THE IMPACT OF ENT DISEASES ON THE QUALITY OF LIFE AND LEVEL OF ANXIETY IN YOUNG MALES OF PRE-CONSCRIPTION AGE IN RA

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ABSTRACT

INTRODUCTION. The methodology of quality of life research has justified the need to develop a new direction of interdisciplinary research. The research aimed to study the impact of main ear-nose-throat diseases on quality of life parameters and the level of anxiety in adolescents of pre-conscription age.

MATERIALS AND METHODS. The study was conducted from 2014 to 2020. The sample consisted of 720 adolescents of pre-conscription age from 15-to 17 years old. The cross-sectional survey was conducted in 4 randomly selected secondary schools of Yerevan. Out of the total participants included in the 351 had ear-nose-throat pathology and 369 did not. The dependence of the PedsQLTM 4.0 questionnaire domains on external factors was assessed. Reliability of the questionnaire was assessed using Cronbach's α-coefficient. The Taylor Manifest Anxiety Scale was designed to measure anxiety.

RESULTS. The prevalence of ear-nose-throat diseases among young men of pre-conscription age (15,16 and 17 years old) was 48.8±1.9%. The rate was significantly higher in the group of 17-year-old adolescents compared to 15-year-old adolescents. Throat diseases ranked first in prevalence. All the indicators of quality of life of pre-conscription youth with ear-nose-throat diseases were lower compared to the group without ear-nose-throat diseases. Chronic inflammatory diseases of the nasal cavity and paranasal sinuses had the most negative impact on self-esteem. It was found that the expressed and very high anxiety was significantly higher in the group of persons with ear-nose-throat diseases compared to practically healthy people.

CONCLUSION. In pre-conscription youth with ear-nose-throat -diseases a lower level of the domains of quality of life was registered in comparison with the group of practically healthy people. Chronic diseases of the nasal cavity and paranasal sinuses had the most negative impact on the quality of life. Adolescents with ear-nose-throat diseases more often show increased anxiety compared to the practically healthy ones.

KEYWORDS: young men of pre-conscription age, ENT diseases, quality of life, PedsQL™ 4.0 questionnaire, level of anxiety, Taylor Anxiety Scale.

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INTRODUCTION

The methodology for studying quality of life (QoL) opened a fundamentally new stage in the life of society, for the first time proposing a simple, informative, and reliable method for determining the key parameters that constitute the quintessence of human well-being, and also substantiated the need to develop a new direction of interdisciplinary research based on the World Health Organization (WHO) definition of health [*Manificat S., Dazord A.,2002, Ware JF, 2014,*]. Thus, the QOL research method is an important component of modern clinical research and clinical practice [*Junger KF et al., 2016, Kao S et al., 2017, Ane K et al., 2018, Habib H et al., 2021, Lauren K et al., 2022, Yaroslav S et al., 2023*]. Many medical and social studies have been devoted to the study of QoL in children of different ages [*Nutakki K et al., 2013, Desai AD et al., 2014, Grandis ES et al., 2014, D'avila HF et al., 2019, Amy KC et al., 2021, Sabahat A, Amtul SS, 2022, Makary CA et al., 2023*]. A child's QoL is an integral characteristic of his health status, which is based on the subjective perception of this concept. According to Warni JW et al. (2015a), definition: QoL is the perception and assessment of various areas of a child's life [*Varni JW et al., 2015, Varni JW et al., 2015*].

A common instrument for assessing QoL is the MOS SF-36. It is widely used in both population and special studies. The SF-36 questionnaire allows you to assess the quality of life in various pathologies [*Varni JW et al., 2015*]. Several specialized questionnaires are widely used in the field of Ear, nose, throat (ENT). For example, the Chronic Respiratory Questionnaire (CRQ) is used to study the impact of respiratory diseases on QoL indicators [*Tatar EÇ et al., 2013, Pedro L et al., 2014*].

The most widely used questionnaire for studying the quality of life of school-age children with ENT diseases is Pads QLTM 4.0 [*Ainuddin A et al., 2015, Husna AA et al., 2015, James WV, 2015, Desalegn G et al., 2021, Matthew FS et al., 2022*]. It is intended to study both the opinions of children of different age groups and the child's parents. The use of a questionnaire in a new population requires an assessment of its reliability and validity [*Kao S et al., 2017, Lechosław P et al., 2023, Ligia L, Sara L, 2023*]. The need to develop and implement in the system of practical health care an effective system for monitoring the health status of children of pre-conscription age, as well as the selection of tools that will make it possible to assess the effectiveness of these measures is becoming more and more urgent. From this point of view, it is important to apply the experience of authoritative international institutions engaged in the study of QoL [*Grandis ES et al., 2014, Valsamidis K et al., 2019*]. On this basis, the Armenian version developed by us is of scientific and practical importance, opening wide opportunities for studying all the parameters of school-age children's QOL and the specifics of the influence of ENT diseases on these parameters.

