-007.61+369.011.4
DOI: 10.56871/CmN-W.2024.82.39.016

QUALITY LIFE IN CHILDREN WITH ADENOID HYPERTROPHY

© Elena A. Balakireva, Kais H.M. Obaid, Galina V. Kalmykova, Igor V. Lyutenko, Ivan D. Petrichko, Abdula M. Al-Duraibi, Elena V. Matvienko, Irina V. Kizilova, Valentina S. Popova, Alina I. Balakireva

Belgorod State National Research University. 85 Pobeda str., Belgorod 308015 Russian Federation

Contact information:
Elena Aleksandrovna Balakireva — Doctor of Medical Sciences, Head of the Department of Pediatrics.
E-mail: balakireva@dsu.edu.ru ORSID: https://orcid.org/0000-0002-3919-7045 SPIN: 8526-6539

For citation: Balakireva EA, Obaid KHM, Kalmykova GV, Lyutenko IV, Petrichko ID, Al-Duraibi AM, Matvienko EV, Kizilova IV, Popova VS, Balakireva AI. Quality life in children with adenoid hypertrophy. Children's Medicine of the North-West. 2024;12(2):175–180.
DOI: https://doi.org/10.56871/CmN-W.2024.82.39.016

Received: 28.03.2024 **Revised: 22.04.2024** **Accepted: 05.06.2024**

Abstract. ***Introduction.*** Assessing the quality of life of children with adenoid hypertrophy is a significant multidisciplinary a problem of modern medicine that has a significant impact on the quality of life of children through such phenomena as snoring, sleep apnea, night terrors, sleeping with the mouth open, etc., which is determines the relevance of our research. Adenoid hypertrophy affects the quality of life of children not only in relation to sleep, but also in other aspects. ***Purpose of the study:*** analysis of the quality of life in children with adenoid hypertrophy. ***Research methods:*** we developed an original questionnaire based on principles for assessing the quality of life of children. Parents of patients aged 2 to 10 years suffering from hypertrophy adenoids, were asked to rate their child's quality of life on a 10-point scale, where 1 is very bad, and 10 is excellent. The main group included 202 children. The comparison group included 51 healthy children, whose parents answered questions at clinic No. 4 in Belgorod, where they applied for the purpose of immunization and/or admission to the sports section. Comparison of the main group and the control group was carried out using the Student's test. The significance control point is $p \leq 0.001$ for the main results. ***Results.*** None of the parents of children from the main group rated their child's quality of life as 10 points out of 10, and more than half (108, 53.5%) rated the quality of life as low or below average (up to 5 points out of 10). A very poor quality of life (1–2 points out of 10) was noted in every tenth child (24, 11.9%). Unlike the main group, in the comparison group a score of 6 points was noted in only one child, and in the vast majority of cases (43, 84.3%) 9–10 points were given. Thus, as a result of the study, a high degree of significance difference ($p < 0.001$) was obtained between the main group and the comparison group according to the Student's test, which indicates a serious decrease quality of life of children with adenoid hypertrophy, according to their parents.

Keywords: *quality of life, adenoid hypertrophy, children*

ОЦЕНКА КАЧЕСТВА ЖИЗНИ ДЕТЕЙ С ГИПЕРТРОФИЕЙ АДЕНОИДОВ

© Елена Александровна Балакирева, Каис Хасан Мутханна Обаид, Галина Владимировна Калмыкова, Игорь Владимирович Лютенко, Иван Дмитриевич Петричко, Абдула Мохаммед Аль-Дураиби, Елена Витальевна Матвиенко, Ирина Владимировна Кизилова, Валентина Сергеевна Попова, Алина Игоревна Балакирева

Белгородский государственный национальный исследовательский университет. 308015, г. Белгород, ул. Победы, 85

