THE IMPORTANCE OF PARENTAL INVOLVEMENT IN THE ORAL HYGIENE OF CHILDREN AGED 3-5 YEARS

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Given the high prevalence of caries in deciduous and permanent teeth in children worldwide, it is necessary to expand educational programs for students at various levels, to engage in health education initiatives targeting parents, teachers, and policymakers. Such efforts aim to foster interest and awareness among stakeholders involved in shaping health policies.

Our study aimed to assess the efficacy of the "Form for recording oral hygiene skills of children aged 3 to 5 years," developed by our team, as a means to enhance children's oral hygiene proficiency.

Following the implementation of preventive measures in the first group, we observed a notable enhancement in the oral hygiene index, decreasing from 1.71 to 1.55 points between the initial and final assessments. This improvement correlates with the advancement of children's practical skills with age, alongside the active involvement of parents in their children's oral care routines. In the second group, the hygiene index significantly worsened with each examination. A comparison of this index between the groups at the second and third examinations revealed a significant difference. Children were also divided into groups, which we monitored according to the state of oral hygiene. In the first group, 45.7% of children had good oral hygiene during the first examination, 53.3% during the second, and 72.4% during the third. This rise can be attributed to a decrease in cases of children exhibiting poor hygiene, dropping from 20% to 6.9%. In the second group, children with good hygiene decreased from 51.4% to 28%. The group average remained satisfactory at each visit, but the number of children with poor hygiene increased from 14.3% to 52%.

All of the above is aimed at reducing caries of temporary teeth, which is the main unresolved issue of modern pediatric dentistry.

Key words: primary teeth, early childhood caries, survey, prevention of caries, oral hygiene
Introduction
Recent epidemiological studies on tendencies related to caries of deciduous and permanent teeth in children consistently demonstrate a rising prevalence of this condition, alongside an increase in the frequency of early childhood caries [1, 3, 4].

Due to the high prevalence of caries in deciduous and permanent teeth in children worldwide, it is necessary to expand educational programs for students at various levels, to carry out health education work with parents and teachers of children; and to raise interest and awareness of those who develop health policy. Availability of dental services is also very important [4,8,9,11,15].

Despite the rapid development of pediatric dentistry, the main task of scientists is to determine the risk factors of caries in children and to focus primary prevention methods on solving the problems of caries etiology itself [10].

When analyzing the etiological risk factors of early caries in children, it becomes clear that the greatest responsibility lies with parents, who must control the quality and regularity of individual hygiene of children, their learning of practical skills in dental care and the use of tools and hygiene products for removing dental deposits [12,14].

Studies have shown that there is a link between parents' knowledge of oral health and the prevalence of dental caries [7]. Children whose parents had better oral health literacy had lower rates of dental caries. A questionnaire of children and parents is used as a method of studying these factors.

Our study aimed to assess the efficacy of the "Form for recording oral hygiene skills of children aged 3 to 5 years," developed by our team, as a means to enhance children's oral hygiene proficiency.

Materials and methods
In our study, we proposed the "Form for recording oral hygiene skills of children aged 3 to 5 years" [6]. It was developed to evaluate the hygienic state of the oral cavity, children's knowledge of hygiene skills, correct use of hygiene tools and products in oral care and their use according to age during dynamic monitoring for 2 years.

The form comprises six main items. The first two (1-2) assess toothbrush stiffness, head size and wear, suitability of toothpaste for the child's age and oral hygiene index. The next two items (3-4) allow for analyzing parental involvement and the use of additional tools and hygiene products during the brushing of a child's teeth. The last two (5-6) reflect the child's learning of practical skills and the child's oral hygiene status.

The form was filled out once a year during a routine check-up. Health lessons and supervised toothbrushing, taking into account age-specific characteristics, were also necessary requirements.

The quantitative indicator of the quality of a child's learning of practical skills was defined in the number of points: if a certain item or practical skill was assessed as positively mastered, this unit was scored as one point. If tools or products were missing or inappropriate - as zero points. The maximum number of points was 18.

