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Assessment of the Influence of Medical and Social Factors on the Prevalence of ENT Diseases Among School Age Children

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Introduction

Diseases of the respiratory system, including ENT pathologies, have a leading place in children's population morbidity [1,3]. Many researchers have investigated the significance of exogenic and endogenic factors in the etiology of ENT pathology. The main exogenic factors are: environmental pollution, social conditions of life, education level, patients' sanitary cultural level, passive smoking. The role of iatrogenic factors should also be considered: administration of long-term and not effective antibiotics, sulfanilamide's, salicylates for not-justified treatment [3]. Medical-social factors, as well as in-school environment have a significant impact on the formation of schoolchildren's health. Of these factors the intensity of the educational process, addition of stressful situations to the routine life, unfavorable effect of the ecological factors are greatly exacerbated. We know that 70% of school-age children suffer from hyperkinesias the result of which is decreased ability to work, increase of the morbidity level [4]. The level of numerous medical-demographic indices is closely connected with the environmental conditions. Such indices are: newborn's weight deficiency, rate of congenital defects, allergy, anemia, disability level. There is a proved existence of the reliable link between the air pollution and ENT morbidity [3]. In order to plan preventive measures for ENT pathology, as well as for improving the medical aid, information on the spreaders of these diseases and the impact of various medical-social factors is of great importance.

The aim of this investigation: To assess the risk factors of chronic ENT pathology.

Materials and methods

2 randomly selected schools of Yerevan have served as the material base for the investigation. The sample was 650 observation points. According to the age groups the sample was distributed as follows (Tab. 1).

Table 1

Distribution of school-age children by age and sex

Age	Boys		Girls		Total	
	n	P±m	n	P±m	n	P±m
6-10	70	25,0±2,6	130	35,1±2,5	200	30,0±1,8
11-14	90	32,1±2,8	100	27,0±2,3	190	29,2±1,8
15-17	120	42,9±3,0	140	37,8±2,5	260	40,0±1,9
Total:	280	100	370	100	650	100

The investigation design – case control. The data were obtained by surveying families with a questionnaire. The groups are formed according to ENT investigation data (Tab. 2)

Table 2

Distribution of school-age children in clinical groups by the presence or absence of ENT diseases

Age	N	There is ENT pathology		There is no ENT pathology	
		n	P±m	n	P±m
6-10	200	110	55,0±3,8	90	45,0±3,8
11-14	190	101	53,2±3,6	89	46,8±3,6
15-17	260	150	57,7±3,1	110	42,3±3,1
Total	650	361	55,5±2,9	289	44,4±2,9

We have assessed the influence of the medical-social factors on the frequency of ENT diseases. We have calculated the ratio of the relative risk and chances. This index allows to substantiate how many times the probability of getting sick increases in the presence of the risk factor.

Results and Discussion

The most important factors influencing on the rate of ENT diseases among school-age children are: social-hygienic, antenatal and prenatal factors. Alcohol abuse has been found in 5,6±1,1% parents and 0,5±0,3% school-age children. 26,9±2,1% families have a low level of material security and

3,2±0,8% even lower. According to our investigation data 57,1±2,4% school-age children haven't maintained the nutrition regimen. In parents' opinion 33,9±2,4% are malnourished. Parents' low medical activity was recorded in 55,8±2,4% cases. We have studied the impact of risk factors on the ENT pathology rate (Tab. 3,4).

Table 3

Influence of the main family lifestyle factors on ENT pathology rate in school-age children's various clinical groups

Factor	Children with ENT pathology		Children without ENT pathology		Frequently sick children	
	Factor <->	Factor <+>	Factor <->	Factor <+>	Factor <->	Factor <+>
Insufficient housing conditions	35,6±5,1	64,4±5,1	34,0±4,0	66,0±4,0	9,3±2,3	97,3±2,3
Large family	8,1±2,9	91,9±2,7	6,7±2,1	93,3±2,1	3,0±2,4	97,0±2,0
Unfavorable psychological climate in the family	8,3±4,5	91,7±4,5	3,0±4,2	97,0±4,2	35,7±2,6	64,3±2,6
Disabled in the family	6,5±2,7	93,5±2,7	38,0±11,5	62,0±11,5	16,8±8,2	83,2±8,2
Incomplete family	20,0±3,2	80,0±4,1	19,8±3,2	80,2±3,2	8,5±3,8	91,5±3,8
Low level of material security	25,3±3,0	74,7±3,2	30,3±4,9	69,7±4,9	15,5±5,8	84,5±5,8
Low medical activity of parents	33,5±5,1	66,5±5,1	36,6±4,5	63,4±4,5	6,5±3,4	93,5±3,4
Parents' education is below average	13,0±3,6	87,0±3,6	15,0±3,0	85,0±3,0	8,0±4,7	92,0±4,7
The parents smoke	51,0±5,3	49,0±5,3	56,8±4,2	43,2±4,2	8,8±2,6	91,2±2,6
Parents abuse alcohol	5,1±2,4	94,9±2,4	6,0±2,1	94,0±2,1	92,1±2,0	7,9±2,0
Low physical activity	52,0±5,3	48,0±5,3	48,9±4,2	51,1±4,2	10,4±2,8	89,6±2,8
Low school performance	10,0±3,3	90,0±3,3	11,1±2,7	88,9±2,7	8,5±5,9	91,5±5,9
Harmful habits: smoking	3,5±2,4	96,5±2,4	3,6±2,0	96,4±2,0	4,8±4,9	95,2±4,9
Harmful habits: alcohol	1,4±1,4	98,6±1,4	100	0	100	0

