

# Pre-school and early school hearing and dental status screening in hard-to-reach areas of Bulgaria

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**Introduction.** The ability to hear is one of the most important human sensations. Any disorders in it should be proven and coped with in a timely manner whether in pediatric or adult patients.

Dental status of pre-school and early school pediatric patients in hard-to-reach areas of the country can be in poor condition due to impaired access to dental specialist, absence of knowledge about developed bad habits, proper maintenance of oral hygiene, the basics of normal growth patterns in the specified age period. Preserved dental health is fundamental for adequate growth of the maxillo-facial region, with impact on the overall well-being of the individual.

*The aim of this study was to assess the hearing and dental status of children in the pre-school and early school age in area of the country that are hard to reach and to raise awareness and educate them and their parents.*

**Material and methods.** 250 pre-school and early school children (125 male and 125 female) from 2 small municipalities of the district Varna, Bulgaria in the period between 2016 and 2019 had their hearing ability examined. They were aged between 4 and 12 (min=4, max=12, mean=8). The children were offered a primary ambulatory ENT- and dental examination. The action was charitable and was executed by a medical ENT-doctor, dentist and dental medicine students, all from the Faculty of Dental medicine, Medical University - Varna. Portable OAE-testings, audiometry and tympanometry for hearing assessment and a dental check-up for teeth condition evaluation were performed. A portable audiometer and OAE-measuring device were used along with dental probes and mirrors. All examinations were executed in the medical halls of the kindergartens in the villages visited, in presence of children's parents, after receiving their written consent. Education leaflets, instructional materials, tooth pastes and brushes were distributed to the examined children.

## Results.

### ENT-status:

- ✓ No active infections cases of the ears were diagnosed. 30 children had mild pharyngitis.
- ✓ No anomalies in the external auditory canal and auricle were detected.
- ✓ From the 250 tested children, only in 20 a mild hearing loss was detected. (up to 20 dB). They were referred for further investigations.
- ✓ All children had normal speech development.

### Dental status:

Dental check-up was performed on all patients, examining the soft and hard tissues in the oral cavity.

### Caries prevalence – DMFT index.

Overall – high scores, especially in patients with poor periodontal health. No gender predisposition was found.

- ✓ 95 % (238 patients) of the examined children had one carious lesion in their oral cavity.
- ✓ 70 % (175 patients) of the examined children had at least two or more carious lesions.
- ✓ 57 % (143 patients) of the examined children had at least one filling, and 85 % (213 patients) had two or more fillings.
- ✓ 5 % (13 patients) of the examined children had neither carious lesions, nor fillings.
- ✓ 20 % (50 patients) had at least one missing tooth, out of the normal changing times – possibility for orthodontic deformations occurrence in the later stages.
- ✓ **Early childhood caries (ECC)** found in 30 % (75) of the examined patients, half of which (38) already entered the stage where teeth are fractured to the level of the gingiva.
- ✓ No cases of **dental fluorosis** were detected.

### Periodontal condition – Simplified Oral Hygiene Index (OHI-S)

According to the two components of the OHI-S index – Debris and Calculus index – overall high scores, higher in patients with more active caries lesions. Females were more predisposed to inflammation of the soft tissues.

### Oral hygiene education

When discussing with the parents on children's oral hygiene habits, 25 % of them reported that they are not familiar with specific methods for brushing teeth or using other methods of mechanical and chemical control over the formation of plaque, apart from a toothbrush and a toothpaste.

**Conclusion.** It is of great importance to keep track of the hearing ability of children in pre-school and early school periods nationwide, especially when hearing screening campaigns of the kind are not established and organized. Dental status is not an exception to the rule.

The significance of the universities when establishing and executing screening programs which are often the first of their kind must be stressed out. Legislative measures should be undertaken to secure frequent and exhaustive screening programmes in order to raise awareness and educate the population.

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