Контактная информация:
Елена Александровна Балакирева — д.м.н., заведующая кафедрой педиатрии. E-mail: balakireva@dsu.edu.ru
ORSID: https://orcid.org/0000-0002-3919-7045 SPIN: 8526-6539

Для цитирования: Балакирева Е.А., Обаид К.Х.М., Калмыкова Г.В., Лютенко И.В., Петричко И.Д., Аль-Дураиби А.М., Матвиенко Е.В., Кизилова И.В., Попова В.С., Балакирева А.И. Оценка качества жизни детей с гипертрофией аденоидов // Children's Medicine of the North-West. 2024. Т. 12. № 2. С. 175–180. DOI: https://doi.org/10.56871/CmN-W.2024.82.39.016

Поступила: 28.03.2024 **Одобрена: 22.04.2024** **Принята к печати: 05.06.2024**

 ISSN 2221-2582

Резюме. ***Введение.*** Оценка качества жизни детей с гипертрофией аденоидов — значимая многопрофильная проблема современной медицины, оказывающая значительное влияние на качество жизни детей посредством таких явлений, как храп, остановка дыхания во сне, ночные страхи, сон с открытым ртом и т.д., что и обусловливает актуальность нашего исследования. Гипертрофия аденоидов влияет на качество жизни детей не только в отношении сна, но и в других аспектах. ***Цель исследования:*** анализ качества жизни у детей с гипертрофией аденоидов. ***Методы исследования:*** мы разработали оригинальный опросник для оценки качества жизни детей. Родители пациентов от 2 до 10 лет, страдающих гипертрофией аденоидов, должны были оценить качество жизни своего ребенка по 10-балльной шкале, где 1 — очень плохое, а 10 — отличное. В основную группу были включены 202 ребенка. В группу сравнения вошел 51 здоровый ребенок, родители которых отвечали на вопросы в поликлинике № 4 г. Белгорода, куда обращались с целью иммунизации и/или допуска в спортивную секцию. Сравнение основной группы и группы контроля проводилось по критерию Стьюдента. Контрольная точка достоверности — p ≤0,001 основных результатов. ***Результаты.*** Ни один из родителей детей из основной группы не оценил качество жизни своего ребенка на 10 баллов из 10, а более половины (108, 53,5%) оценили качество жизни как низкое или ниже среднего (до 5 баллов из 10). Очень плохое качество жизни (1–2 балла из 10) отмечалось у каждого десятого ребенка (24, 11,9%). В отличие от основной, в группе сравнения оценка в 6 баллов отмечена лишь у одного ребенка, а в подавляющем большинстве случаев (43, 84,3%) выставлены 9–10 баллов. Таким образом, в результате проведенного исследования была получена разница высокой степени достоверности (p <0,001) между основной группой и группой сравнения по критерию Стьюдента, которая свидетельствует о серьезном снижении качества жизни детей с гипертрофией аденоидов, по мнению их родителей.

Ключевые слова: *качество жизни, гипертрофия аденоидов, дети*

INTRODUCTION

Quality of life can be simply defined as the area of human life that directly concerns the person and is important to him or her [1].

As a rule, the questionnaire method is used to determine the level of quality of life. General-purpose questionnaires can be used when studying large population groups with various pathologies. In this way, the results can be compared with each other, regardless of whether the humans are healthy or suffer from some disease, or if the groups of subjects are numerically different. However, general-purpose surveys are not useful tools for assessing individual changes that occur in each specific person [2].

Quality of life assessment allows to clarify the level of satisfaction of people with chronic diseases [3]. The study involved preschool children with chronic hypertrophy of adenoids. As a result of questioning the parents of these children, a sharp decrease in their quality of life was revealed, as well as the specifics of the focus of complaints in children of different constitutional types [4].

To study the quality of life of patients suffering from some pathology, in most cases modified surveys are developed based on the classic ones recommended by WHO. For example, to evaluate the quality of life of children of different ages, the QUALIN questionnaires are used [3, 5].

