



DYNAMICS OF INCIDENCE IN CHILDREN SCHOOL AGE ACCORDING TO APPLICATION RATE AND COMPREHENSIVE MEDICAL EXAMINATIONS

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Abstract: School age is the period during which the restructuring of the functioning of many body systems occurs, its growth and development. It is well known that the health of both an individual person and the population as a whole is laid and develops in childhood; this allows us to consider it as a predictive scenario of public health.

Keywords: school age, morbidity, medical examination.

Introduction

Nutrition-related diseases occupy one of the leading places in the structure of morbidity among school-age children. According to domestic and foreign researchers, diseases of the digestive system are registered in 9-20% of cases, the prevalence of diseases of the endocrine system and metabolic disorders is increasing (5-15%), diseases of the musculoskeletal system (14-50%); retardation

of physical development is observed in 15-17% of children, overweight and obesity - in 8-23% [Levchuk L.V. Health, macro- and micronutrient provision of children of preschool and primary school age [2,3,8,11, 42,43]. The most serious problem is nutritional deficiency of macro- and micronutrients. An unsatisfactory supply of minerals and vitamins that control metabolic processes is accompanied by a decrease in the body's adaptive abilities and leads to the development of a number of pathological conditions [5,7,11,17,33,43,45]. Health problems are often observed during "critical" periods of childhood: upon entry into first grade (7 years old) and upon transition to subject education (11 years old). Children of primary school age are at risk for the development of micronutrient deficiency due to high rates of growth and metabolic processes, age-related characteristics of the digestive system and an expanded diet [1,22,50,52,54]. Unsatisfactory quantitative and qualitative provision of the child's body with nutrients leads to a delay in the realization of mental and physical capabilities, therefore, nutrition of children of different age groups requires an individual approach, especially during critical periods of growth and development [1,4,6,10,16,18,21, 22,23].

School-age children are most susceptible to respiratory infections, and among them, the most common illnesses are among younger schoolchildren who are in their first year in an organized group and children with allergic diseases [3,9,15,18,25,27,33,36,40]. Despite this, the immune system of children is characterized by extreme tension in the immune response processes and insufficient reserve capabilities, which, apparently, is the result of a long-term antigenic effect on the child's body.

Materials and Methods

We carried out an analysis of morbidity based on visits to the clinic and morbidity identified during preventive medical examinations of 447 children aged 7-11 years (231 boys and 216 girls) teaching junior school classes No. 63, 64 in the city of Samarkand.

Preventive medical examinations make it possible to identify functional disorders and chronic diseases that are not exacerbating, to further examine children who need clarification of the diagnosis and to carry out the necessary health-improving and preventive work [2,14,34,42,45,49,51]. The medical examination was carried out by a team of doctors (pediatrician, neurologist, otorhinolaryngologist, ophthalmologist, orthopedic surgeon) of the central clinic in Samarkand. All children underwent anthropometric measurements, which are used in studying the general morbidity of the population. The incidence was

studied on average over two years, at the beginning (September 2019) and at the end (June 2020) of the educational process. To analyze the results of the examinations, we used a methodology for a comprehensive assessment of the health status of children, highlighting the main classes and nosological forms of diseases according to the international classification of diseases (ICD-10).

In group I we included children with normal development and a normal level of function, who do not have functional and morphofunctional abnormalities, as well as chronic diseases (practically healthy);

Health group II included children with functional and some morphological abnormalities (including deficiency or excess body weight), as well as reduced resistance to acute infectious diseases with preserved functional capabilities of the body;

Health group III included children suffering from chronic diseases in the compensation stage;

Health group IV includes children with chronic pathology in the subcompensation stage;

Group V includes children with chronic diseases in the stage of decompensation.