Despite the availability of various studies on the issue of QoL, there are still many unexplored aspects of this problem. There are few studies that discuss the impact of ENT diseases on the components of QOL in young people of pre-conscription age and mainly concern changes in the main indicators of QOL in individual lesions [*Cloutier F et al., 2014, Dongen TM et al., 2014, Apirada T et al., 2020*]. Methodological and organizational features of studies of ENT diseases do not allow comparison of the results obtained. On the other hand, the tools for assessing QOL are not limited, and the existing instruments require adequate psychometric properties, reliability and validity [*Khemika Kh, Jitthip Y, 2022, Mahesh K, 2023*]. Research on QOL in pediatric practice is more limited because there are challenges that require a special approach to studying QOL in children. Questionnaires used to assess QoL in children should be adapted for each age group. The most commonly used questionnaire is Pads QLTM 4.0 [*Khademi B et al., 2013, Desai AD et al., 2014, Andrea B, Magdolna R, 2019, Iori S et al., 2022*]. The authors offer versions of the questionnaire for four age groups (2-4,5-7,8-12,13-18) [*Pedro L et al., 2014, Valsamidis K et al., 2019, Chadi AM et al., 2023, Lechosław P et al., 2023*]. The above justifies the study of the influence of ENT diseases on the indicators of QOL of adolescents 15-17 years old.

Objective: using the international questionnaire Pads QLTM 4.0, to study the impact of main ENT diseases on quality of life parameters, and also to assess the level of anxiety using the individual Taylor anxiety scale in adolescents of pre-conscription age.

MATERIAL AND METHODS

The main limitations of this study are related to the heterogeneity of the population. Although efforts were made to recruit children using different forms of communication. Data were obtained from two highly specialized pediatric centers. It will be important to include a more representative sample in the psychometric validation to ensure that these indicators can be used across Armenia.

Those whose were included in the study divided into the following age groups: first group: 15-year-old (G1), second group: 16-year-old (G2), third group: 17-year-old (G3).

Understanding the impact of quality of life on groups of children exposed to elevated and cumulative risk factors for their health and well-being is of paramount importance. However, ensuring that these data accurately reflect what is happening so that targeted and effective interventions can be implemented is critical. Mothers did not report statistically significant reductions in scores in the weeks following an episode of acute illness compared to points in time when the same child was healthy. Thus, the impact of acute illness was not reflected in this population.

Any future studies, especially those involving children, should describe the implementation of measurement and reliability and validity analyses in this population. Sharing this information will help other research and clinical groups to apply and more accurately assess the health of the pediatric population.

The international Pediatric Quality of Life Inventory - PedsQLTM4.0 (Varni J et al., USA, 2015), which is one of the most popular questionnaires in the world and has been translated into more than 20 languages, was chosen as the main method for determining patients' quality of life. In accordance with the international methodology and recommendations, the questionnaire was translated from English into Armenian and adapted to the linguistic and cultural peculiarities. The testing of the questionnaire showed its high reliability and validity. Cronbach's alpha was 0.71.

The dependence of the PedsQL™ 4.0 questionnaire domains on external factors was assessed. Such a criterion for our study was the presence or absence of ENT diseases [*Khademi B et al., 2013*].

The questionnaire consists of 23 questions, which are organized into the following scales: physical functioning - 8 questions; emotional functioning - 5 questions; social functioning - 5 questions; role functioning - school functioning - 5 questions. The questionnaire is divided into blocks by age - 8 - 12 and 13 - 18 years old, which have forms to be filled out by both children and parents. The questionnaire was used to examine physical, emotional, social and role functioning [*Varni J et al., 2004*].

The total number of points for all modules is calculated on a 100-point scale after the scaling procedure: the higher the final value, the better the quality of life of the child.

The scaling of the questionnaire data is done according to the data as follows: Never- response score in points-0, result-100 points; Almost never- response score in points-1, result-75 points; Sometimes- response score in points-2, result-50 points; Often- response score in points-3, result-25 points; Almost always- response score in points-4, result-0 points. To obtain the results for each of the functioning scales, the arithmetic mean is calculated. Higher scores indicate better QoL. The composite physical health score (8 items) is the same as the physical functioning subscale, and the composite psychosocial health score (15 items) covers the emotional, social, and school functioning subscales[*Varni J et al., 2004*].

The Manifest Anxiety Scale (TMAS) for Adolescents, developed by J. A Taylor, is designed to measure anxiety as a relatively stable construct during adolescence and early adolescence. An anxiety level is inferred from the resulting scale score: - 1-2 (0-5 points): anxiety is not characteristic, such calmness may or may not be protective in nature; - 3-6: (6-18 points): normal level of anxiety (necessary for adaptation and productive activity); - 7-8 (19-22 points): moderate anxiety; - 9: (27-30 points): pronounced high anxiety; - 10 (31-54 points): very high anxiety (risk group) [*Taylor J. A.,1956, Katja Beesdo et al.,2011*].