Chronic adenoid hypertrophy, being one of the leading problems of modern pediatrics, affects the somatic and functional development of the child i.e. changes the quality of his life [6].

In pediatric otolaryngology (ENT), adenoid hypertrophy is one of the most common reasons for seeking medical attention and accounts for up to 45% of ENT pathologies. According to published data, the vast majority of preschool and primary school children suffer from adenoid hypertrophy of varying degrees of severity. Age-related anatomical and physiological characteristics of the structure of the respiratory tract, can have a significant impact on quality of life [7].

It is reliably known that such life-threatening situations as obstructive sleep apnea occur in children with adenoid hypertrophy much more often than in the general population — up to 27% [4].

Disturbance of the structure and mechanisms of sleep, including those associated with adenoid hypertrophy, can lead to cognitive impairments such as learning disabilities, memory difficulties, problems with logical thinking, delay of the acquisition of new skills, as well as emotional and behavioral disorders such as anxiety and depression, apathy, irritability, obsessional states, and tics [8].

Adenoid hypertrophy affects the quality of life of children not only in relation to sleep, but also in other aspects: somatic, neuropsychological, cosmetic, etc. [9]. For example, it has been shown that the negative impact of adenoid vegetations on the body at the current level is considered not only as a

source of infection, but also as a manifestation of an immunodeficiency state and is carried out in three ways:

- mechanical obstruction caused by a hypertrophied pharyngeal tonsil;
- disruption of reflex connections;
- the presence of infection in tissue of the adenoids [10].

Most children and adolescents with chronic adenoid hypertrophy have functional disorders of the cardiovascular system and its autonomic regulation, referred to as the rhinocardial reflex. In adolescents with autonomic dysfunction, the degree of nasopharyngeal tonsil hyperplasia directly correlates with vegetovascular dystonia [11].

The works of A.V. Bykova et al. (2022), U.B. Mukhitdinova et al. (2017) show a close relationship between adenoid hypertrophy and otitis media, leading to an even greater decrease in the quality of life of children [12, 13].

In the literature, we came across several studies that focus on quality of life of patients with adenoid hypertrophy [1]. In the work of D.I. Stolyarov [14], using the standardized questionnaire "SF-36 HEALTH STATUS SURVEY", the physical and psychological components of assessment quality of life of patients with adenoid hypertrophy were studied. It was shown that the degree of hypertrophy of the nasopharyngeal tonsil does not have a significant effect on the quantitative indicators of the physical component of children's health. However, adenoid hypertrophy leads to a decrease in the indicators of the mental component and a progressive deterioration in the quality of life with age.

I.A. Zhmakina et al. (2017), used in their study the questionnaire "Pediatric Quality of Life InventoryTM", and showed, that physical development, adaptive resources and the tension of vegetative regulation of patients with adenoid hypertrophy were evaluated. G. Tastanova et al. considered in their article the physical development of primary school children with pathology of the adenotonsillar system [15].

Adenoid hypertrophy complicated by middle ear pathology can lead to serious psychoemotional problems, changes in speech production and, accordingly, a decrease in the quality of life and learning outcomes [16]. The disease affects the formation of the facial skeleton (adenoid face), malocclusion [17].

Thus, adenoid hypertrophy is a significant multidisciplinary problem of modern medicine that has a major impact on the quality of life of children, which determines the relevance of our research.

AIM

The aim of the study is to analyze the quality of life in children with adenoid hypertrophy.

MATERIALS AND METHODS

We developed an original questionnaire to assess the quality of life of children. Among other questions, parents of patients aged 2 — 10 years suffering from adenoid hypertrophy had to evaluate their child's quality of life on a 10-point scale, where 1 is very bad and 10 is excellent.

Inclusion criteria: children aged 2–10 years, no other chronic diseases that could affect the patient's quality of life.

Exclusion criteria: other age groups, presence of chronic diseases.