Table 4

Influence of the family's health condition on ENT pathology rate in school-age children's various clinical groups

Factor	Children with ENT pathology		Children without ENT pathology		Frequently sick children	
	Factor					
	<->	<+>	<->	<+>	<->	<+>
Presence of chronic ENT pathology in parents	32,8±5,0	67,2±5,0	16,7±3,2	83,3±3,2	7,5±2,1	92,5±2,1
Presence of a chronic concomitant disease in a child	34,6±4,9	65,4±4,9	25,5±3,5	74,5±3,5	5,5±4,1	94,5±4,1

5,5±1,5% school-age children live in a family with a disabled member, 7,3±1,7% - in a large, multi-child family and 19,9±2,5% - in an incomplete family. Unfavorable psycho-social factors affect the child's health condition. According to our data 31, 0±6,5% parents create conflict situations in the child's presence. It has turned out that 70, 2±2,2% of schoolchildren aren't involved in physical activity, violation of the daily routine has been recorded in 53,3±2,4% of children. Chronic ENT pathology has been registered in 42, 9±2,4% of schoolchildren's parents. Thus, numerous indices, describing the school-age children's lifestyle, have had a low level. We have assessed the impact of the risk factors on ENT diseases' rate. Our investigation has shown that the children, whose parents have ENT pathology, get ill with ENT diseases twice as often and the specific gravity of the children who get ill more often is 1.7 times higher among those children whose parents suffer from chronic ENT diseases (Tab. 5, 6).

Table 5

Impact of risk factors on the formation of the frequently getting ill school-age children group

Factor	Specific gravity of children getting ill often		Relative risk index (RRI)	Absolute risk index (ARI)	Statistical reliability
	Factor (+)	Factor (-)			
Children without additional physical activity	10,4±1,4 (n=46)	6,3±1,2 (n=28)	1,65	60,5	p≤0,01
Unfavorable psychological atmosphere in the family	35,7±2,2 (n=156)	15,7±1,7 (n=70)	2,27	44,0	p≤0,05
Presence of chronic ENT pathology among parents	12,4±1,6 (n=55)	7,5±1,2 (n=33)	1,65	60,5	p≤0,05
Presence of chronic ENT diseases among children	14,1±1,6 (n=62)	5,4±1,1 (n=24)	2,56	39,0	p≤0,01

Table 6

Rate of chronic ENT disease occurrence depending on the presence of the risk factor

Factor	Risk factor (+)		Relative risk index (RR)	Absolute risk index (AR)	Statistical reliability
	Presence of ENT pathology	Absence of ENT pathology			
Irrational food	45,9±7,9	30,0±11,0	1,53	65,4	p≤0,05
Presence of chronic ENT pathology in parents	35,8±5,0	17,7±3,2	2,0	49,4	p≤0,00 ₁
Presence of concomitant chronic disease in children	44,6±4,9	27,5±3,5	1,62	61,7	p≤0,05

Among the children with ENT diseases accompanying chronic diseases occur 1,4 times more often. The specific gravity of children from families where conflicts are often and the psychological atmosphere is unfavorable, and who get ill frequently, 2,3 times exceeds compared with the control group. Among the schoolchildren who have had physical activity, the specific gravity of frequently getting ill children is 1.7 times less compared to the group with passive physical activity.

The family's living conditions have a certain influence on the children's health condition. The schoolchildren, whose family living conditions are unfavorable, the level of chronic ENT pathology is high (Tab. 7).

