

## Dental Health Status of Children and Adolescent with Special Health Care Needs

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### Abstract

The aim of this study was to assess the dental caries experience, of children and adolescent with special health care needs.

The study entailed the clinical examination of 86 children and adolescent, between 6 and 19 years old, who were attending special school in Prishtina, Kosovo. The children with special health care needs were grouped in four types of disabilities: Mental Retardation, Down Syndrome, Cerebral Palsy and Autistic Disorder. DMFT index (Decayed, Missing and Filled Teeth) was used to record the dental status; only permanent dentitions was considered Carries examination were carried out in accordance with WHO criteria.

The Results: showed that prevalence of caries was very high (95%), only five children were without caries. Mean DMFT for all participants was around  $5.92 \pm 3.76$ . Level of treated teeth was very low (8%), extracted teeth was 10%, while number of decayed teeth was (82%). Cerebral Palsy group had the highest DMFT scores ( $7.9 \pm 4.6$ ) compared with other types of disabilities.

Children in this study had a high prevalence of dental caries and it is associated with high rate of untreated teeth. The treatment needs are extremely high in all groups of children with disabilities. It is important for the dentist to focus on a preventive approach and provide proper dental education to parents of children and adolescent with special health care needs. They would benefit from parental education on diet modification, improvement of oral hygiene practices and regular dental visits.

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### Introduction

The American Health Association defines a child with disability as: "A child, who, for various reasons, cannot fully make use of all his or her physical, mental and social abilities—in other words, a child who cannot play, learn, or do things that other children his or her age can".<sup>1</sup> They can also be defined as Special health care needs (SHCN) children because they have physical, mental, sensory, behavioral, emotional, and chronic medical conditions that require health care beyond that considered routine.<sup>1,2</sup>

Oral disease represents a major health problem among children with SHCN, in addition

to their general health problems. Individuals with special health care needs have been reported in literature to have poor oral hygiene and periodontal status, high caries prevalence, more untreated caries and fewer remaining teeth.<sup>3-6</sup> Individuals with special needs may have great limitations in oral hygiene performance due to their potential motor, sensory and intellectual disability and so are prone to poor oral health.<sup>3-5</sup> Health condition of these individuals affect their ability to obtain information, regarding health and dental examinations, thus resulting in higher anxiety, leading to undesirable oral health maintenance and, ultimately, lower oral health status.<sup>7</sup>

Poor oral health has negative impact on nutrition, digestion, the ability to chew and enjoy food, facial shape and speech.<sup>8</sup> The oral health condition of individuals with special health care needs have been reported in literature to be influenced by various socio-demographic factors, including living conditions and severity of impairment.<sup>9,10</sup>

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Oral health of children with special needs compared with the general population is estimated differently by different authors. It is suggested that the caries attack is essentially the same in disability and normal school children but the rate of treatment is frequently lower in the disability children.<sup>11</sup> Also, was found literature data that show a lower prevalence of caries in children with special needs compared with those without need. But on the other hand there are also other data that indicate the contrary, that the prevalence and severity of oral disease among this group are higher when compared to the general population.<sup>12</sup> The high prevalence of dental caries and poor oral health it is also reported in literature among medically compromised children.<sup>13</sup>

The conflicting results from different studies are due to different age groups, severity of impairments and type of residence of the population studied.

Oral health of Kosovar children (without SHCN) is so poor. It is reported that the mean DMFT of school children to be 5.8.<sup>14</sup> Although, there are no data available regarding the dental health of children with special needs in Kosovo. Therefore the aim of our study was asses the dental health status of children and young adults with special health care needs.

### Materials and methods

A total of 86 individuals with SHCN between the ages of 6-19 attending a special education program at the special school participated in the study. Dental examinations took place at the school, with participants seated on an ordinary chair under natural light. Dental caries examination were carried out using a mirror and explorer in accordance with World Health Organization criteria and methods. DMFT index (Decayed, Missing and Filled Teeth) was used to record the dental status; only permanent dentitions was considered. A tooth was considered decayed when there was frank carious cavitations on any surface of the tooth. A tooth was classified as missing in the index if it was extracted due to caries. A tooth was classified as filled if it had a restoration for a carious lesion.

Participants were divided into four groups according to type of disability, as follows: Mental Retardation (MR-52); Down Syndrome (DS-15);

Autistic Disorder (AD-8) and Cerebral Palsy (CP-10). Participants were also divided into three groups according to their age, as follows: age 6-9 (n-9); age 10-14 (n-48); age 15-19 (n-30).

For statistical analyses SPSS software was used. Data were analyzed through: One way ANOVAs and Post-hoc turkey tests.

### Results

From overall number of 86 subjects, seven children were uncooperative so were excluded from the study, leaving 79 subjects who were examined.

In our study the prevalence of caries among individuals with SHCN was found to be 95%. Only, five children were without caries, which implies that only 3.95% of individuals were caries free. The overall mean DMFT score for all participants was  $5.92 \pm 3.76$ .

When DMFT structure was analyzed, decayed teeth showed the highest component value (82%). Level of treated teeth was very low (8%) while for extracted teeth was 10% (Figure1). Of the 79 participants in the study 36 were female (45.5%) and 43 male (54.5%). When DMFT indexes were examined with regard to sex, the mean DMFT was found to be higher for females, but without significant difference ( $p > 0.05$ ).

We can see that the DMFT values increased with age with mean DMFT 8.0 for children aged 15-19 years- a value higher than that for any of the age groups in our study. There was e significant different of DMFT, between all age group ( $P < 0.05$ ).

