

Research Journal of Pharmaceutical, Biological and Chemical Sciences

Health of First Permanent Molars In Prilep Region After Fissure Sealing According Dental Preventive Program In Fyr Macedonia.

Georgiev Z¹, Kovacevska I^{2*}, Sotirovska-Ivkovska A¹, Zabokova-Bilbilova E¹, Kapusevska B³, Bajraktarova-Misevska C⁴, Stevanandjija J⁵

¹Department of Pediatric and Preventive Dentistry, Faculty of Dental Medicine, University "Ss. Cyril and Methodius". University of Dental Clinic Center, "St. Pantelejmon", Skopje, Macedonia

²Faculty of Dental Medicine, University "Goce Delcev" Stip, Macedonia

³Department of Prosthodontics, Faculty of Dental Medicine, University "Ss. Cyril and Methodius". University of Dental Clinic Center, "St. Pantelejmon", Skopje, Macedonia

⁴Department of Orthodontics, Faculty of Dental Medicine, University "Ss. Cyril and Methodius". University of Dental Clinic Center, "St. Pantelejmon", Skopje, Macedonia

⁵PHI Health Center, Prilep, Macedonia

ABSTRACT

Fissure sealing in the children is a method of decreasing the caries incidence of population, because occlusal fissure is much vulnerable site. Government of Republic of Macedonia before 8 years are accepting Dental preventive program: Fissure sealing of first permanent molars in 6-year-old school children. The aim of this study was to investigate the success of that caries preventive program. For improving that aim, in November 2015, we obtaining 888 participants – school children of Prilep region, which molars was occlusal sealed before 6 years (2009). All the examined children were born 2003 y, and molars was sealed with GC Fuji Triage. From 01 January 2008, started implementation of the National strategy for prevention of oral diseases in the children in Republic of Macedonia: Fissure sealing of first permanent molars in 6-year-old school children. On 12 y., old - 2015 y DMF scores specially for first permanent molars was 23,25%: decayed - 6,52%; filled - 15,13%; and missing teeth - 1,6%. Males: DMF scores specially for first permanent molars was 21,19%: decayed - 6,37%, filled - 13,25%; and missing teeth – 1,56%. In females DMF scores specially for first permanent molars was 25,32%: decayed - 6,68%; filled - 17%; and missing teeth - 1,6%. There has no significant differences. Low awareness of oral health, insufficient oral hygiene, inappropriate diet, lack of fluoride, need to urgent implementation of other included component of National Oral Strategy.

Keywords: first permanent molar, fissure sealing, caries prevention

**Corresponding author*

INTRODUCTION

The first permanent molars are the most important teeth in humans. The first molars are the center of the occlusion and they are extremely important and functional and developmental sense, because plays an important role in health and position of other teeth. Thus, loss of molars is also associated with teeth inclination and angulation, with the malposition of the teeth in dental arch. Recently, the first molars have important role in determining the level of bite, seemingly they have important role in determining the lower third dimension of the face. For this reasons it is necessary to keep in mouth if possible, so it is very important to prevent tooth morbidity, and all efforts undertaken by the dentist needs to focus on its conservative treatment.

Dental caries is most common disease among humans today. The first permanent molar emerges as the first permanent teeth, and thus are most affected teeth by caries in permanent dentition, especially mandibular first molar why has highest caries prevalence in permanent teeth. [1] The first permanent molars are the most common with dental morbidity, and if the tooth is busy with cavities is mostly ignored by the patient and finally come to the dentist when there is severe pain, so they are usually being the first to lose vitality of all permanent teeth.

Often in teeth, caries dominant develops occur at the occlusal surfaces of first permanent molars, especially in the deep occlusal fissures. Occlusal morphology is very important factor and should be considered when developing a strategy for the prevention of occlusal caries: with increasing age, very few fissures of occlusal surfaces of first permanent molars remain intact. The expressed relief structure of the occlusal surface of the first permanent molar usually occurs retention of food and the tooth often very early is destroyed by caries.

Progressive caries on permanent molars, lead to its destruction, which is often extensive, and so very early, even in the adolescent period there is a need for endodontic treatment on it, for prolonged keeping the first permanent molar in the oral cavity. Meanwhile, in some cases, although it is possible to conduct a proper endodontic therapy, the patients themselves perform with demand for its extraction, and although in modern dentistry reasons for extraction are minimal, one of the earliest and most often extracted teeth in the human mouth is the first permanent molar. [2]

Oral hygiene and care for teeth is so important factor for oral health, and with correlation in irregular visits to the dentist are the most common causes of caries destruction of the first permanent molar, which destroys deeper dental tissues and eventually inevitable loss. [3]

The first permanent molar has biggest caries incidence of all remaining teeth of permanent dentition - 40 to 60%. More than 50% of children over 11 years have some form of caries, whether it is superficialis, media or complicata. [4]

Cheng and all. [5] suggest that permanent teeth have highest frequency of dental caries has the first permanent molars, and the highest number of missing teeth is first permanent molars (67%). Second molars and second premolars have a second and third most common frequencies respectively, compared to the incisors and canine which are affected rarely (less than 2%). [6]

Morphology, time of the eruption, and the positioning of the tooth in the oral cavity brought certain advantages and disadvantages of various methods used to control plaque and occurrence of dental diseases and damages. On the other hand, in more developed countries, incidence for occurrence of dental caries and adequate status of gingival health are evident. This decrease of the incidence of dental caries is mainly due to the appropriate use of fluoride, as well as other preventive measures for oral health. [7]

Fissure sealing in the children is a method of decreasing the caries incidence of population, because occlusal fissure is much vulnerable site. Government of Republic of Macedonia before 8 years are accepting Dental preventive program: Fissure sealing of first permanent molars in 6-year-old school children. [8]

AIM

The aim of this study was to investigate the success of that caries preventive program, in region of Prilep, Republic of Macedonia.