Table 7

Impact of the main risk factors on chronic ENT diseases among school-age children

Factor	Risk factor (+)		RR	AR
	Presence of ENT pathology	Absence of ENT pathology		
Unfavorable housing conditions	5,6±1,1 (n=25)	4,1±0,9 (n=18)	1,37	73,2
Large family	18,1±1,8 (n=80)	6,5±1,2 (n=29)	3,07	27,2
Presence of a disabled person in the family	16,5±1,8 (n=73)	5,9±1,1 (n=26)	2,8	35,8
Severe stressful situation in the family	40,2±2,3 (n=178)	17,4±1,8 (n=77)	2,3	43,8
Irrational food	24,0±2,0 (n=106)	10,4±1,4 (n=46)	2,3	43,3

The results of our investigation substantiate that in many children-families, families with a disabled member the specific gravity of chronic ENT pathology exceeds compared with the control group. The life-style has an impact on the rate of ENT pathology occurrence. Such factors are: violation of the daily routine (RR=2,61, AR=38,4%), presence of bad habit among parents (RR=2,32, AR=42,1%), not rational nutrition (RR=2,21, AR=45,2%) (Tab. 8).

Table 8

Impact of the main risk factors spread in school-age children on the specific gravity among frequently getting ill children

Factor	Specific gravity of frequently getting ill children		RR	AR
	Factor (+)	Factor (-)		
Unfavorable housing conditions	19,2±1,9 (n=85)	8,1±1,1(n=36)	2,4	41,9
Presence of a disabled member in the family	20,1±1,9(n=89)	8,6±1,3(n=38)	2,35	42,5
Severe stress condition in the family	19,2±1,9(n=85)	8,0±1,3(n=35)	2,39	41,9
Parents' bad habits	18,8±1,9(n=83)	8,1±1,3(n=36)	2,32	43,1
Violation of the daily routine	19,9±1,9(n=88)	7,7±1,3(n=34)	2,61	38,4
Not rational nutrition	18,8±1,9(n=83)	8,6±1,3(n=38)	2,21	45,2
Low academic progress	28,0±2,1(n=126)	15,1±1,7(n=67)	3,35	53,3

Thus, we have revealed the following risk factors that have an influence on acute respiratory diseases and chronic ENT pathology rate:

1. Unfavorable psychological atmosphere in the family (RR=2, 27, AR=44, 0%).
2. Presence of chronic ENT pathology among parents (RR=1, 65, AR=60, 5%).
3. Not rational nutrition (RR=2, 3, AR=43, 3%).
4. Low level of physical activity (RR=1, 65, AR=60, 5%).
5. Presence of accompanying chronic diseases (RR=2, 56, AR=39, 0%).

Among 27,3±2,1% of school-age children chronic accompanying somatic diseases are recorded. According to the investigation data, general somatic pathology rate is 1.1 times higher among children with chronic ENT pathology (14,5±1,7, 12,9±1,6). In the construction of this index the diseases of the digestive system are in the first place (15,6±4,5%), in the second place are those of the respiratory organs (14,1±4,4%), in the third place – blood and hematopoietic organs (10,9±3,9%), endocrine system diseases (10,9±3,9%) (Tab. 9).

Table 9

Impact of chronic ENT pathology on the rate of accompanying somatic diseases in school-age children

Disease class	There is ENT pathology		There is no ENT pathology	
	a.n	P±m	a.n	P±m
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	7	10,9±3,9	8	14,0±4,6
Endocrine, nutritional and metabolic diseases	7	10,9±3,9	9	15,8±4,8
Mental and behavioral disorders	5	7,8±3,4	6	10,5±4,1
Diseases of the eye and adnexa	6	9,4±3,6	6	10,5±4,1
Diseases of the circulatory system	5	7,8±3,4	4	7,0±3,4
Ischemic heart diseases, chronic and other forms	9	14,1±4,4	4	7,0±3,4
Diseases of the digestive system	10	15,6±4,5	7	12,3±4,3
Diseases of the skin and subcutaneous tissue	6	9,4±3,6	7	12,3±4,3
Diseases of the musculoskeletal system and connective tissue	5	7,8±3,4	3	5,3±3,0
Certain conditions originating in the perinatal period	4	6,3±3,0	3	5,3±3,0
Total	64	14,5±1,7	57	12,9±1,6

Chronic ENT pathology is also considered as a risk factor for the development of often respiratory, bone-muscular system diseases. Thus, the respiratory system diseases are 2.0 and the osseous-muscular system diseases 1.5 times as often occur in children with chronic ENT pathology. The presence of this link speaks about the importance of realizing measures to decrease the ENT morbidity level. In order to realize preventive measures we should consider not only the presence of ENT pathology, but a number of accompanying somatic diseases as well.