Statistical analysis was performed using the STATA Statistical Package, version 9.0. Descriptive statistics were used to account for characteristics. Categorical variables were described as frequency and percentage, while continuous variables were described as mean values and standard deviation (SD). Independent t-test was used to compare

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mean PedsQL™ 4.0 scores between healthy people and people with respiratory diseases. The formula for performing of independent t-test was:

$$t = \frac{(\overline{X}_1 - \overline{X}_2)}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

where, $\overline{X}_1$, $\overline{X}_2$ are compared mean scores, S_1^2, S_2^2 – variances and n_1, n_2 – sample sizes of the compared groups.

Calculation of Cohen's d allowed to measure the effect size of the difference between mean scores.

Z-test was used for paired comparison of the occurrence rate of ENT diseases in 15-, 16-, and 17-year-old men. The formula for performing of z-test was:

$$z = \frac{p_1 - p_2}{\sqrt{p * (1 - p) * \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}.$$

The study organization plan was discussed and approved at the ethical committee meeting of Yerevan State Medical University after M. Heratsi. The study was conducted from 2014 to 2020. The material and technical base of the study was 4 randomly selected secondary schools of Yerevan city. Inclusion criteria for the study: young men of pre-conscription age from 15 to 18 years old. The sample consisted of 790 observation units, but only 720 people gave written consent to participate in the study. Of those included in the study 351 had ENT pathology, 369 did not.

Stage I: preliminary screening of children and their parents. To collect baseline data, we developed a special questionnaire that included questions about the frequency and risk factors of ENT diseases.

Stage II: clinical examination of ENT organs of young men of pre-conscription age. The following methods were used: anterior and posterior rhinoscopy, pharyngoscopy, indirect laryngoscopy, otoscopy and determination of speech and whispered hearing function. If necessary, additional methods of examination of the ENT organs were used: radiography, audiometry, and laboratory tests. *Table 1* presents the medical and demographic characteristics of young men of pre-conscription age.

Results:

The occurrence rate of ENT diseases among young men of pre-conscription age was 48.8±1.9%. The rate was significantly higher among 17-year-olds compared to the 15-year-old group. In this case, throat diseases ranked first (22.1±1.5%). The occurrence rate of throat diseases among 17-year-olds was significantly higher compared to the 15-year-old group (*Table 2*).

In the comparison groups, all indicators of the

Table 1.

Subjects and family characteristics

Distribution of the sample by age groups	
15 years	235 (32.6%)
16 years	215(29.9%)
17 years	270 (37.5%)
Frequently ill people	84 (33.7%)
15 years	19(28.4%)
16 years	27(31.8%)
17 years	38 (39.3%)
Presence of ENT diseases	Total 351 (48.8%)
15 years	108 (30.8%)
16 years	103(29.3%)
17 years	140 (29.9%)
Factor:	0, (100
Inadequate living conditions	113 (45.4%)
Big family	4(1.7%)
Unfavorable psychological climate in the family	63(25.4%)
Having a disabled person in the family	13(5.4%)
Not a complete family	58(23.4%)
Low level of material support	63(25.4%)
The low medical activity of parents	113(45. 4%)
Parents' education is below average	38(15.4%)
Parents smoke	139(55.7%)
Parents abuse alcohol	94(37.7%)
Low physical activity	188(75.7%)
Poor performance at school	88(35.5%)
Presence of chronic ENT diseases in parents	97(38.9%)
Presence of chronic concomitant diseases	39(15.7%)
Poor nutrition	187(75.2%)
Violation of the daily routine	204(82.1%)
Low academic performance	55 (22, 1%)

TABLE 2

Nosologic features of the occurrence rate of Ear, nose, throat (ENT) diseases
among young men of pre-conscription age

Disease	N=720	Control G1 N=235		G2 N=215		G3 N=270		Z$_{1,3}$		Z$_{1,2}$		Z$_{2,3}$	
		P±m	n	P±m	n	P±m	n	G1-G3	P value	G1-G2	P value	G2-G3	P value
Diseases of the nose and paranasal sinuses	156	21.7±1.5	58	24.7±2.8	43	20.0±2.7	55	20.4±2.5	1.2	>0.05	1.2	>0.05	0.2	>0.05
Throat diseases	159	22.1±1.5	42	17.9±2.5	47	21.9±2.8	70	25.9±2.7	2.2	<0.05	1.1	>0.05	1.0	>0.05
Ear diseases	36	5.0±0.8	8	3.4±1.2	13	6.0±1.6	15	5.6±1.4	3.2	<0.01	1.3	>0.05	0.2	>0.05
Total	351	48.8±1.9	108	46.0±3.3	103	47.0±3.4	140	51.9±3.0	1.3	>0.05	0.2	>0.05	1.1	>0.05

NOTES: G1 - Group 1(15-year-old), G2 – Group2(16-year-old), G3 - Group 3(17-year-old)

quality of life of pre-conscription youth with ENT diseases were lower compared to the group without ENT diseases. The psychosocial health domain was affected to a greater extent (p<0.001) and the social functioning component was most affected (*TABLE 3*).

