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DETERMINATION OF CARIES DISEASE PREVALENCE INDICATORS AMONG 12-YEAR-OLD CHILDREN RESIDING IN THE CITY OF NUKUS

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Annotation: The prevalence of dental caries among the pediatric population remains a pressing issue in our time, with particularly high rates observed in early childhood. According to specialists, several studies have demonstrated that children with dental caries harbor a significant number of cariogenic microorganisms in the oral cavity. A dental examination was conducted to determine the intensity and prevalence rates of caries among school-aged children residing in Nukus city. A total of 87 children were examined, and the caries intensity in boys showed a decline from the previously recorded moderate level to a lower level. In girls, a decrease in intensity was attributed to strict adherence to oral hygiene practices.

Keywords: Dental caries, oral hygiene, cariogenic factors, written survey.

Relevance. Dental caries (Caries dentes) is a pathological process and one of the most widespread diseases in the oral cavity. This condition manifests after the eruption of teeth and is considered a significant problem in dentistry, both from theoretical and practical perspectives.

According to the World Health Organization (WHO), the prevalence of primary tooth caries in preschool-aged children is 73.0%, while the average caries intensity in younger children is 4.76. Recent data indicate that in Uzbekistan, the prevalence of caries among 12-year-old children living in urban areas is 68.04%, whereas among 6-year-olds, it reaches 87.76%. Correspondingly, caries intensity is reported to be 1.49 and 3.96, respectively.

The study of the prevalence and intensity of caries in children through oral disease monitoring enables the improvement of preventive diagnostics and therapeutic measures. This underscores the scientific and practical significance of the chosen research direction. The early and widespread occurrence of caries after tooth eruption is primarily due to the dominance of cariogenic factors, including improper nutrition, hypo- and avitaminosis, poor oral hygiene, excessive carbohydrate consumption, and inadequate fluoride absorption. Additionally, environmental factors play a crucial role in the prevalence of caries among children, particularly in the Southern Aral Sea region, where air pollution, poor drinking water quality, and severe deficiencies of essential microelements (fluoride, iodine) in water exert adverse effects.

Research Objective. To assess the prevalence and intensity of caries among school-aged children residing in Nukus city through a dental examination.

Methods and Materials. The study was conducted among 12-year-old students (6th-grade pupils) of Specialized State Secondary School No. 47 in Nukus. A total of 87 students (47 boys and 40 girls) underwent an oral examination to evaluate the impact of cariogenic

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factors. Additionally, a written survey was administered to assess the significance of these factors. The study employed standard formulas and indicators recommended by WHO to determine caries prevalence and intensity. At the end of the examination, children and their parents were informed about the necessity of timely treatment for carious lesions. To evaluate the effectiveness of the conducted awareness activities, a follow-up examination and survey were carried out six months later.

Determination of Caries Prevalence and Intensity

The prevalence of caries was determined using the following formula:

Total number of examined individuals ---------- 100%

Number of individuals with caries ---------- X(Caries Prevalence %)

To assess and compare caries prevalence across different regions, the following evaluation criteria for 12-year-old children have been established:

Prevalence Levels:

Low prevalence: 0 – 30%

Moderate prevalence: 31 – 80%

High prevalence: 81 – 100%

The intensity of caries is calculated as the average number of carious lesions per individual. This is determined by counting the number of caries-affected teeth, filled teeth, and extracted teeth due to caries. The following index is used:

$$CI = \frac{\sum DMF}{\textbf{Total number of examined individuals}}$$

D: Number of decayed teeth

M: Number of missing teeth (due to caries)

F: Number of filled teeth

Each missing tooth was assigned a coefficient of 5. Multiple carious lesions or restorations on a single tooth were also considered. Initial carious lesions, such as white or black spots, were not included in the calculation.

According to WHO recommendations, the following classification is used to evaluate caries intensity in 12-year-old children:

№	Intensity level	DMFT index
1	Very low	0-1.1
2	Low	1.2-2.6

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3	Moderate	2.7-4.4
4	High	4.5-6.5
5	Very high	x>6.5

Results. According to the study results, out of 87 examined children, 72 were diagnosed with caries, leading to an overall caries prevalence rate of 83%. The prevalence was 85% among boys and 80% among girls.

The overall DMFT index for all 87 children was 2.86 (moderate level). Among boys, the index was 3.08 (moderate level), which was higher than the general average. Among girls, the index was 2.57 (low level), which was lower than the overall indicator.

The lower DMFT index among girls correlated with their lower carbohydrate consumption and better oral hygiene practices, as confirmed by written surveys. The majority of girls brushed their teeth twice daily and rinsed their mouths after meals. Conversely, the boys, who showed a moderate DMFT level, were found to consume higher amounts of carbohydrates and follow less strict oral hygiene routines, with most brushing their teeth only once a day and failing to rinse their mouths after eating.

During the follow-up examination, the following findings were observed:

The overall caries prevalence decreased by 12%, from 83% to 71%.

Among boys, caries prevalence dropped by 8%, from 85% to 77%.

Among girls, caries prevalence dropped by 15%, from 80% to 65%.

The overall DMFT index decreased from 2.86 (moderate level) to 1.92 (low level).

Among girls, the DMFT index declined from 2.57 to 1.93 (low level).

Among boys, the DMFT index decreased from 3.08 (moderate level) to 1.91 (low level).

Additionally, it was observed that during the follow-up examination, children had received dental treatment for their previously diagnosed carious lesions, indicating increased visits to dentists. Furthermore, written surveys confirmed that children had reduced their consumption of sweets and followed stricter oral hygiene practices, including brushing their teeth twice a day and rinsing their mouths after meals.

Conclusion. In conclusion, the findings indicate that among the 87 examined children, the caries intensity among boys decreased from a moderate to a low level, while the intensity among girls also declined significantly. This reduction was strongly associated with strict adherence to oral hygiene practices, such as brushing teeth twice a day, rinsing the mouth after meals, and maintaining a balanced diet with controlled carbohydrate intake.

These results demonstrate that increasing awareness among children and their parents about caries prevention and implementing preventive measures can significantly reduce

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caries prevalence. The more educational and preventive efforts are undertaken, the lower the incidence of dental caries will be, ultimately contributing to a healthier future generation.

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