Conclusion: We have noticed that the child's and the family's life-style has a significant influence on the formation of the chronic ENT pathology group among school-age children. The most influential factors are: unfavorable psychological atmosphere in the family (RR=2,27, AR=44,0%), presence of chronic ENT pathology among parents (RR=1,65, AR=60,5%), schoolchildren's passive life-style (RR=1,65, AR=60,5%), presence of accompanying chronic diseases (RR=2,56, AR=39,0%), biological (ante- and intranasal anamnesis), artificial nutrition level. Having the aim to increase the level of revealing chronic ENT pathology by conducting preventive medical examination among

school-age children, it is essential to determine and record the risk factors promoting high morbidity indices with the help of screening tests.

The outcome data indicate that chronic respiratory diseases increase the prevalence of pharyngeal dysphasia (OD) in patients. However, the relative small number of studies, differences in selection criteria, definitions and assessment techniques used for diagnosing OSA, COPD, and OD point to the need for further research [6]. Hearing difficulty had an independent association with depression, especially depressive symptoms, that was neither fully confounded by chronic illness nor mediated by reduced social interaction, in a large community-based population in the UK. Irrespective of the temporal order of the variables, findings suggest that audiologists should be more aware of psychological issues. The younger males (40–59 years) showed the strongest association when the hearing variable was largely driven by subjective reports [5]. A proper analysis to ascertain the main risk factors is essential in order to diagnose early and treat adequately. An exploratory analysis based on a heterogeneous sample of 1418 workers is presented in order to identify the main trigger factors for hearing loss. This paper focuses on three parameters: gender, age, and a family history of hearing problems. The least relevant factor is the existence of a family history of deafness, followed by the gender factor, which considerably slopes toward better hearing for females, and most prominent of all, the age factor, given the large differences identified between the various age groups when the gender and family history of deafness variables remain constant [7].

The present findings illustrate the importance of early diagnosis of primary colliery dyskinesia and intensive physiotherapy and antibiotic treatment. The defect is congenital and symptoms are present from early life, which stresses the importance for pediatricians to be aware of this disorder as a relevant, albeit rare, differential diagnosis in children with recurrent symptoms from upper and lower airways. Provided such early diagnosis and intensive treatment is available, prognosis for maintaining the lung function seems good [4,8]. This study aimed to identify the role of alters within the allergic rhinitis network and identify the factors that determined their degree of influence as perceived by the patient. This research was a qualitative exploration embedded in an empirical framework and social network theory [1]. CRS is associated with significant impairment in quality of life and with certain medical comorbidities. In contrast to other common ENT disorders, no socioeconomic differences were found between patients and controls in this study [2, 10]. Socioeconomic factors, including income and insurance provision, may impact improvements in productivity loss and HUV following ESS. Further research to validate these findings, ascertain mechanisms behind these results, and improve these outcomes is warranted [3, 11]. Low subjective academic achievement, obesity, drinking and smoking were risk factors for asthma. High FAS, parental bachelor's degree and high subjective academic achievement were risk factors

for allergic rhinitis. Finally, high FAS, maternal bachelor's degree and high subjective academic achievement were risk factors for atopic dermatitis [9, 12].

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Оценка влияния медицинских и социальных факторов на распространенность ЛОР заболеваний у школьников

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Существенное влияние на формирование здоровья школьников оказывают медико-социальные факторы, а также школьная среда. Из этих факторов значительно усугубляются интенсивность учебного процесса, добавление стрессовых ситуаций к повседневной жизни, неблагоприятное влияние экологических факторов. Известно, что 70% детей школьного возраста страдают гипокинезией, результатом чего является снижение трудоспособности, повышение заболеваемости. Материальной базой для исследования послужили 2 случайно выбранные школы Еревана. Выборка составила 650 точек наблюдения.