Based on the results of preventive examinations, a health group was determined for each child. Then all children were divided into health groups. It was found that 48% of children can be considered practically healthy (health group I), 52% have functional deviations (health group II). Functional deviations identified during examination of children. Pre-morbid conditions are classified into health group II. The level and structure of morbidity depend both on the presence of pathology in children and on the availability of doctors to the population, the level of sanitary literacy of parents and their attitude towards children's health, the availability of medical care, the effectiveness of treatment and many other factors [4,5,9,13,28,36,37,43,44,52,53,55]. It was revealed that the leading places in the structure of the general morbidity of school-age children (7-14 years of life) in terms of appeal are occupied by diseases of the respiratory system, diseases of the blood, hematopoietic organs, pathology of the ENT organs, diseases of the digestive system, diseases of the osteoarticular system, some infectious and parasitic diseases, diseases of the endocrine system, diseases of the skin and subcutaneous tissue, etc. (Table 1).

Structure of morbidity according to visits and according to medical examinations (as a percentage of the total)

Class of diseases (ICD-10)		Morbidity structure			
		by circulation (%)		according to the results of medical inspections (%)	
		2019 г.	2020 г.	2019 г.	2020 г.
I	Some infectious and parasitic diseases	2.6	2,4	3.5	3.5
III	Diseases of the blood, hematopoietic organs and certain disorders involving the immune mechanism	17.1	15,2	22.8	21,9
IV	Endocrine system diseases, nutritional disorders and metabolic disorders	10.2	11,8	12.8	14.6
V	Nervous system diseases	1.8	1,2	2.1	2.5
VI	Diseases of the eye and its appendages. Diseases of the ear and mastoid process	9,5	10,6	11.8	11.4
VII	Diseases of the circulatory system	0,7	1,3	1.2	1.5
VIII	Respiratory diseases	2.1	2,8	4.1	3,6
IX	Digestive diseases	19.1	21,0	21.4	26,6
X	Diseases of the musculoskeletal system, muscles and connective tissue	16,3	18,5	17	19.6
XI	Diseases of the genitourinary system	1.3	0,7	1.7	2,0
XII	Congenital malformations, deformations and chromosomal abnormalities	0,8	1,0	1.3	1,4
	General morbidity	100	100	100	100

Morbidity data on children's visits to medical institutions, even with well-established records and high-quality diagnostics, cannot reflect the “true” level of their morbidity, much less fully characterize the formation and prevalence of chronic diseases. To determine the level of true, or “exhausted” morbidity in schoolchildren, it is necessary to add to the morbidity according to the admission data the diseases identified “for the first time” during medical examinations.

In morbidity according to medical examinations (indicators of incidence), the first place was occupied by diseases of the digestive organs, then diseases of the blood and hematopoietic organs, and the next ranking places were diseases of the osteoarticular system, muscles and connective tissue, then diseases of the endocrine system, respiratory organs, ear and mastoid process (Table 2).

Table 2

Preventive examination of children in the Nurabad district of the Samarkand region and the city of Samarkand and their results in 2021.

Samarkand city in 2021						Nurabad district, Samarkand region in 2021				
With a lag: %						With a lag %				
Children's age	in physical development	with insufficient body mass	in growth	in neuropsychic development	overweight	in physical development	underweight	in growth	in neuropsychic development	overweight
7 years	2.81	1.5	1.25	2.43	1,04	4,27	3,74	0,53	1,60	0,53
8-14 years	1.02	0.52	0.49	0.75	0,49	17,0	13,54	3,17	0,57	0,28

If an in-depth study of morbidity according to the visits of schoolchildren at the beginning and end of the educational process revealed some features characteristic of children of primary school groups, comprehensive medical examinations provided additional information about a fairly significant number of new chronic diseases that occur without special clinical manifestations and exacerbations, previously unaccounted for (not registered in the materials of children's visits to medical institutions).