The main group included 202 children: 128 boys and 74 girls (M:F — 1,7:1). All children were treated at the Children's Regional Clinical Hospital in Belgorod for adenoid hypertrophy.

The comparison group included 51 healthy children whose parents answered questions at outpatient clinic No. 4 in Belgorod, where they applied for the purpose of immunization and/or admission to the sports section.

Comparison of the main group and the control group was carried out using the Student's t-test. The significance control point is $p \leq 0{,}001$.

RESULTS AND DISCUSSION

The opinion of parents about the quality of life in children in the main group and comparison group is presented in Table 1.

Thus, none of the parents of children in the main group rated their child's quality of life as 10 points out of 10, and more than half (108, 53,5%) rated the quality of life as low or below average (up to 5 points out of 10). A very bad quality of life (1–2 points out of 10) was noted by every tenth child (24, 11,9%). Unlike the main group, in the controls, a score of 6 points was noted in only one child, and in the vast majority of cases (43, 84,3%), 9–10 points were given.

As it is shown in Fig. 1, only 43 parents (21,3%) reported good quality of life (8–9 points). The remaining respondents noted a significant decrease in quality of life, in the overwhelming majority of cases directly related to adenoid hypertrophy (159, 78,7%), in contrast to the control group.

For clarity, we ranked the point score in Fig. 2 into three levels of quality of life: bad — 1–4 points, medium — 5–7 points, and good 8–10 points.

Table 1. Quality of life scores for children with adenoid hypertrophy and healthy children

Таблица 1. Балльная оценка качества жизни детей, страдающих гипертрофией аденоидов и здоровых детей

Баллы / Points	1	2	3	4	5	6	7	8	9	10
Основная группа / Main group	14	10	16	25	43	26	25	26	17	0
Группа сравнения / Comparison group	0	0	0	0	0	1	3	4	16	27

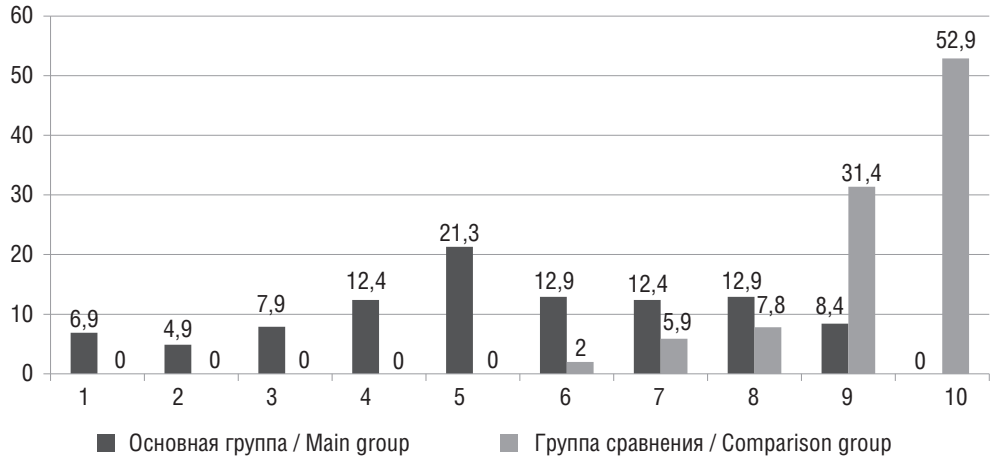

Fig. 1. Percentage assessment of the quality of life of children from the main group and comparison group on a 10-point scale

Рис. 1. Процентная оценка качества жизни детей из основной группы и группы сравнения по 10-балльной шкале

