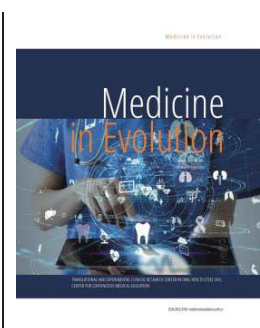


Assessment of the degree of knowledge regarding dental hygiene of primary school children from Timișoara



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Abstract

Oral health is an integral part of health and well-being. It enables individuals to communicate more effectively, to enjoy a variety of foods and beverages, and to substantially increase their quality of life, self-confidence, and social life (1). Based on a pattern of illness, oral health professionals have focused on prevention and education focused on changing behaviours that were considered to be the cause of dental diseases. The theory behind this approach is that once individuals acquire the relevant knowledge and skills, they will change their behaviour and maintain a much better oral health (3). The purpose of this paper is to assess the degree of knowledge regarding dental hygiene of primary school children and the impact of the implementation of an Oral Health Education Programme for a representative sample of students from three schools in Timisoara.

Keywords: dental hygiene, primary school, education, Timisoara

INTRODUCTION

Oral health is an integral part of health and well-being. It enables individuals to communicate more effectively, to enjoy a variety of foods and beverages, and to substantially increase their quality of life, self-confidence and social life (1). Although overall improvements have been made in oral health over the last 30 years, inequalities in society have been a major challenge to public health, as disadvantaged and low-income groups face a disproportionately high level of diseases in the oral cavity (2).

Based on a pattern of illness, oral health professionals have focused on prevention and education focused on changing behaviours that were considered to be the cause of dental disease. This "lifestyle" has dominated preventive practices over the years around the world. The theory behind this approach is that once individuals acquire the relevant knowledge and skills, they will change their behaviour and maintain a much better oral health (3). It turned out that globally, children who have dental problems are 12 times more likely to be absent from school than those who take care of the oral cavity. More than 50 million school hours are lost annually due to diseases in the oral cavity. It was concluded that through the oral health programmes implemented in the school, those who must learn are not only children, but also teachers, families and other members of the community. Diseases of the oral cavity, such as tooth decay, gingivitis and periodontal disease affect more than 80% of children worldwide (4).

In accordance with the National Education Law no. 1/2011, in Romania the educational system is coordinated by the Ministry of Education, Research and Youth (MECT). According to this law, kindergarten is optional between 3 and 6 years, the preparatory class becomes compulsory starting with 2012 and starts at the age of 6, and schooling is compulsory until the 10th grade, inclusively. Each level of education has its own form of organization and is subject to the legislation in force (5).

Primary education, being the first stage of compulsory education has as main objective the creation of equal opportunities for all children for a cognitive, emotional and psychomotor development in a balanced way, adapted to individual needs. From a socio-emotional point of view, during this period the child gains confidence in his / her own strength, increases self-esteem, initiative and desire for success. During this period, measures should be identified aimed at preventing, compensating for inequities manifested in students from disadvantaged backgrounds at the beginning of schooling, the early identification of learning difficulties and individualized intervention. (6).

Following a National Oral Health Report based on a study involving children and young people, conducted in 2012, it was concluded that oral diseases are an important public health issue, which involves a considerable social and economic cost. Dental disorders cause pain and suffering among children and young people, followed by absenteeism from school activities. Another negative effect is the psychological and social impact that these conditions determine among the young population. Favouring factors are primarily poor hygiene, inadequate nutrition, lack of attendance at dental offices and lack of knowledge about oral health. The handiest measure to improve the oral health of students is health education taught by specialists in educational institutions, correlated with hygiene techniques and their control.

Poor oral hygiene and lack of regular visits to the dentist are associated with gum disease and tooth decay, the main etiological factor being dental plaque. A diet high in sugar and fat and low in fibre, vitamins and essential minerals is associated with periodontal disease, diseases of other tissues in the oral cavity and tooth loss.

Aim and objectives

The purpose of this paper is to assess the degree of knowledge regarding dental hygiene of primary school children and the impact of the implementation of an Oral Health Education Programme for a representative sample of students from three schools in Timisoara ("Grigore Moisil" Theoretical High School, "Nikolas Lenau" Theoretical High School and "Carmen Sylva" National Pedagogical College from Timișoara).