To implement the study, a primary survey (using this form) was conducted among parents of 70 children aged 3 years in Poltava and Poltava district.

Two observation groups (35 people each) were formed. Children were examined once a year. During each examination, the hygiene index according to Fedorov-Volodkina [13] was determined in both groups and the form was filled in. In the first group, the form was filled together with parents. The score of previous examinations was analyzed, with attention being paid to the unsatisfactory performance of items by the child or parents. During each hygiene lesson, adults were directly involved. Each time, parents were warned about the need to compare the results of the first and subsequent examinations.

In the second group, the form was also filled in during each examination, but without the active participation of parents. The form was used as a means to record the data obtained during the examination and hygiene lesson, which was exclusively with the child.

29 children remained in the first group and 25 in the second group under our supervision after two years of monitoring.

Results
During the first examination, children and their parents were informed about the possibility of using additional hygiene products and tools for children according to their age and oral health status. We consider this reasonable since early acquaintance with additional intradental appliances increases the possibility of their use, which in turn will increase the prevention of approximal caries of temporary teeth. The hygiene lesson was followed by supervised toothbrushing, during which the form we offered was filled in. Parents received maximum information about the quality of their children's individual oral hygiene.

During the first examination of 70 children of both groups, oral hygiene index was determined. The index had no significant difference between the groups and was 1.71 ± 0.05 points in the first group and 1.67 ± 0.04 points in the second group, i.e. the
state of hygiene according to the average index was satisfactory (Table 1). The next determination and comparison of this index was carried out with an interval of one year, i.e. during the second and third examinations.

Table 1. Comparison of oral hygiene state in different monitoring groups according to Fedorov-Volodkina

<table>
<thead>
<tr>
<th>Group</th>
<th>Oral hygiene state according to Fedorov-Volodkina, points</th>
<th>P &lt; 0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 examination</td>
<td>2 examination</td>
</tr>
<tr>
<td></td>
<td>number of children</td>
<td>OH</td>
</tr>
<tr>
<td>I</td>
<td>35</td>
<td>1.71±0.05</td>
</tr>
<tr>
<td>II</td>
<td>35</td>
<td>1.67±0.04</td>
</tr>
<tr>
<td>P₁₂</td>
<td>&gt; 0.05</td>
<td>&lt; 0.05</td>
</tr>
</tbody>
</table>

Note: P₁₂ - probability of difference in indices in comparison groups
P₁₃ - the probability of difference in indices during examinations

After preventive measures in the first group, we obtained a significant improvement in oral hygiene index between the first and last examination from 1.71 to 1.55 points, which we connect with the improvement of children's mastering practical skills with age and active participation of parents in the oral care of their children. In the second group, the hygiene index significantly worsened with each examination (P₁₂, P₁₃, P₂₃<0.05). A comparison of this index between the groups at the second and third examinations revealed a significant difference.

Children were also divided into groups, which we monitored according to the state of oral hygiene. In the first group, 45.7% of children had good oral hygiene during the first examination, 53.3% during the second, and 72.4% during the third. This rise can be attributed to a decrease in cases of children exhibiting poor hygiene, dropping from 20% to 6.9%. In the second group, children with good hygiene decreased from 51.4% to 28%. The group average remained satisfactory at each visit, but the number of children with poor hygiene increased from 14.3% to 52%.

During each follow-up examination in the first group, the child's teeth were brushed under supervision and a form was filled in by interviewing the parents. Since the questionnaire has a single blank that records each visit, it was possible to assess immediately and compare the child's mastery of practical hygiene skills: the direction of movements and their number, the surfaces of the teeth to be cleaned for each segment in the upper and lower jaw, and correct use of oral care tools and products. The form was filled in with the active involvement of parents, who answered the questionnaire and had the opportunity to compare previous answers and assess the quality of their "own" work using a quantitative index. A combination of data processing with teaching and correction of hygiene skills, containing elements of a game with parents’ participation in it, was an effective method of hygiene education for children of this age group.