We also analyzed the impact of individual ENT nosologies on the domains of QOL. It was found that in the presence of ENT diseases, the level of QOL differs depending on the specific nosologies (*TABLE 4*). Chronic inflammatory diseases of the nasal cavity and paranasal sinuses had the most negative impact on self-esteem. The low level of physical and psychological components of QoL

was recorded. The parameters of the studied indicators in acute inflammatory diseases of the ear were also recorded low. Acute inflammatory diseases of the pharynx had a negative effect on the psychological component, while the physical component remained at an average level. Summarizing the data, it can be noted that chronic ENT diseases, especially in the presence of chronic diseases of the nasal cavity and paranasal sinuses, are the most affected by the physical component of QOL.

At the next stage of the study, the level of anxiety was assessed using the Taylor Manifest Anxiety Scale (TMAS). It was found that severe and very high anxiety was significantly higher in the

TABLE 3

Comparative characteristics of quality of life indicators of pre-conscription age youths depending
on the presence of Ear, nose, throat (ENT) pathology (M± SD)

Quality of life domains	15-17 years				Cohen's d	Effect Size, r	t Score	P-value
	Healthy N=369		ENT patients (N=351)					
	Mean	SD	Mean	SD				
Physical health	89.1	21.9	64.4	8.8	1.48	0.59	20.3	<0.001
Psychosocial health	85.7	8.8	52.8	11.6	3.2	0.84	42.7	<0.001
Emotional functioning	88.7	19.5	59.3	8.3	1.96	0.70	26.5	<0.001
Social functioning	93.3	18.4	51.7	15.3	2.46	0.78	25.1	<0.001
School functioning	94.3	13.0	53.6	11.4	3.33	0.86	44.7	<0.001
Total	90.6	10.4	72.7	10.9	1.68	0.64	22.5	<0.001

*NOTE: * P value = statistical significance.*

Table 4.

Assessing the quality of life of patients with ear, nose, throat (ENT) pathologies

	Acute inflammatory diseases	Chronic inflammatory diseases	t-value	p-value
Correction between the group with acute (n=54) and chronic (n=102) disease of the nose and paranasal sinuses				
Physical health	68.9±9.2	54.2±11.5	8.7	<0.001
Psychosocial health	67.6±13.5	54.2±11.2	6.2	<0.001
Emotional functioning	63.7±12.5	52.2±13.2	5.4	<0.001
Social functioning	61.3±11.5	55.3±13.5	2.9	<0.001
School functioning	63.7±14.5	51.3±14.5	5.1	<0.001
Total	63.8±8.7	51.5±9.8	8.0	<0.001
correction only between the group of acute (n=60) and chronic (n=99) diseases of the throat				
Physical health	73.7±10.9	58.8±9.9	3.0	<0.01
Psychosocial health	63.3±12.5	57.5±11.9	2.0	<0.05
Emotional functioning	62.2±11.5	55.7±9.8	2.1	<0.05
Social functioning	66.0±10.9	59.4±9.9	2.5	<0.05
School functioning	62.2±13.2	57.3±10.8	5.0	<0.001
Total	69.1±9.7	58.1±8.9	3.3	<0.01
Correction between the group of acute (n=19) and chronic(n=17) inflammatory ear diseases				
Physical health	67.6±15.3	77.0±13.2	2.7	<0.05
Psychosocial health	58.5±12.5	73.1±9.8	2.8	<0.05
Emotional functioning	55.0±12.7	73.1±10.9	1.9	<0.05
Social functioning	62.5±10.5	71.2±9.7	2.1	<0.05
School functioning	50.0±13.4	73.1±11.9	3.5	<0.01
Total	62.9±9.8	62.3±9.7	3.4	<0.05
Correction between the all groups of acute (n= 133) and all chronic (n=218) inflammatory diseases of the ENT organs				
Physical health	75.2±11.8	60.5±18.9	8.9	<0.001
Psychosocial health	64.0±10.9	61.3±9.5	2.4	<0.05
Emotional functioning	67.3±9.8	63.2±8.9	3.95	<0.001
Social functioning	67.6±10.7	63.8±9.7	3.34	<0.001
School functioning	67.3±10.7	63.2±9.5	3.6	<0.001
Total	60.0±8.7	57.7±10.9	2.2	<0.05