The objectives of this study are to assess the degree of understanding of dental hygiene habits among boys and girls, the significance of school and the environment in which children work on the ability to understand dental hygiene habits and the impact of an education programme for oral health in the primary cycle.

MATERIALS AND METHODS

This cross-sectional study was conducted on a sample of children, aged between 8 and 11 years, consisting of girls and boys, students at three different schools in Timisoara the "Grigore Moisil" Theoretical High School, the "Nikolas Lenau" Theoretical High School and the "Carmen Sylva" National Pedagogical College from Timișoara).

For a period of four weeks, for one hour a week, children were taught lessons on dental anatomy, mixed dentition, proper nutrition, the importance of dental hygiene and the negative consequences of negligence, and at the end of the class the children will be assessed by means of a ten-question test on the subject taught at that time.

A total of 234 children from the second, third and fourth grades of the above-mentioned schools were assessed. Out of the total number of students, 127 were girls and 107 were boys, so comparisons were made between genders, between classes and between the schools involved in the study.

The verification of the efficiency of the presentations and at the same time of the students' interest for the presented subject was made at the end of each presentation, through a short test, consisting of 10 questions with answers, referring to the essential aspects of the presentation. The degree of difficulty of the tests was correlated with the degree of understanding of the children from the three different classes. The way of scoring them was done with grades between 5 and 10.

To analyse the test results, all the grades obtained by the children in the four weeks were collected in a Microsoft Office Excel document. Then a series of statistical tests were applied: the ANOVA one way test, t-Test, Scheffe post-Hoc test and Freidmann test.

RESULTS

According to the grade of origin, it resulted that out of the total number of children who participated in oral health education classes, a number of 74 (31.6%) are in the second grade, 75 students (32.1%) in the third grade and 85 students (36.3%) of the 4th grade.

77 (32.91%) are students of the "Carmen Sylva" school, 79 (33.8%) students of the "Grigore Moisil" school and 78 (33.3%) students of the "Nikolaus Lenau" school.

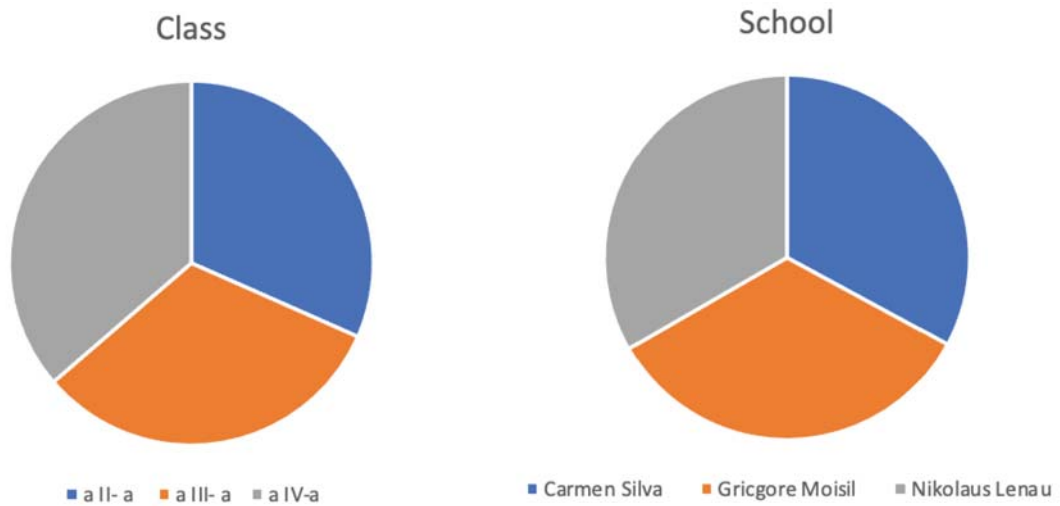


Figure 1. Percentage distribution of children by grade

Figure 2. Percentage distribution of children by school

Of the total number of children who took part in the study, 127 (54.27%) were female and 107 (45.73%) were male.

