



**TOSHKENT TIBBIYOT AKADEMIYASI URGANCH FILIALI**  
**JANUBIY OROLBO‘YI TIBBIYOT JURNALI**  
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**STUDY OF EPIDEMIOLOGICAL INDICATORS OF THE DENTAL HEALTH OF CHILDREN LIVING IN RURAL AREAS AS THE BASIS OF PREVENTIVE MEDICINE.**



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**ABSTRACT**

A priority task for researchers in the field of dentistry in Russia, in particular within the borders of the Tyumen region, is the systematic monitoring of the incidence of dental ailments. However, despite the importance of this topic, there is a pronounced lack of empirical work focusing on identifying patterns of dental disorders among the inhabitants of rural settlements concentrated in the southern part of the region.

**Keywords.** Disease prevention, analysis of the epidemiological situation, southern regions of the Tyumen region, countryside, population of children.

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**“QISHLOQ JOYLARIDA YASHAYDIGAN BOLALARNING TISH SALOMATLIGINING  
EPIDEMIOLOGIK KO‘RSATKICHLARINI PROFILAKTIK TIBBIYOTNING ASOSI  
SIFATIDA O‘RGANISH”**

**ANNOTATSIYA**

Rossiyada xususan, Tyumen viloyati chegaralarida stomatologiya sohasidagi tadqiqotchilar uchun ustuvor vazifa tish kasalliklarining tarqalishini tizimli ravishda monitoring qilishdir. Biroq, ushbu mavzuning muhimligiga qaramay, mintaqaning janubiy qismida joylashgan qishloq aholi punktlari aholisi orasida tish kasalliklarining rivojlanish jarayonini aniqlashga qaratilgan empirik ishlarning yetishmasligi aniq ko‘rinib turibdi.

**Kalit so‘zlar.** Kasalliklarning oldini olish, epidemiologik vaziyatni tahlil qilish, Tyumen viloyatining janubiy hududlari, qishloq joylari, bolalar aholisi.

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**«ИЗУЧЕНИЕ ЭПИДЕМИОЛОГИЧЕСКИХ ПОКАЗАТЕЛЕЙ СОСТОЯНИЯ ЗУБОВ У  
ДЕТЕЙ ПРОЖИВАЮЩИХ В СЕЛЬСКОЙ МЕСТНОСТИ КАК ОСНОВА  
ПРОФИЛАКТИЧЕСКОЙ МЕДИЦИНЫ»**

**АННОТАЦИЯ**

Приоритетной задачей для исследователей в области стоматологии в России, в частности в пределах Тюменской области, является систематический мониторинг распространенности стоматологических заболеваний. Однако, несмотря на важность этой темы, наблюдается явный недостаток эмпирических исследований, направленных на выявление закономерностей стоматологических расстройств среди жителей сельских населенных пунктов, сосредоточенных в южной части региона.

**Ключевые слова.** Профилактика заболеваний, анализ эпидемиологической ситуации, южные регионы Тюменской области, сельская местность, детское население.

**Introduction.** Oral diseases are an important global public health problem [1, 2] with large socioeconomic implications. A recently published report on oral pathological conditions, based on the Global Burden of Disease 2017 [3, 4] study covering 195 countries and territories, showed that dental diseases remain a major public health problem. Notably, 3.5 billion people had oral disease in 2017, of which 2.3 billion and 532 million had untreated caries on their permanent and temporary



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teeth, respectively. The age-standardized prevalence of permanent dental caries was 29.4%, while that of milk teeth was 7.8% [5].

Dental caries, the most common chronic oral disease, is described as a biofilm-mediated, diet-dependent, multifactorial, noninfectious, dynamic disease resulting in complete loss of minerals by tooth solids. Its etiology involves biological, behavioral, psychosocial and environmental factors [6, 7, 8].

Accurate, reliable and up-to-date data on dental morbidity are fundamental to the prevention and treatment of dental caries. Regular disease surveillance and epidemiological monitoring, including data on associated risk factors, allow the development of appropriate prevention activities and programmes [9]. Systematically collected data should be available for research, analysis and informed policy decisions, and used to develop an oral health action plan. Thus, resources can be rationally allocated to regions and districts where they are most needed [10].

**The aim of the study** is to determine the severity and frequency of the most significant dental pathologies among children permanently residing in rural settlements of the Berdyuzhsky district of the Tyumen region.