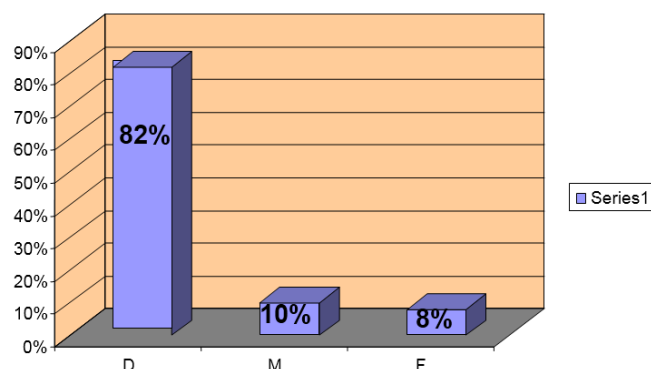


Figure 1. Structure of DMFT.

Gender	Nr.of subjects	DMFT- index	P value
M	43	5.58±3.49	P=0.95
F	36	6.16±4.02	

**Table 1.** Distribution of DMFT Scores According to Gender.

Age group	Nr.of subjects	DMFT±SD	P value
6-10	19	3.2±3.1	P=0.01
11-14	32	5.7±3.1	
15-19	28	8.0±3.7	

**Table 2.** Distribution of DMFT Scores According to Age Group.

When the mean DMFT was analyzed regarding the type of disability, results shows that Cerebral Palsy group had the highest DMFT scores (7.9±4.6), whereas the autism group had the lowest one (4±4). There was significant difference ( $P<0.05$ ) between SD, CP and AD group.

Type of disability	Nr.of subjects	DMFT±SD	P value
RM	49	5.7±3.4	P=0.04
SD	15	5.8±4.6	
CP	10	7.9±4.6	
AD	5	4±4	

**Table 3.** Distribution of DMFT Scores According to Type of Disability.

## Discussion

According to World Health Organization estimates, individuals with disability comprise 10% of the population in developed countries and 12% in developing countries.<sup>15</sup>

Kosovo has 346,000 students, slightly more than 1000 of whom have been officially identified with special needs. Those identified are studying in special classes in regular schools, called attached classes, or in special schools. They represent 13% of the entire estimated true population of children with special needs in Kosovo.<sup>16</sup>

The results of our study show a very high prevalence (95%) of dental caries in SHCN children's and it was higher compared with previous studies which reported prevalence of dental caries ranging from 78% to 90% in SHCN children's.<sup>17,18</sup>

DMFT structure showed a very high percentage of untreated teeth (82%), in contrast

to a low percentage of treated ones (8%) (Figure 1) The major component of the 'decayed, missing and filled teeth' index was the decayed teeth (dt) which is similar to findings from studies in other countries The overall mean DMFT value for all participants was 5.92±3.76. This also shows a higher DMFT value in children with SHCN compared with others authors reported results. Shaw et al.<sup>19</sup> reported DMFT values of 1.85; Nunn et al.<sup>3</sup> reported DMFT value 2.0; Gizani et al.<sup>20</sup> reported a mean DMFT value of 2.9; and Shyama et al.<sup>21</sup> reported a mean DMFT of 4.5 for this group of children.

Our results also shows that DMFT value was increased with age, with mean DMFT of 8.0 for children aged 15-19. This was the highest value of all age groups of the our study. These results are consistent with another study where it is proven that DMFT value increase with the age 15.

When mean DMFT index was consider with regard to gender, it was found to be higher for females then males (6.16/5.58). This is consistent with literature, which has typically found dental caries to exhibit a higher prevalence among females than males. Hormonal changes have a significant effect on women's oral health and represent a significant factor in explaining the difference in caries rates between the two genders.<sup>22</sup>

When the DMFT value was compared to the various disability groups it was found that the group with the highest value was the cerebral paralysis (7.9), whereas the autism group showed the lowest DMFT (4.0). Despite this there is a study which report a different results when distributions of DMFT scores by disability is consider. They have found, Down Syndrome Group to be with the lowest DMFT scores (2.43±3.65), whereas the Mental Retardation Group had the highest DMFT scores.<sup>17</sup>

The study results also prove that, children with down syndrome have poor dental health with mean DMFT of 5.8. Although, a previous study from the same department have reported the lower mean DMFT (4.8) on the down syndrome children.<sup>23</sup> These data differ when compare with Nigerian down syndrome children where the mean DMFT was reported to be (0.23).<sup>24</sup>

Different authors have given many reasons for deteriorating of oral health in children with special needs, among which can be mentioned: the use of sweetened beverages; the

use of medications in the form of sweet syrups or even anticonvulsants which harm the gum health; insufficient knowledge about the importance of oral health; non-maintenance of oral hygiene; socioeconomic factors; inability for expressing the pain so the condition may remain unaltered until it reaches the acute stage.<sup>25-27</sup>

Another issue that impact in dental health of children with special needs is treatment which is often not easily conducted. They may not cooperate in the dental chair. Physical restraints and general anesthesia are commonly used to treat them.<sup>28,29</sup>

In contrast to children's without SHCN, who usually manage their own oral health, oral health management of children's with SHCN often depends on other people, such as parents or employees with assisted living services.<sup>28</sup> Therefore the most significant factor in improving the oral health status of SHCN is the awareness of their families in maintaining the oral hygiene habits, and in importance of children oral health.<sup>17,31-33</sup>

It is a necessity to improve preventive approach regarding dental care to this category of children in our country. Improvement strategies could include physician, dentist, and nurse training in the management and treatment of patients with ID 6.

### Conclusions

Children in this study had a high prevalence of dental caries and it is associated with high rate of untreated teeth. The treatment needs are extremely high in all groups of children with disabilities. It is important for the dentist to focus on a preventive approach and provide proper dental education to parents of SHCN individuals. They would benefit from parental education on diet modification, improvement of oral hygiene practices and regular dental visits.

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### Declaration of Interest

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