

Influence of Preventive Programs for Reduction of DMFT Index in 12 Years Old Children in RNM on Dental Arch Space Changes

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Disclosures

I Sofija Carceva Shalja have no financial relationships to disclose concerning the content of this presentation or session

Background

Premature loss of deciduous and permanent teeth, especially molars, can lead to huge problems in the normal growth and development of the dental arches and the dento-facial structure. The leading cause of premature tooth loss is demonstrated to be dental caries, which is a progressive microbial disease that affects the hard teeth tissues, and is one of the most prevalent diseases worldwide, with an enormous decrease in its prevalence in developed countries. For such reasons as well as the very high DMFT index of 6.88, the “National Strategy for prevention of oral diseases of children aged 0-14 years in the Republic of Macedonia 2008 - 2018” was developed and a new one for the next period of ten years 2018-2028. Among other primary preventive measures, special priority was given to the pits and fissure sealing of the first permanent molar, which in the overall DMFT index was with highest percentage of participation. The aim of this study was to evaluate the effect after implementation of a set of preventive measures through “National Strategy for prevention of oral diseases of children aged 0-14 years in Republic of Macedonia from 2008-2018” and the resulting dental arch space changes leading to early orthodontic treatment need.

Material and method

This research was made in all 8 regions in RNM, including examined representatives from urban and rural areas equally.

Using the WHO methodology for preparing Oral health studies, 7169 children, born in the year of 2007, on 12 years of age, were examined (33.3% from all the children in that generation). 3117 of them were boys and 3050 were girls.

The examinations were made in dental offices, by calibrated dentists-pedodontists, all employed in the public health sector.

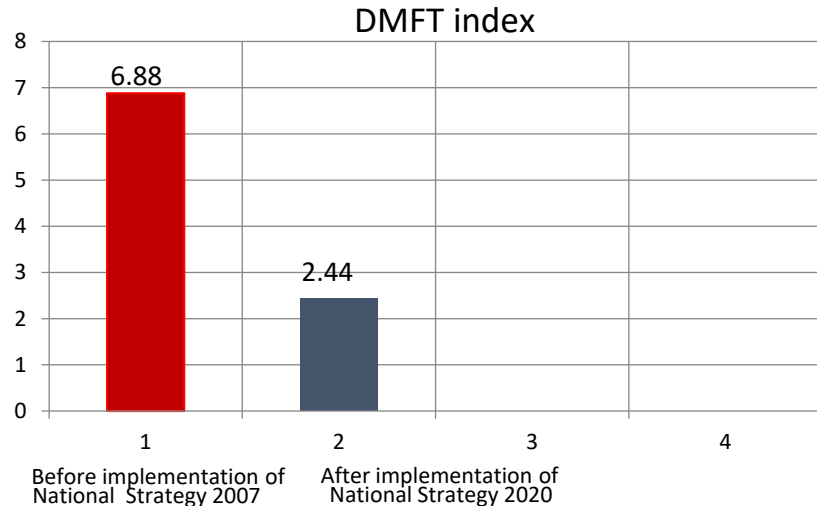
The decay-missing-filled (DMF) index was used as an appropriate measure for the detection of dental caries where 12-year-old children were considered as target group. In order to examine influence of premature tooth loss on development of dental arches, orthodontic space analyses were done. Impressions were taken from 100 children (50 boys and 50 girls) to analyze the space condition and dental arch space changes. The children were divided in two groups: group with premature tooth loss (56) and group without premature tooth loss (44)

Results

After 11 years of implementation of preventive measures, evaluation showed impressive results , significant decrease of DMFT index (from 6.88 to 2.44) in 12 years old children in NRM.

Orthodontic analysis in the examined group with premature tooth loss showed greater extend of space loss and an increase in orthodontic treatment need. Orthodontic treatment need was associated with premature deciduous tooth loss($p<0.005$) and the number of missing teeth($p<0.005$). The children with premature tooth loss showed an increase of orthodontic treatment need in comparison with the group of children without premature tooth loss.

Decrease of DMF index after implementation of preventive measures included in the “National Strategy for prevention of oral diseases of children aged 0-14 years in Republic of Macedonia from 2008-2028”



Conclusion

- The DMFT index value of 2.44 in 12 years old children in NMK, is being improved, compared to the same index value from the previous national epidemiological analysis made in 2007, when the DMF in 12 years old children was 6.9.
- According to WHO, with this DMFT index level in 12 years old students, NMK is on the borderline between low and medium level of tooth decay presence in this population.
- Taking into account the average DMFT index value in the countries, 1.9, expansion of the focus in the prevention activities is needed, provided in the National strategy for prevention of oral diseases at children in NMK, promoting well balanced nutrition, sugar-free, tooth brushing with tooth paste enriched with fluoride in small aged and preschool children.

The primary preventive measures of the national strategy, generally supported by a wide range of international studies, showed their effectiveness in the prevention of dental caries and consequent improvement of the oral health status of the younger population.

The implementation of the National strategy for prevention of oral diseases in RNM was an effective approach for preventing caries-related premature tooth loss in 12 years old children, preserving relevant dental arch length.