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Determination of the Significant Caries Index (SiC) in 12-year-old children from the Kumanovo area.

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ABSTRACT

As a priority from year 1981, WHO has promoted the SiC index on the field of Oral Health. The results of the DMFT survey in 2000, the conclusion was that in each population, persons whose caries score almost exceeded the values from other parts of the group existed. The purpose of this stady is to find aut the SiC index in 12 years old children on the Kumanovo area, wich is the first examination in this field. The SiC index was treated as follows: third of the examination group was separated by DMFT values; the third of the same with the highest values was selected and DMFT values were compared. The gained values presented the SiC index. This index should be less than DMFT=3 at the age of 12. The results of the final examination showed that DMFT index in our examination group was 4,36 and is higher than average DMFT index in Republic Masedonia (DMFT=5,22), while SiC index is 6,83 and has almost the same values as the registered SiC index in the same group in Skopje.

Keywords: Caries, SiC index

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INTRODUCTION

A new significant caries index (SiC) has been proposed to attract attention on individuals with high caries in each population. The strategic goal of each country is to make the SiC index smaller than the value of DMFT 3 in children of 12 years of age(1).

This index has been accepted by many countries because it is easy to apply, understand and remember.

Looking back at the WHO 1980 data bank DMFT values were available in 107 countries from 173 member states. Of this 51% of the countries had DMFT 3 or less, and 49% had higher values (2).As of 1999, almost 20 years later, data from 184 of the 204 countries included in this program were received; 68% of them had 3 or less 3 DMFT values, which was a major advancement in the reduction of dental caries .

By caries analysis, the prevalence in developed countries or areas with 3 DMFT values, despite the low level of caries, is not given special attention to those individuals who have a high caries score, and belong to the same population. In all populations there are subgroups of individuals with high prevalence of caries. This is why a SiC index has been proposed to bring attention to individuals with a high dental caries.

For many years, the World Health Organization (WHO) global goal for year 2000 for dental caries of no more than an average of 3 DMFT (decayed, missing, filled teeth) at 12 years of age has been used as a global yardstick for oral health program success (3).An analysis conducted by the WHO found that there was a skewed distribution of caries prevalence in many countries; a significant proportion of 12-year-olds still had high or even very high DMFT values even though a proportion was totally cariesfree (4). This polarization of the caries picture has the effect of making the mean DMFT value less meaningful as a population descriptor in that it does not accurately reflect the burden of disease (5).

It may lead to the incorrect conclusion that the caries situation for the whole population is under control, whereas in reality population subgroups still suffer from high caries rates. The Significant Caries Index (SiC) was introduced in 2000 to bring attention to the individuals with the highest caries values in each population (4-8).

A detailed analysis of the caries prevalence in many countries has often shown a skewed distribution of the disease: a groupof 12-year-olds may have high or very highdecayed/missing/filled teeth (DMFT) values, while the rest of the age group shows low DMFT or are totally caries-free (9, 10).

Obviously, expressing caries prevalence as the mean DMFT value does not correctlyreflect the skewed distribution, leaving high caries groups undiscovered in the population. In order not to lose the positive momentum gained from various oral health programmes around the world, and to target the still caries-susceptible individuals in the population, a new index, the significant caries (SiC) index, was introduced in the year 2000 to call attention to those children with the highest scores in each population (6). The SiC index is calculated by taking the mean DMFT of the one-third of the individuals having the highest of DMFT values in a given population (6,7). The use of the SiC index may solve the problem related to skewed caries distribution (5).

The aim of this study was to register the SiC index in 12-year-old children from the area of Kumanovo and to compare the obtained values with the 3 DMFT index code the World Health Organization set the benchmark for 2000.

MATERIAL AND METHOD

The significant caries index is calculated as follows: the subjects are ranked according to the DMFT values. One third of them with the highest values are selected and the DMFT value is calculated. The obtained values present the SiC index.

A total of 201 children aged 12 years from the primary school "Brothers Miladinovci" in Kumanovo was included in the study. The examinations were carried out in a dental outpatient clinic.

According to the obtained values, the respondents were divided into three thirds. The third with the highest DMFT values was a representative of the SiC index.

RESULTS

The results of this test are shown in tables and figures.

As presented in Table 1 and Figure 1 in 201 children included in our examination the DMF index was 4.36, of which 3.6 or 74.77% were decayed teeth, 0.06 or 1.38% were missing teeth and 1.04 or 23.85% were filled teeth.