По возрастным группам выборка была распределена следующим образом. Среди детей с патологией ЛОР органов сопутствующие хронические заболевания встречаются в 1,4 раза чаще. Удельный вес (УВ) детей из семей, где часто бывают конфликты и психологическая атмосфера неблагоприятна, дети болеют чаще, в 2, 3 раза превышен УВ по сравнению с контрольной группой. Среди физически активных школьников удельный вес часто болеющих детей в 1,7 раза меньше по сравнению с группой с пассивной физической активностью. Мы заметили, что образ жизни ребенка и семьи оказывает существенное влияние на формирование у детей школьного возраста группы с хронической патологией ЛОР органов. Наиболее влиятельными факторами являются: неблагоприятная психологическая атмосфера в семье ($OR = 2,27$; $AR = 44,0\%$), наличие хронической ЛОР патологии у родителей ($RR = 1,65$; $AR = 60,5\%$), пассивный образ жизни школьников ($RR = 1,65$; $AR = 60,5\%$), наличие сопутствующих хронических заболеваний ($OR = 2,56$; $OR = 39,0\%$), уровень биологического искусственного питания. В целях повышения уровня выявления хронической ЛОР патологии путем проведения профилактического медицинского осмотра детей школьного возраста необходимо с помощью скрининг-тестов определить и зафиксировать факторы риска, способствующие высоким показателям заболеваемости.

Բժշկասոցիալական գործոնների ազդեցության գնահատումը դպրոցահասակ երեխաների շրջանում ԼՕՌ հիվանդությունների տարածվածության վրա

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Դպրոցականների առողջության ձևավորման վրա էական ազդեցություն են ունենում բժշկասոցիալական, ինչպես նաև ներդպրոցական միջավայրի գործոնները: Այդ գործոններից խիստ կարևորվում են կրթական պրոցեսի ինտենսիվությունը, ամենօրյա կյանքում սթրեսային իրավիճակների ավելացումը, էկոլոգիական գործոնների անբարենպաստ ազդեցությունը: Հայտնի է, որ դպրոցահասակ երեխաների 70%-ը տառապում է հիպոկինեզիայով, որի արդյունքը աշխատունակության անկումն է, հիվանդացության մակարդակի աճը:

Հետազոտության նյութատեխնիկական բազան Երևան քաղաքի՝ պատահական ընտրանքով ընտրված 2 դպրոց է: Ընտրանքը կազմել է 650 դիտարկման միավոր: Հետազոտության դիզայնը՝ դեպք-ստուգիչ: Տվյալները ստացվել են ընտանիքի անկետավորման ճանապարհով: Խմբերը համատարած ձևավորվել են ըստ ԼՕՌ հետազոտության տվյալների: Գնահատվել է բժշկասոցիալական գործոնների ազդեցությունը ԼՕՌ հիվանդությունների հաճախականության վրա: Հաշվարկվել են հարաբերական ռիսկը և շանսերի հարաբերությունը: Այս ցուցանիշը հնարավորություն է տալիս հիմնավորելու՝ ռիսկի գործոնի առկայության պայմաններում հիվանդանալու հավանականությունը քանի անգամ է աճում: Գնահատվել է ԼՕՌ հիվանդությունների հաճախականության վրա ռիսկի գործոնների ազդեցությունը: Մեր հետազոտությամբ ԼՕՌ պաթոլոգիա ունեցող ծնողների երեխաները 2 անգամ ավելի հաճախ են հիվանդանում ԼՕՌ հիվանդություններով, և հաճախակի հիվանդացող երեխաների տեսակարար կշիռը մոտ 1,7 անգամ բարձր է այն երեխաների շրջանում, որոնց ծնողները տառապում են քրոնիկ ԼՕՌ հիվանդություններով: Դպրոցահասակ երեխաների շրջանում նկատվել է, որ քրոնիկ ԼՕՌ պաթոլոգիայի խմբի ձևավորման վրա էական ազդեցություն է ունենում երեխայի և ընտանիքի կենսակերպը: Առավել ազդեցություն ունեցող գործոններն են՝ ընտանիքի անբարենպաստ հոգեբանական միջավայրը (ՀՌ=2,27, ԲՌ=44,0%), ծնողների շրջանում քրոնիկ ԼՕՌ պաթոլոգիայի առկայությունը (ՀՌ=1,65, ԲՌ=60,5%), դպրոցականների պասիվ կենսակերպը (ՀՌ=1,65, ԲՌ=60,5%), քրոնիկ ուղեկցող հիվանդությունների առկայությունը (ՀՌ=2,56, ԲՌ=39,0%), կենսաբանական, արհեստական սնուցման մակարդակը:

Նպատակ ունենալով դպրոցահասակ երեխաների շրջանում կանխարգելիչ բժշկական զննումների ճանապարհով բարձրացնել քրոնիկ ԼՕՌ պաթոլոգիայի հայտնաբերման մակարդակը՝ անհրաժեշտ է սրբինինգ թեստերի օգնությամբ հայտնաբերել ռիսկի այն գործոնները, որոնք նպաստում են հիվանդացության բարձր ցուցանիշների գրանցմանը:

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