Table 5

The influence of ENT diseases on the level of anxiety according to the Taylor Anxiety Scale

Alarm level		Practically healthy (n=369)		ENT patients (n=351)		z-value	p-value
Scale Points	Anxiety level profile	n	P±m	n	P±m		
0-5	anxiety is not typical	157	42.5±3.6	95	27.1±2.4	6.9	<0.001
6-18	normal level of anxiety	109	29.5±2.4	53	15.1±1.9	6.9	<0.001
19-22	slightly increased anxiety	71	19.2±2.1	123	35.0±2.5	7.3	<0.001
27-30	high anxiety is expressed	25	6.9±1.3	55	15.7±1.9	4.9	<0.001
31-54	very high anxiety (risk group)	7	1.9±0.7	25	7.1±1.4	3.6	<0.001

group of people with ENT diseases compared to practically healthy people (*Table 5*).

The anxiety manifestation scale had nosological features (*Table 6*).

Discussion:

The present study shows that the QOL of children with ENT pathology is lower than children without this disease, as found in previous studies in the pediatric population [*Cloutier F et al., 2014, Kao S et al., 2017, Valsamidis K et al., 2019, Apirada T et al., 2020, Desalegn G et al., 2021, Chadi AM et al., 2023, Lechosław P et al., 2023, Makary CA et al., 2023*]. As an exploratory study, it also identifies factors associated with a person's quality of life (pain frequency, number of hospitalizations, gender).

Compared with other studies that used PedsQL in our study, the overall score was similar, but the physical QoL score was significantly lower than in other studies [*Khademi B et al., 2013, Iori S et al., 2022, Khemika Kh, Jitthip Y, 2022*]. The lower physical measure of QOL we obtained may be related to multiple variables, such as disease nosology. Significantly lower QoL scores are comparable or worse than in other chronic diseases such as diabetes, gastrointestinal, asthma, and obesity [*Khademi B et al., 2013, Desai AD et al., 2014,*

TABLE 6

The influence of the main ENT nosologies on the level of anxiety according to the Taylor Anxiety Scale

Scale Points	N=351	G1 (n=156)		G2 (n=159)		G3 (n=36)		z-value	p-value
		n	P±m	n	P±m	n	P±m		
0-5	95	25	26.3±4.5	70	73.7±4.5	0	0	$z_{1.2}$=15.7	<0.001
6-18	53	22	41.5±6.8	31	58.5±6.8	0	0	$z_{1.2}$=4.6	<0.001
19-22	123	66	53.7±4.5	36	25.2±3.9	21	17.1±3.4	$z_{1.2}$=9.8 $z_{1.3}$=13.2 $z_{2.3}$=3.0	<0.001 <0.001 <0.001
27-30	55	30	54.5±6.7	15	27.3±6.0	10	18.2±5.2	$z_{1.2}$=7.6 $z_{1.3}$=10.5 $z_{2.3}$=2.7	<0.001 <0.001 <0.05
31-54	25	13	52.0±9.9	7	28.0±8.9	5	20.0±8.0	$z_{1.2}$=5.5 $z_{1.3}$=10.5 $z_{2.3}$=2.7	<0.001 <0.001 <0.05

Notes: G1 - Group 1(15-year-old), G2 – Group2(16-year-old), G3 - Group 3(17-year-old)

James WV, 2015, Desalegn G et al., 2021, Habib H et al., 2021]. The purpose of any quality of life study determine which questionnaire is appropriate. General-purpose questionnaires are used to study large populations suffering from various pathologies, allowing comparisons to be made between studies - regardless of whether they are in good health or suffering from disease [*Panepinto JA et al., 2013, Khademi B et al., 2013, Pedro L et al., 2014, Kao S et al., 2017, Lauren K et al., 2022, Yaroslav S et al., 2023*]. It is worth emphasizing that general-purpose questionnaires are not suitable for assessing small changes in a single patient. If these changes are to be studied, a special questionnaire to study quality of life is needed. Such questionnaires are more sensitive to detecting changes that occur over time and can therefore provide information about the effectiveness of treatment or the progression of the disease. However, they are not suitable for assessing a person with comorbidities [*Varni JW et al., 2015*]. Only sporadic studies have compared the quality of life of healthy children and children with chronic diseases, as well as studied differences in the quality of life in individual diseases relative to and in relation to each other. Assessment of quality of life is increasingly recognized as a component of the patient's clinical condition and is one of the measures of the effectiveness of therapy, including in pediatric patients. Therefore, it is desirable to establish a baseline level of quality of life for healthy children. The studies mainly examined the health status of children before and after treatment using detailed questionnaires. In many countries, recurrent tonsillitis and tonsil hypertrophy (and its complications) are recognized as reducing the quality of life of affected children [*Kao S et al., 2017, Makary CA et al., 2023*]. These studies emphasize that child health limitations affect activities, physical activity, general health, behavior, and family emotions. A correlation has been found between such restrictions and restrictions on parents' free time.