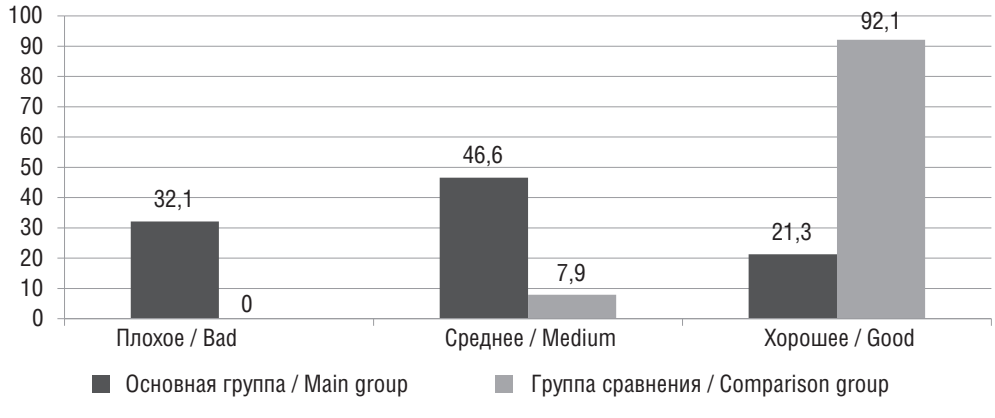

Fig. 2. Distribution of the obtained data into 3 levels of quality of life

Рис. 2. Распределение полученных данных на 3 уровня качества жизни

As can be seen from Fig. 2, in the main group, the quality of life of children suffered considerably compared to the controls with a high degree of significance — p <0.001 according to the Student's t-test.

CONCLUSION

Thus, as a result of the conducted study, a high degree of significance difference (p <0,001) was obtained between the main group and controls according to the Student's t-test, which indicates a serious decrease in the quality of life in children with adenoid hypertrophy, according to their parents. The results justify the need to develop new methods of early diagnosis, treatment and ranking of indications for conservative and surgical treatment of adenoid hypertrophy in children.

ADDITIONAL INFORMATION

Author contribution. Thereby, all authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising

the article, final approval of the version to be published and agree to be accountable for all aspects of the study.

Competing interests. The authors declare that they have no competing interests.

Funding source. This study was not supported by any external sources of funding.

Consent for publication. The authors received written consent from the respondents to publish the data.

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ

Вклад авторов. Все авторы внесли существенный вклад в разработку концепции, проведение исследования и подготовку статьи, прочли и одобрили финальную версию перед публикацией.

Конфликт интересов. Авторы декларируют отсутствие явных и потенциальных конфликтов интересов, связанных с публикацией настоящей статьи.

Источник финансирования. Авторы заявляют об отсутствии внешнего финансирования при проведении исследования.

Информированное согласие на публикацию. Авторы получили письменное согласие анкетируемых на публикацию данных.