In the second group, the form was also filled in once a year, but the involvement of parents was formal: answering the questionnaire, without comparison with previous results and without analyzing the child's learning of skills. Supervised cleaning was carried out and points were recorded in the form. More attention was paid directly to working with a child.

The effectiveness of preventive measures was assessed by comparing the quantitative index of practical skills mastery by children in comparison groups (Fig.1).
During the first examination, it was found that 85.7% of parents in the first group and 80% in the second group did not participate in the toothbrushing of their children. During the second check-up, this figure decreased to 53.3% in the first group and 75% in the second group. The last examination revealed, that only 31% of parents did not help to finish brushing their children's teeth in the first group, while in the second group, this figure remained significant and was 68%.

The results after processing and analyzing the completed forms show a lack of knowledge of how to use hygiene tools and products and indicate the need to improve the oral hygiene skills of both children and their parents.

Parents' involvement in the oral care of young children is obligatory and the most important for efficient prevention of caries in children, so one of the questions in this form is a record of parental involvement in brushing a child's teeth, as good oral hygiene is not possible without the help of adults.

Discussion
The study findings revealed a notable enhancement in oral hygiene among children in the first group, where collaborative efforts with parents were undertaken in completing the questionnaire.

The rate of practical skills learning by children in the first group is also significantly higher than in the second group. Filling in the questionnaire items together with adults during each check-up was a definite motivation for parents to be more active in maintaining their children's dental health.

Children aged 3-5 years have insufficient skills in oral hygiene. Therefore, it is important to involve parents in this process. They are responsible for the correct selection and use of hygiene tools and products, and the state of oral hygiene. Adults, themselves, should have the necessary knowledge on this issue.

There are studies that show a link between parents' knowledge about oral health and the prevalence of dental caries [2,5,10,16].

Children whose parents had better oral health literacy had a lower incidence of dental caries. In order to study these factors, we used questionnaires for children and parents.

Our previous studies have shown poor knowledge of adults about their oral health, which is one of the risk factors for early caries in preschool children. The results of the questionnaires showed an unsatisfactory situation with adults' awareness of personal hygiene, and the use of additional tools and products by parents and their children [10].

There is a direct correlation between caries in children and their parents' visits to the dentist for preventive examination and toothbrushing of parents.

Recent research [5] by Polish scientists was carried out by interviewing pregnant women to assess their knowledge of children's dental health and ways to prevent caries in children. Women with higher education and both good and very good financial situations were better informed about dental health.

After analyzing our results and those of other researchers, we realized that only the collaboration of parents, doctors, and all units of the healthcare system can reduce the prevalence of caries in children, which is the main task of modern pediatric dentistry.

Conclusion
Parents play a key role in the oral hygiene of young children. Filling in the "Form for registration of oral hygiene skills of children aged 3 to 5 years" is a simple and effective way of interaction between a doctor and parents of a child in early childhood in order to maintain the health of temporary teeth.

In the future, we plan to expand the proposed form with the possibility of improving the interpretation of obtained results for the convenience of both doctors and all participants of the preventive process – children and their parents.

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References
гігієни вірогідно погіршувався з кожним оглядом. Також був проведений розподіл дітей в групах спостереження за станом гігієни порожнини рота. В першій групі під час першого огляду 45,7% дітей було з доброю гігієною, під час другого – 53,3%, третього – 72,4%. Дане збільшення відбувалося за рахунок зменшення дітей з незадовільною гігієною від 20% до 6,9%. В другій групі дітей з доброю гігієною зменшилося з 51,4% до 28%. Середній показник в групі залишався задовільним під час кожного огляду, але дітей з незадовільною гігієною стало більше з 14,3% до 52%.

Все, вище зазначене, направлене на зменшення ураженості карієсом тимчасових зубів, що є головним невирішеним питанням сучасної дитячої стоматології.

Ключові слова: тимчасові зуби, ранній дитячий карієс, анкетування, профілактика карієсу, гігієна порожнини рота.