Environmental behaviors may signal changes in children's character, manifested in more frequent episodes of anger or conflicts with classmates or teachers. Such disorders may arise due to an ENT condition. Health-related quality of life was found to be significantly impaired in multiple domains when children suffered from one of the four otolaryngological conditions examined. Thus, further research into quality of life also seems worthwhile for children receiving ENT treatment. The MSNOT-20 is a validated, disease-specific quality-of-life questionnaire for patients aged 5 years and older. The availability of one series of disease-specific and quality-of-life questionnaires with a uniform structure can allow for comparative analysis of the impact of rhinosinusitis in different age

groups and can be reliably used to obtain reliable results in different age groups [*Sabahat A, Amtul SS, 2022, Chadi AM et al., 2023*]. It has been found that measures of QOL and well-being are significantly impaired in pediatric patients with four major otolaryngologic conditions: chronic sinusitis, deviated septum, adenoid hypertrophy, and hearing loss. [*Sabahat A, Amtul SS, 2022, Lechosław P et al., 2023*].

Conclusion

For pre-conscription youth, the age is 15.16. and 17 years old, in the group of people with ENT diseases, a lower level of QoL domains was recorded compared to the group of practically healthy people (p <0.001). Chronic diseases of the nasal cavity and paranasal sinuses had the most negative impact on QoL. Regardless of nosology, the negative impact of chronic ENT diseases on quality of life parameters is more significant than acute pathologies. Adolescents with ENT diseases more often show increased anxiety compared to practically healthy ones. Anxiety levels of 31-54 points (risk group) were high in the group of pre-conscripts with diseases of the nose and paranasal sinuses.

REFERENCES

1. *Ainuddin A., Siew Y., Low W., Roslani A. (2015).* Psychometric properties of the self-report Malay version of the Pediatric Quality of Life (PedsQLTM) 4.0 Generic Core Scales among multiethnic Malaysian adolescents. Journal of Child Health Care. 19(2):229-38. DOI: 10.1177/1367493513504834

2. *Amy K. Connery, Molly M. Lamb* end al. *(2021).* Parent Report of Health-Related Quality of Life in Young Children in Rural Guatemala: Implementation, Reliability, and Validity of the PedsQL in Stunting and Wasting. Global Pediatric Health.Volume 8: 1–11, DOI: 10.1177/2333794X21991028

3. *Andrea B., Magdolna R. (2019).* Measurement Properties of the Hungarian Version of the Pediatric Quality of Life Inventory 4.0: Health-Related Quality of Life and Associated Characteristics of the School Children in Hungary. Applied Research in Quality of Life. 14(4), 981-1000., https://doi.org/10.1007/s11482-018-9639-7 ·

4. *Ane K., Gry K., Helle J., Marlene B. (2018).* Quality of life in adolescents and adults with autism spectrum disorder: Results from a nationwide Danish survey using self-reports and parental proxy-reports. Research in Developmental Disabilities. Volume 83, 247-259. , DOI: 10.1016/j.ridd.2018.09.004

5. *Apirada T., Yanin S., Oranee S. (2020).* Reliability and validity of the Thai paediatric quality of life inventory™ 3.0 neuromuscular module. Health and Quality of Life Outcomes. 18:243. DOI: 10.1186/s12955-020-01492-z

6. *Chadi A Makary, Parker Tumlin, Kareem Wasef, Hassan H. (2023).* Quality of Life Measurement for Adolescent Patients with Sinonasal Symptoms. Laryngoscope. 33(5):1052-1058., DOI: 10.1002/lary.30232

7. *Cloutier F, Bussières R, Ferron P, Côté M. (2014).* OCTO "Outcomes of a cochlear implant for the octogenarians: audiology and quality-of-life». OtolNeurotol. 35(1):22-8. , DOI: 10.1097/MAO.0b013e3182a5d113

8. *Desai, A. D., Zhou, C., Stanford, S., Haaland, W., Varni, J.W., & Mangione-Smith, R.M. (2014).* Validity and responsiveness of the Pediatric Quality of Life Inventory (PedsQL) 4.0 Generic Core Scales in the pediatric inpatient setting. //JAMA Pediatrics, 68, 1114-1121. DOI: 10.1001/jamapediatrics.2014.1600

9. *Desalegn Girma, Zinie Abita, Alemnew Wale, Semahagn Tilahun. (2021).* Reliability and Validity of Ethiopian Amharic Version of the PedsQLTM 4.0 Generic Core Scales and PedsQLTM 3.0 Diabetes Module. Adolescent Health, Medicine and Therapeutics. Jun 22:12, 77–89.,DOI: 10.2147/AHMT.S312323