In the structure of exhausted morbidity among children, the leading place was occupied by diseases of the respiratory system, diseases of the ear and mastoid process, endocrine diseases, nutritional and metabolic disorders, infectious and parasitic diseases, diseases of the blood and hematopoietic organs. In the structure of diseases of the blood and hematopoietic organs, iron deficiency anemia had the largest share, the prevalence of which at the beginning of the educational process (September) in girls was 58%, in boys - 49%, and at the end of the school year (June) in girls it increased to 75%, for boys – up to 68%. It should be noted that in the “exhausted” morbidity of urban children in the first 7-10 years of life, most of them are diseases of the blood and hematopoietic organs, diseases of the musculoskeletal system and connective tissue. Almost half of the diseases of the digestive system and congenital

anomalies, every third case of disease of the nervous system and sensory organs are detected only during comprehensive medical examinations. It should be noted that at the end of the school year, among those who fell ill, the classes of diseases of the nervous system (excitability, headaches, fatigue, etc.) according to the results of medical examinations increased by 2.3%; eye diseases - by 3.1%; mental disorders and behavioral disorders - by 2.5%. Significant deviations in the somatic health of schoolchildren can affect their psychophysiological capabilities. In boys, by the end of the educational process (June), there was an increase in heart rate (from 87.4 ± 1 to 90.4 ± 1.2 per minute) and a significant increase in muscle strength of the left arm. In girls, on the contrary, by the end of training there was an increase in heart rate and a decrease in muscle strength in both the right and left arms (Table 3).

Table 3

Indicators of the cardiovascular, respiratory systems and physiometric indicators of schoolchildren ($M \pm m$)

Indicators	Boys			Girls		
	At the beginning of the educational process (September)	At the end of the educational process (June)	P	At the beginning of the educational process (September)	At the end of the educational process (June)	P
Heart rate before exercise (per 1 min)	88,5±1,0	90,4±1,19	>0,05	87,5±0,61	83,6±0,94	<0,001
Heart rate after exercise (per 1 min)	118,9±1,21	117,3±1,47	>0,05	116,8±0,93	107,7±0,42	<0,001
DBP, mmHg before load	86,7±0,75	88,3±0,98	>0,05	88,0±0,90	90,1±0,84	>0,05
SBP, mmHg before load	60,1±0,61	59,7±0,73	>0,05	59,8±0,66	61,0±0,60	<0,05
DBP, mmHg after load	990,81	98,2±0,67	>0,05	98,4±0,90	97,8±0,81	>0,05
SBP, mmHg after load	69,1±0,55	68,6±0,66	>0,05	67,5±0,61	69,5±0,62	>0,05
Muscle strength of the right arm	5,6±0,18	4,2±0,14	>0,05	4,0±0,13	4,3±0,17	<0,001

Muscle strength of the left arm	3,2±0,17	4,1±0,19	<0,001	4,2±0,15	3,1±0,17	<0,01
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It is assumed that the level of blood pressure in modern schoolchildren depends mainly on the combined effect of mental and physical stress. In our studies, there were no significant changes in blood pressure at the end of the school year.

Conclusion

The results of medical examinations conducted by children's clinics and research teams indicate that modern schoolchildren have a high incidence of functional abnormalities and chronic diseases. According to an in-depth examination conducted jointly with clinic staff, there are 2-3 functional disorders for every school-age student. The identified unfavorable trends in the health status of schoolchildren indicate the need for systematic preventive and health-improving work in school institutions. It is necessary to improve the quality of preventive medical examinations conducted by children's clinics through: - preliminary questioning of schoolchildren's parents in order to identify the child's complaints and medical history; - careful identification of chronic diseases and functional abnormalities based on careful attention to children's complaints; - 3-fold, with an interval of 5 minutes, blood pressure measurements using children's cuffs; - determination of the functional state of the cardiorespiratory system using the Martin-Kushelevsky test (20 squats in 30 seconds) with measurement of respiratory rate, blood pressure before and after exercise; - identification of physical development disorders (deficit and excess body weight and short stature). These activities, in which medical personnel of medical institutions should take an active part, will contribute to the early detection of health problems, timely treatment and successful adaptation of children to the beginning of systematic schooling.

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