**Research methodology.** During the dental examination, 148 schoolchildren aged 6 [n = 45], 12 [n = 49] and 15 [n = 54] years living in the Berdyuzhsky district of the Tyumen region, the prevalence and intensity of dental caries (kpu and KPU), signs of inflammatory periodontal diseases (PMA and CPI indices), the level of oral hygiene (IGR-U index) were assessed. The presence of non-carious lesions of the hard tissues of the teeth, malocclusions, signs of dysfunction of the temporomandibular joint (TMJ) was also detected, and the level of dental care (USP) provided to the children and adults was determined. The exclusion criterion was the presence of a physical, mental or behavioral disorder preventing cooperation in oral examination. Informed consent was obtained from all participants in the examination. In the course of the work, a disposable spatula, a dental mirror, a periodontological probe and tweezers were used. The data obtained were entered into an individual dental examination card in accordance with the recommendations of the World Health Organization (WHO) for 1995 and 2013. All parameters were statistically processed using the analytical program "Vortex 10.7.3."

**Results and Discussion.** In the course of a study of the condition of teeth in children aged six years living in the Berdyuzhsky district, it was found that more than 90% of them (the exact figure is 91.1%) suffer from caries of milk teeth. The assessment of the kpu indicator characterizing the intensity of morbidity reached an average value of  $5.53 \pm 0.98$ . Permanent teeth in 42.2% of 6-year-olds are susceptible to caries. It is noteworthy that the KPU coefficient for this group reaches:  $0.98 \pm 0.40$  (table 1).

Among adolescents aged 12, the incidence rate of caries of permanent teeth is 91.8%, in 15-year-olds this figure is slightly higher and reaches 92.6%. As for the KPU index, for twelve-year-olds it averages  $4.24 \pm 0.70$ , while for fifteen-year-olds this parameter is  $5.70 \pm 1.10$ . These data clearly illustrate the fact of deterioration of the condition of the teeth with the maturation of children.

Based on the structural analysis of the KPU index, the prevalence of component "K" was revealed in all age groups. In adolescents aged twelve and fifteen years, the removal of permanent teeth (component "Y") was stated earlier. The rate of removed teeth among adolescents in rural areas of the Berdyuzhsky district is an indicator of the limited availability of dental services and measures for the prevention of dentoalveolar pathologies.



**Table 1**

**Prevalence and intensity of dental caries in children of key age groups of Berdyuzhsky district**

Age, years	Prevalence, %	KPU	K	P	U
Temporary teeth					
6	91.1	5.53±0.98	5.38±1.01	0.16±0.03	0.00±0.00
Permanent teeth					
6	42.2	0,98±0.40	0.87±0.30	0.11±0.03	0.00±0.00
12	91.8	4.24±0.70	3.04±0.50	1.02±0.30	0.18±0.03
15	92.6	5.70±1.10	4.56±0.90	0.91±0.50	0.24±0.10

In all age categories studied, a satisfactory level of oral hygiene was found as a result of an analysis of the state of oral hygiene (IGR-U - simplified oral hygiene index) (table 2).

In children aged six, twelve and fifteen years, PMA values were  $1.91 \pm 1.65\%$ ,  $8.79 \pm 3.87\%$  and  $6.55 \pm 2.46\%$ , respectively, demonstrating the presence of an inflammatory process in the tissues of the attached oral mucosa of a mild degree.

In the age category of students 12 years old, a high level of periodontal inflammation is observed, reaching 67.3%. The number of affected sextants is  $1.12 \pm 0.43$ , according to the CPI index, sextants with bleeding gums are separately distinguished -  $0.80 \pm 0.39$ , with a tartar -  $0.33 \pm 0.24$ . At the age of fifteen, the prevalence of periodontal diseases increased to 68.5%, with the number of affected sextants -  $1.35 \pm 0.45$  (according to the CPI index). Separately, sextants with bleeding gums and tartar are distinguished -  $0.76 \pm 0.20$  and  $0.59 \pm 0.16$ , respectively. The study of the hygienic state of the oral cavity in children of the Yurginsky district revealed the need for systematic professional hygiene, as well as the exclusion of reasons that can prevent the timely removal of plaque. In addition, these studies highlight the importance of oral health care training among younger generations.