10. *Dongen TM, Heijden GJ, Venekamp RP., Rovers MM, Schilder AG. (2014).* A trial of treatment for acute otorrhea in children with tympanostomy tubes. Engl J Med. 370(8):723-33. DOI: 10.1056/NEJMoa1301630

11. *D'avila Helen F., Fabiana A. Poll, Cézane P. Reuter, Miria S. Burgos (2019).* Health-related quality of life in adolescents with excess weight.. Jornal de Pediatria ,Volume

95, Issue 4, P. 495-501. DOI: 10.1016/j.jped.2018.05.005

12. *Gopinath B, Louie JC, Flood VM. (2014).* Influence of obesogenic behaviors on health-related quality of life in adolescents. Asia Pac J ClinNutr. 23(1):121-7. DOI: 10.6133/apjcn.2014.23.1.13

13. *Grandis* E S De, *Armelini* P A, *E Cuestas (2014).* Evaluation of quality of life in school children with a history of early severe malnutrition. Comparative Study An Pediatr (Barc). 81(6):368-73. DOI: 10.1016/j.anpedi.2013.11.021

14. *Habib H., Behnaz K., Mahla A. (2021).* Health-related quality of life in Iranian adolescents: a psychometric evaluation of the self-report form of the PedsQL 4.0 and an investigation of gender and age differences. Hadianfard et al. Health Qual Life Outcomes. 19:108 https://doi.org/10.1186/s12955-021-01742-8

15. *Husna AA, Puncak AC, Malaysia SY, Karuthan Ch, Wah YL, et al. (2015).* Psychometric properties of the self-report Malay version of the Pediatric Quality of Life (PedsQLTM) 4.0 Generic Core Scales among multiethnic Malaysian adolescents. J Child Health Care. 19(2):229-38. DOI: 10.1177/1367493513504834

16. *Iori S., Takafumi S. Mari I., Kyoko K., Ami S. (2022).* Reliability and validity of the Japanese version of the Pediatric Quality of Life Inventory Infant Scales.// Journal of Patient-Reported Outcomes. 6:10. DOI: 10.1186/s41687-022-00416-3

17. *James WV. (2015).* Interpretability of the PedsQL™ Gastrointestinal Symptoms Scales and Gastrointestinal Worry Scales in Pediatric Patients With Functional and Organic Gastrointestinal Diseases. J Pediatr Psychol. 40(6): 591–601. DOI: 10.1093/jpepsy/jsv005

18. *Junger, K.F., Mann, K.A., Guilfoyle, S.M., Morita, D.A., Varni, J.W., & Modi, A.C. (2016).* Development of the PedsQL™ Epilepsy Module: Focus group and cognitive interviews. Epilepsy & Behavior, 62, 115-120. DOI: 10.1016/j.yebeh.2016.06.011

19. *Khademi B, Gandomi B, Tarzi M, Yeganeh F. (2013).* Quality of life, pulmonary spirometry, and dosage of steroid in asthmatic patients with polyposis after endoscopic sinus surgery.// Iran J Otorhinolaryngol. 25(71):103-6. PMID: 24303428. PMCID: PMC3846265

20. *Khemika Kh., Jitthip Y. (2022).* The Reliability of the Thai version of Health-Related Quality of Life Questionnaire: PedsQL 3.0 Cancer Module. Global Pediatric Health, Volume 9: 1–7. DOI: 10.1177/2333794X221092738

21. *Lauren K. , Brenda B., Tanuja Ch.. (2022).* Effect of fingolimod on health-related quality of life in pediatric patients with multiple sclerosis: results from the phase 3 PARADIGMS Study// BMJ Neurology Open. 4:e000215. DOI: 10.1136/bmjno-2021-000215

22. *Lechosław P., Grażyna M., Anna K., Artur N. (2023).* A review of health—related quality of life issues in children suffering from certain key otolaryngological illnesses. Front. Pediatr., Pediatric Otolaryngology. Jan: 11-10:1077. DOI: 10.3389/fped.2022.1077198

23. *Ligia L. Sara L. (2023).* Psychometric properties of the European Portuguese version of the Pediatric Quality of Life Inventory™ family impact module. Journal for Specialists in Pediatric Nursing. 28(3):e12406. DOI: 10.1111/jspn.12406

24. *Kao S., Peters D. J., Dharmawardana N., Stew B., Ooi, Eng H. (2017).* Scoping review of pediatric tonsillectomy quality of life assessment instruments. The Laryngoscope. Vol.127 (10), p.2399-2406. DOI: 10.1002/lary.26522

25. *Katja Beesdo, Susanne Knappe, Dipl-Psych , Daniel S. Pine (2011)* Anxiety and Anxiety Disorders in Children and Adolescents: Developmental Issues and Implications for DSM-V// Psychiatr Clin North Am. 2009 32(3): 483–524. doi: 10.1016/j.psc.2009.06.002

26. *Mahesh Kamate (2023).* Health-Related Quality-of-Life Tools for Indian Infants and Toddlers. Indian Journal of Pediatrics. 90(2):112–113. DOI: 10.1007/s12098-022-04418-3

27. *Manificat, S., Dazord A. (2002).* Infant, child and adolescent quality of life: surveys performed in a European context. // *Expert Review of Pharmacoeconomics & Outcomes Research*, 2002 ;2(6):589-96 doi: 10.1586/14737167.2.6.589.