Table 1: DMFT index and structure of DMFT index in respondents

n	DMFT index	Structure of DMFT index		
		decayed teeth	missing teeth	filled teeth
201	4,36	3,26	0,06	1,04

Table 2: SIC index and the structure of SiC index

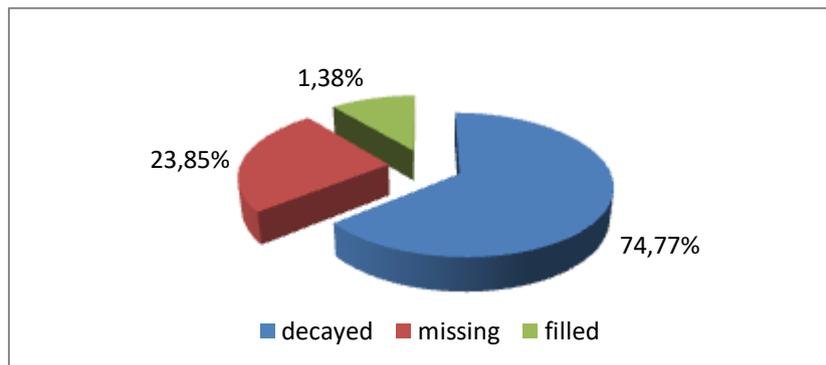| n	SiC index	Structure of SiC index		
		decayed teeth	missing teeth	filled teeth
67	6,83	4,62	0,12	2,09

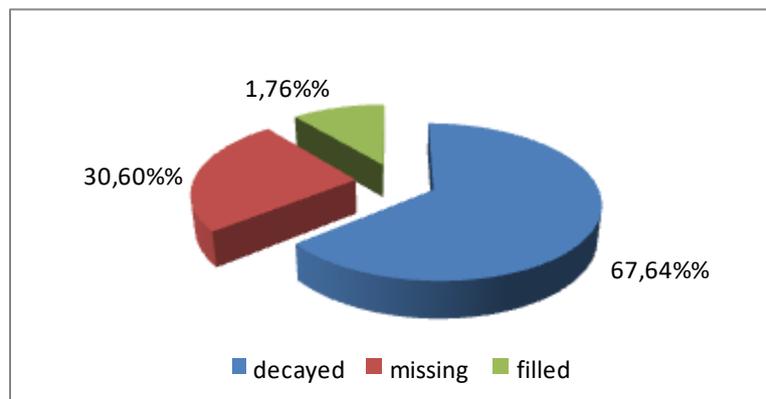**Figure 1: Structure of the DMFT index expressed in percentage**

Figure 2: Structure of SiC index expressed in percentage

Table 2 and Figure 2 show the SiC index and structure of the SiC index in the respondents. It can be seen that the SIC index was 6.83%, of which 4.62% or 67.64% were teeth with decayed, 0.12 or 1.76 were missingteeth and 2.09 or 30.60% were filled teeth.

DISCUSSION

The proposal to include the new SiC index does not exclude conventional methods, but simply focuses on individuals with very high caries score. With the application of this index, attention focuses on only one third with the highest DMF values and thus the group with high prevalence of caries is placed under greater protection, thus decreasing the high DMFT, and at the same time using the SiC index it is much easier to determine the specifics and the target place for action (10). By focusing on children with high DMFT, a significant relief is achieved both for the individual and for the society. With a timely preemptive action on this group, we would avoid the expensive recovery program in advanced age. Bratthall(2000) developed the significant caries (SiC) index to select individuals with the highest caries scores (6). The validity of this tool has been confirmed by Marthaler(2004), who reported that dental caries assessment can be done regardless of the socioeconomic level (11). The results of this study indicate a high prevalence of dental caries among our respondents. The DMFT index in these respondents was 4.36, and the SiC index 6.83, with approximately the same values as in the Skopje area (SiC index 6.64) (12). In Sweden the SiC indexin 12-year-old children is 2.82 (13).

CONCLUSION

If we compare these values with the registered values obtained in the developed countries or countries in which the prevention is on a larger scale, we should conclude that the average DMFT index and the SIC index for children aged 12 years in the area of Kumanovo area significantly higher, which points to the need for urgent application of a preventive program that will cover all children, with special attention being paid to the caries risk group we presented through the SIC index.

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