REFERENCES

1. Zhmakin I.A., Alekseeva Yu.A., Denisova E.V., Shekhovtsov V.P., Rybakova M.V. Kachestvo zhizni i pokazateli adaptatsii u detey s patologiey glotochnoy mindaliny. [Quality of life and adaptation indicators in children with pharyngeal tonsil pathology]. Sovremennye problemy nauki i obrazovaniya. 2017;5:183. (in Russian).
2. Den'gina A.V., Baturin V.A. Etiologiya, patogenez i lechenie khronicheskogo adenoidita. [Etiology, pathogenesis and treatment of chronic adenoiditis]. Vestnik molodogo uchenogo. 2022;11(1):27–32. (in Russian).
3. Piskunova A.S. Sovremennye vozmozhnosti terapii adenoidnykh vegetatsiy v pediatricheskoy praktike. [Modern possibilities of therapy of adenoid vegetations in pediatric practice]. Praktika pediatra. 2019;2:24–27. (in Russian).
4. Zhunusova G.S. Sindrom dissomnii. [Dyssomnia syndrome]. Vestnik Kazakhskogo Natsional'nogo meditsinskogo universiteta. 2016;4:139–142. (in Russian).
5. Chernikov V.V. Razrabotka russkoy versii oprosnika QUALIN dlya izucheniya kachestva zhizni detey rannego vozrasta. [Development of the Russian version of the QUALIN questionnaire to study the quality of life of young children]. Voprosy sovremennoy pediatrii. 2009; 8(1):14–19. (in Russian).
6. Ferens Yu.S. Narusheniya sna u detey v vozraste ot 14 do 17 let. [Sleep disorders in children aged 14 to 17 years old]. Sovremennye innovatsii. 2016;10(12):14–15. (in Russian).
7. Kryukova D.A., Beloshangin A.S. Adenotomiya i ee vliyanie na funktsional'noe sostoyanie immunnoy i endokrinnoy sistem. [Adenotomy and its effect on the functional state of the immune and endocrine systems]. Vestnik Soveta molodykh uchenykh i spetsialistov Chelyabinskoy oblasti. 2017;2(2):117–125. (in Russian).
8. Venevtseva Y.L., Melnikov A.K., Putilin L.V. Psychosocial factors influencing the dynamics and sleep quality in medical students. Zhurnal Nevrol. i Psikhiatrii Im. SS Korsakova. 2021;121(4):70–76. DOI: 10.17116/jnevro202112104170.
9. Xu Z., Wu Y., Tai J. Risk factors of obstructive sleep apnea syndrome in children. J. Otolaryngol. Neck Surg. 2020;49(1):1–7. DOI: 10.1186/s40463-020-0404-1.
10. Cvejic E., Huang S., Vollmer-Conna U. Can you snooze your way to an 'A'? Exploring the complex relationship between sleep, autonomic activity, wellbeing and performance in medical students. Aust. New Zeal. J. Psychiatry. 2018;52(1):39–46. DOI: 10.1177/0004867417716543.
11. Pchelina P.V. Son u detey: ot fiziologii k patologii. [Sleep in children: from physiology to pathology]. Meditsinskiy sovet. 2017;9:97–102. (in Russian).
12. Drozdova M.V., Ryazantsev S.V., Bykova A.V. Novye vozmozhnosti terapii ekssudativnogo srednego otita u detey. [New possibilities of therapy of exudative otitis media in children]. Voprosy prakticheskoy pediatrii. 2022;17(2):65–71. DOI: 10.20953/1817-7646-2022-2-65-71. (in Russian).
13. Mukhitdinov U.B., Usmankhadzhaev A.A. Otsenka anatomicheskikh struktur pri khronicheskom gnoynom srednim otite (KhGSO) v diagnosticheskom aspekte. [Evaluation of anatomic structures in chronic suppurative middle otitis media (CSMO) in diagnostic aspect]. Sovremennye nauchnye issledovaniya i razrabotki. 2017;2(1):172–175. (in Russian).
14. Stolyarov D.I. Otsenka vliyaniya khronicheskogo persistiruyushchego adenoidita na kachestvo zhizni detey. [Assessing the impact of chronic persistent adenoiditis on children's quality of life]. Rossiyskaya otorinolaringologiya. 2008;2:72–76. (in Russian).
15. Tastanova G.E., Khodzhanov Sh.K., Abdusamatova I.I. Pokazateli fizicheskogo razvitiya detey mladshego shkol'nogo vozrasta s patologiey ade-

notonzilyarnoy sistemy. [Indicators of physical development of primary school children with pathology of adenotonsillar system]. Stomatologiya. 2021;2(83):104–108. DOI: 10.34920/2091-5845-2021-63. (in Russian).
16. Kalashnikova S.A. Psikhologicheskie osnovaniya neadaptivnoy sotsializatsii detey s ogranichennymi vozmozhnostyami zdorov'ya. [Psychological bases of maladaptive socialization of children with disabilities]. Mezhdunarodnyy nauchno-issledovatel'skiy zhurnal. 2016;7–3(49):144–146. (in Russian).
17. Abilova F.A. Vliyanie na klinicheskoe techenie adenoidnykh vegetatsiy anatomicheskogo raspolozheniya glotochnoy mindaliny. [Influence of the anatomic location of the pharyngeal tonsil on the clinical course of adenoid vegetations]. Visnik problem biologiï i meditsini. 2016;1(1):111–114. (in Russian).