28. *Makary CA, Tumlin P, Asad F, Wasef K, Ramadan HH. (2023).* Quality of life measurement for adolescent patients with sinonasal symp-

toms. Laryngoscope. https: //doi.org/10.1002/lary.30232. DOI: 10.1002/lary.30232

29. *Matthew F. Smout, Gian Mauro Manzoni, Sofia T. (2022).* Pediatric quality of life multidimensional fatigue scale (PedsQL-MFS) detects the effects of a 3-week Inpatient body weight reduction program for children and adolescents with obesity. Health Qual Life Outcomes. 20: 3. DOI: 10.1186/s12955-021-01907-5

30. *Nutakki K., Hingtgen C.M., Monahan P., Varni J.W., &Swigonski N.L. (2013).* Development of the adult PedsQL™ Neurofibromatosis Type 1 Module: Initial feasibility, reliability and validity. Health and Quality of Life Outcomes. 11-21, 1-9. DOI: 10.1186/1477-7525-11-21

31. *Panepinto J.A., Torres S., Bendo C.B., Mc-Cavit T.L., Dinu B., et al. (2013).* PedsQL™ Sickle Cell Disease Module: Feasibility, reliability and validity. Pediatric Blood & Cancer. 60: 1338-1344. DOI: 10.1002/pbc.24491

32. *Pedro L., Carla F., Luís C., Jan C., Rui C.G. (2014).* Reliability and validity of PedsQL for Portuguese children aged 5–7 and 8–12 years. Health and Quality of Life Outcomes. 12:122. DOI: 10.1186/s12955-014-0122-3

33. *Sabahat A., Amtul SS. (2022).* Rhinosinusitis and its impact on quality of life in children. British Journal of Hospital Medicine. Vol. 83, No. 3. DOI: 10.12968/hmed.2021.0589

34. *Tatar EÇ, Korkmaz H, Sürenoğlu UA, Saylam G, Ozdek A. (2013).* Effects of rhino phototherapy on quality of life in persistent allergic rhinitis. ClinExpOtorhinolaryngol. 6(2):73-7. DOI: 10.3342/ceo.2013.6.2.73

35. *Taylor J A (1956).* Drive theory and manifest anxiety.// Psychol Bull. 1956;53(4):303-20. doi: 0.1037/h0040353.

36. *Varni J. W.,Sandra A.Sh., Burwinkle T. M, Dickinson P. E, Pamela Dixon(2004)* The PedsQL™ Family Impact Module: Preliminary reliability and validity.// Health Qual Life Outcomes. 2004; 2: 55. doi: 10.1186/1477-7525-2-55

37. *Varni J. W., Bendo C. B., Nurko S., Shulman R. J., Self M. M., et al. (2015a).* Health-related quality of life in pediatric patients with functional and organic gastrointestinal diseases. Journal of Pediatrics, 166, 85–90. DOI: 10.1016/j.jpeds.2014.08.022

38. *Varni J.W., Nurko S., Shulman R.J., Self M.M., Saps M., et al. (2015b).* Pediatric functional constipation gastrointestinal symptom profile compared to healthy controls.// Journal of Pediatric Gastroenterology & Nutrition, 61, 424-430. DOI: 10.1097/MPG.0000000000000869

39. *Ware JF. (2014).* Patient-reported functional health and well-being outcomes with drug therapy: a systematic review of randomized trials using theSF-36health survey.// Med Care. 52(5):439-45. DOI: 10.1097/MLR.0000000000010311

40. *Valsamidis K, Titelis K, Karkos P, Markou K, Constantinidis J, et al. (2019).* Predictive factors of patients' general quality of life after nasal septoplasty. Eur Arch Otorhinolaryngol. 276(2): 429–38. DOI: 10.1007/s00405-018-5229-4

41. *Yaroslav S., Dmytro D. (2023).* Oleksandr Dobrovanov PedSQL™ Family Impact Module as an Instrument foe Quality of Life Assessment (PedsQL™) in Children with Chronic Postsurgical Pain.// Open Access Macedonian Journal of Medical Sciences. 11(G):53-62. https://doi.org/10.3889/oamjms.2023.11434

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