**Table 2**

**Results of assessing the level of oral hygiene and the state of periodontal tissues in children of key age groups of the Berdyuzhsky district**

Age, years	IGR-U	PMA, %	Prevalence of inflammatory periodontal diseases, %	Number of affected sextants by CPI index	Number of gingival-bleeding sextants	Number of sextants with dental calculus
6	0.85±0.16	1.91±1.65	—	—	—	—
12	1.02±0.15	8.79±3.87	67.3	1.12±0.43	0.80±0.39	0.33±0.24
15	1.04±0.15	6.55±2.46	68.5	1.35±0.45	0.76±0.20	0.59±0.16

More than half of middle-aged (12 years) and older (15 years) children showed manifestations of non-carious lesions of hard dental tissues. This pathology was also recorded in 33% of younger



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schoolchildren (6 years old). To a large extent, the largest number of observations of dental enamel hypoplasia was recorded among children aged twelve years, where the frequency was 55.1%. It was found that fluorosis affects children 15 years old, while the incidence of this disease is relatively low and amounts to 1.9% (table 3).

**Table 3**

**Prevalence of non-carious dental lesions in children of key age groups of the Berdyuzhsky district, %**

Age, years	Enamel Staining / Enamel Hypoplasia	Fluorosis
6	31.1	0.0
12	55.1	0.0
15	50.0	1.9

Maxillofacial abnormalities were analyzed in children aged 12 and 15 years (table 4). The study clearly shows that 73.5% of twelve-year-olds and 59.3% of fifteen-year-olds suffer from crowded teeth in the frontal section. In addition, the presence of a gap in the incisor segments is recorded - in 18.4% and 14.8% of cases; diastema - in 8.2% and 5.6% of cases, respectively. It was revealed that the deviation of the anterior part of the vertical axis of the permanent teeth on the upper jaw is present in more than 50% of the examined children. In addition, similar anomalies are recorded in every third student on the lower jaw. A high percentage of malocclusions is observed, accompanied by a change in the anteroposterior ratio of molars: among adolescents aged twelve, this deviation is observed in 75.5% of cases, and in the fifteen-year-old group - in 74.1%.

**Table 4**

**Structure of maxillofacial anomalies in children of key age groups of the Berdyuzhsky district**

Age, years	Dentition anomalies (tooth absence), absolute units	Crowding in incisal segments, %	Interdental space in incisal segments, %	Diastema, %	Anterior deviation in maxilla, %	Anterior deviation in mandible, %	Malocclusion anomalies (anteroposterior molar relationship), %
12	1.24±0.71	73.5	18.4	8.2	75.5	32.7	75.5
15	0.19±0.14	59.3	14.8	5.6	70.4	35.2	74.1

The detection and progression of symptoms of temporomandibular joint (TMJ) dysfunction is associated with a high incidence of malocclusions and abnormalities of the dentoalveolar system, as well as premature removal of permanent teeth. The dynamics of the spread of these violations is as follows: among six-year-olds, 2.2% of cases are observed, in the age group of twelve-year-olds, the percentage reaches 20.4%, while among fifteen-year-olds this value increases to 44.4% (table 5).



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**Table 5**

**Prevalence of signs of TMJ dysfunction in children of key age groups of Berdyuzhsky district,  
%**

Age, years	No signs of TMJ dysfunction detected	TMJ clicking	TMJ tenderness on palpation	Jaw mobility restriction	TMJ compression	Deviation / Deflexion	TMJ crepitus
6	97.8	0.0	2.2	0.0	0.0	0.0	0.0
12	79.6	8.2	2.0	2.0	2.0	4.1	2.0
15	55.6	20.4	7.4	1.9	9.3	7.5	1.9

In the Berdyuzhsky district, dental care for the child population is insufficient, which is clearly demonstrated by the USP index (11.22% for 6-year-olds, 24.06% for 12-year-olds, 15.79% for 15-year-olds). In this regard, the existing availability of medical care in the field of dentistry for the young generation (USP less than 50%) does not correspond to their needs for obtaining high-quality treatment.

**Conclusion.** A study of the dental and oral health in general in children living in rural areas of the Berdyuzhsky district of the Tyumen region clearly demonstrates the need to study the causes contributing to the manifestations of major dental diseases; shows the importance of creating a set of preventive measures that provide for the features of the studied area.

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