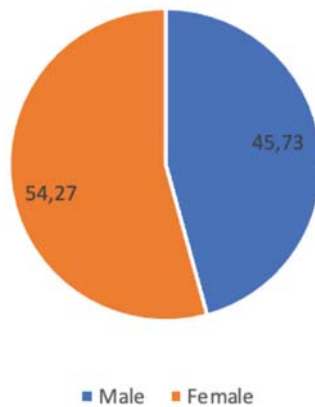


Figure 3. Percentage distribution of children by gender

Out of the total grades, the arithmetic mean of the grades obtained by the children in the four weeks was 8.55 for girls and 8.37 for boys.

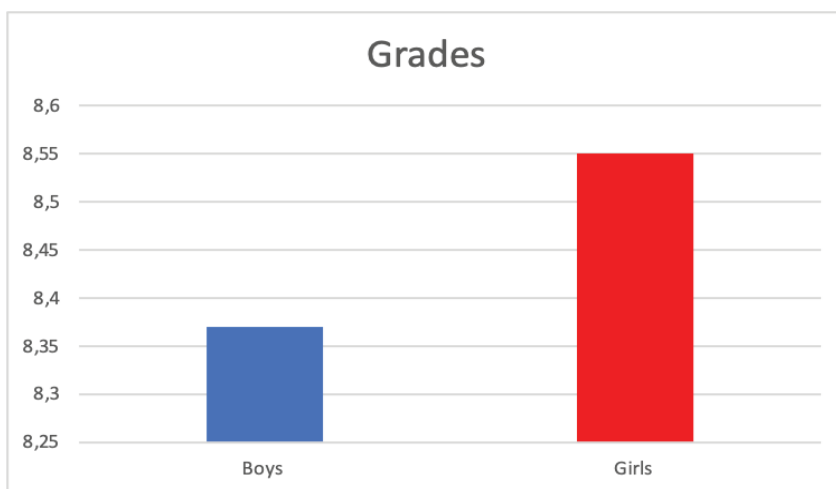


Figure 4. Diagram representing the averages of the grades obtained by girls and boys, respectively

To find out the evolution of the children's results over time, we applied the Freidmann test on the results of tests on oral health. The Freidmann test is a non-parametric test used to find differences in treatments at multiple trials. It is used instead of the ANOVA test when the data distribution is not known. The application of the test showed that the differences between the marks obtained in the 4 tests are significant (Friedmann test, $p < 0.001$).

Table 1. Evolution of test results over time

Moment	N	Average grades	Standard deviation	Minim	Maxim	Average rankings
test1	234	8,48	1,436	5	10	2,51
test2	234	7,84	1,388	5	10	1,87
test3	234	8,76	1,314	5	10	2,78
test4	234	8,79	1,330	5	10	2,84

In test 2 they obtained significantly lower marks, in test 3 they obtained significantly higher marks than in test 1 ($p = 0.018$) and insignificantly lower than in test 4 ($p = 0.659$) and in test 4 they obtained significantly higher marks than in test 1 ($p=0.006$)

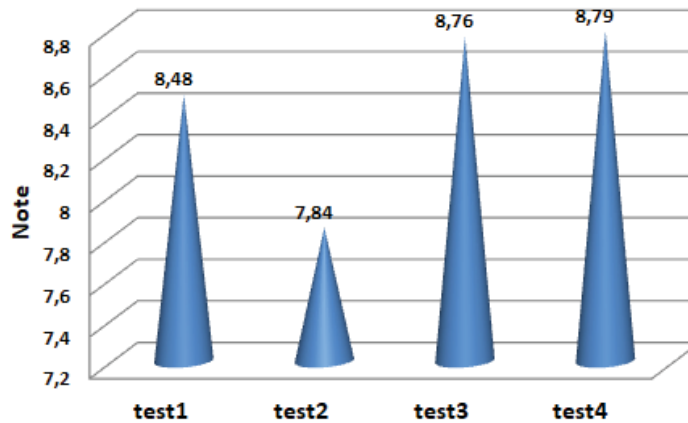


Figure 5. Evolution of test scores compared to time

DISCUSSIONS

Schools are an influential framework for secondary socialization. Students can be easily accessed during the school years, a period that lasts from childhood to adolescence. These years are influential when developing health-related behaviour, attitudes, and a lifelong lifestyle. Children are fond of learning during this period, and earlier, habits are established. Health programmes implemented in schools are important for promoting the oral health of children and young people.