ЛИТЕРАТУРА

1. Жмакин И.А., Алексеева Ю.А., Денисова Е.В., Шеховцов В.П., Рыбакова М.В. Качество жизни и показатели адаптации у детей с патологией глоточной миндалины. Современные проблемы науки и образования. 2017;5:183.
2. Деньгина А.В., Батурин В.А. Этиология, патогенез и лечение хронического аденоидита. Вестник молодого ученого. 2022;11(1):27–32.
3. Пискунова А.С. Современные возможности терапии аденоидных вегетаций в педиатрической практике. Практика педиатра. 2019;2:24–27.
4. Жунусова Г.С. Синдром диссомнии. Вестник Казахского Национального медицинского университета. 2016;4:139–142.
5. Черников В.В. Разработка русской версии опросника QUALIN для изучения качества жизни детей раннего возраста. Вопросы современной педиатрии. 2009;8(1):14–19.
6. Ференс Ю.С. Нарушения сна у детей в возрасте от 14 до 17 лет. Современные инновации. 2016;10(12):14–15.
7. Крюкова Д.А., Белошангин А.С. Аденотомия и ее влияние на функциональное состояние иммунной и эндокринной систем. Вестник Совета молодых ученых и специалистов Челябинской области. 2017;2(2):117–125.
8. Venevtseva Y.L., Melnikov A.K., Putilin L.V. Psychosocial factors influencing the dynamics and sleep quality in medical students. Zhurnal Nevrol. i Psikhiatrii Im. SS Korsakova. 2021;121(4):70–76. DOI: 10.17116/jnevro202112104170.
9. Xu Z., Wu Y., Tai J. Risk factors of obstructive sleep apnea syndrome in children. J. Otolaryngol. Neck Surg. 2020;49(1):1–7. DOI: 10.1186/s40463-020-0404-1.
10. Cvejic E., Huang S., Vollmer-Conna U. Can you snooze your way to an 'A'? Exploring the complex relationship between sleep, autonomic activity, wellbeing and performance in medical students. Aust. New Zeal. J. Psychiatry. 2018;52(1):39–46. DOI: 10.1177/0004867417716543.
11. Пчелина П.В. Сон у детей: от физиологии к патологии. Медицинский совет. 2017;9:97–102.
12. Дроздова М.В., Рязанцев С.В., Быкова А.В. Новые возможности терапии экссудативного среднего отита у детей. Вопросы практической педиатрии. 2022;17(2):65–71. DOI: 10.20953/1817-7646-2022-2-65-71.
13. Мухитдинов У.Б., Усманхаджаев А.А. Оценка анатомических структур при хроническом гнойном средним отите (ХГСО) в диагностическом аспекте. Современные научные исследования и разработки. 2017;2 (1):172–175.
14. Столяров Д.И. Оценка влияния хронического персистирующего аденоидита на качество жизни детей. Российская оториноларингология. 2008; 2: 72–76.
15. Тастанова Г.Е., Ходжанов Ш.К., Абдусаматова И.И. Показатели физического развития детей младшего школьного возраста с патологией аденотонзилярной системы. Stomatologiya. 2021;2(83):104–108. DOI: 10.34920/2091-5845-2021-63
16. Калашникова С.А. Психологические основания неадаптивной социализации детей с ограниченными возможностями здоровья. Международный научно-исследовательский журнал. 2016;7–3(49):144–146.
17. Абилова Ф.А. Влияние на клиническое течение аденоидных вегетаций анатомического расположения глоточной миндалины. Вісник проблем біології і медицини. 2016;1(1):111–114.