Oral health education can be provided either by the traditional method of teaching, or by the use of self-educational brochures or audio-visual aids or by combining two or more means. Other methods may be involved to effectively transmit health education. Oral health education programmes exposed by the traditional method have been effective in improving children's knowledge. However, the children were not able to put into practice and positively influence their oral health behaviour because they did not practice what they learned. The person who teaches these programmes in schools is either a dentist or a dental hygienist. In order for a teacher to have knowledge related to oral health education, he / she participates in a one-day seminar (4).

Another study in which researchers were oriented towards the concept of behaviour in oral hygiene, structured the research on three dimensions: the first - information and

knowledge, the second - the practice of oral hygiene, and the third - the relationship with the dentist. Based on these dimensions, the research presented an overview of the behaviour of children in Timis County.

The three main dimensions: frequency, time of day and duration of brushing teeth provide a clear picture of the actual behaviour in terms of oral hygiene. Research shows that depending on children's responses, more than 50% brush their teeth at least twice a day. According to the data, children who have such behaviour have been instructed on how to wash by their parents or by the dentist. These children belong to the third and fourth grades, grades associated with a higher level of education. Moreover, the same category of children may behave appropriately in terms of tooth brushing time (at least 2 minutes), frequency (morning and evening) and correct brushing method.

Consequently, we can assume that the training process has effects not only in terms of knowledge, but also in terms of the actual behaviour of the application of appropriate oral hygiene methods. Informed children are more likely to behave appropriately in terms of oral hygiene and this is why a strategy of informing people from an early age could lead to better and more visible results over time (2).

Teacher involvement in oral hygiene education (OHI) has a positive impact on children. Another study found a significant improvement in OHI among children, which clearly demonstrates that teachers' perseverance causes a change in the children's behaviour. Personal assessment by the teacher could indirectly motivate the child to perform better and produce a change in his / her behaviour. (12).

Over the last 25 years, interest in health promotion and disease prevention has grown significantly. Prevention should be considered a personal choice because it is effective and economical. Dental health education (DHE) is an important and integral part of prevention and health promotion. It is a process that informs, motivates and helps people to adopt and maintain OHI practices as well as a healthy lifestyle. The main objective of DHE is to motivate individuals to seek and understand the purpose of these practices in order to take responsibility for the maintenance of their oral health. (11).

Future improvements in oral health and the reduction of inequalities depend on the implementation of public health strategies that focus on the determinants of diseases in the oral cavity. Several complementary actions carried out in partnership with the relevant agencies and the local community are needed, as prevention and medical education alone will not achieve lasting improvements in oral health. In addition, these approaches are very expensive and depend on the availability of staff trained in OHI practices. In both developed and developing countries, public health strategies are based on a common approach to preventing the risk of disease in the oral cavity, and the gains are significantly higher in oral health. (13).

CONCLUSIONS

This study, conducted on a sample of 243 children, aged 8-11, from three schools in Timisoara, aimed to raise children's awareness and responsibility for their own dental health and to enable children to develop appropriate skills and practices for the prevention of dental diseases. Attempts have also been made to establish positive values and attitudes towards dental health in primary school children.

The results of this study support the implementation of Oral Health Education Programmes at an early age. The objectives of the study were achieved. There was no significant difference in the interest in girls 'and boys' knowledge of oral health. Both boys and girls were equally interested, as evidenced by the results of the weekly tests. Also, in the comparisons between schools, children from the "Nikolas Lenau" High School obtained lower results than their colleagues from the other two schools under study. There were also different results depending on the degree of difficulty of the tests, in the second week at all

schools the test results were significantly lower. The theme of the second week's test was about "Food and its importance".

The implementation of an oral health education programme within the school curriculum would influence the comprehension capacity of primary school children and would have a positive impact on their development and prevention skills in terms of not only oral health but also the health of the whole body.

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