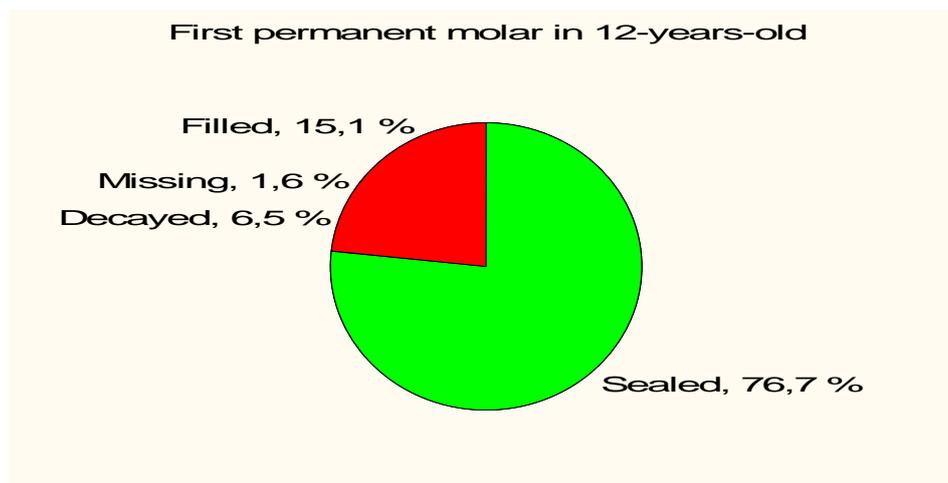
MATERIALS AND METHODS

For improving that aim, in November 2015, we obtaining 888 participants – school children of Prilep region, which molars was occlusal sealed before 6 years (2009). All the examined children were born 2003 y, and molars was sealed with GC Fuji Triage. Results of the survey were processed in two ways manually and using specialized computer software - Statistical 9 for Windows.

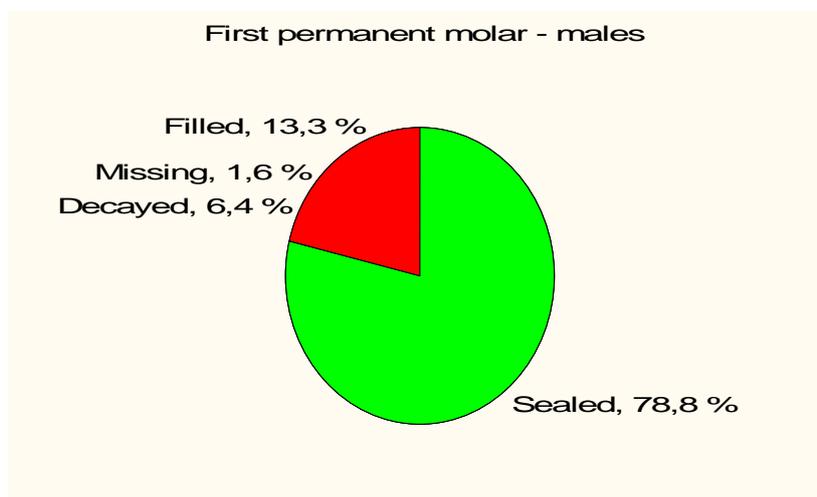
RESULTS

From 01 January 2008, started implementation of the National strategy for prevention of oral diseases in the children in Republic of Macedonia: Fissure sealing of first permanent molars in 6-year-old school children. 2015 y. in Prilep region we were examined 888 twelve-year-old school children, 439 females and 449 males.

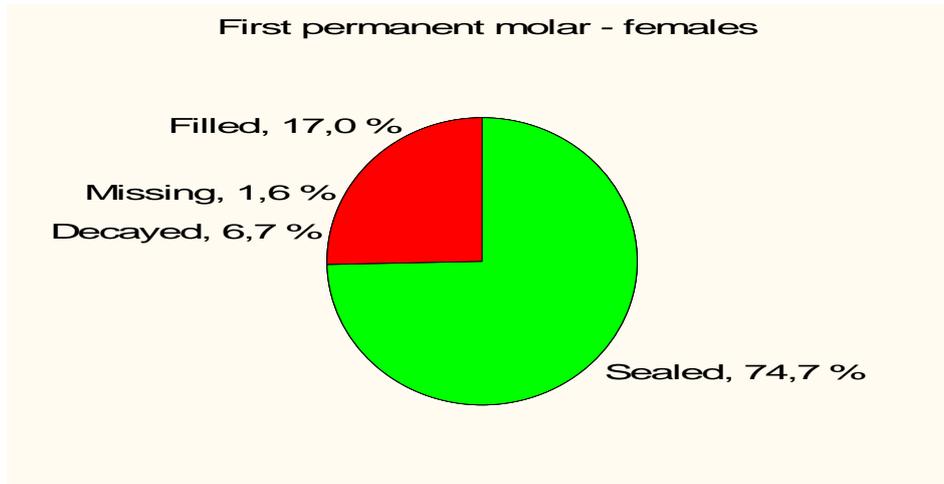
DMF scores specially for first permanent molars was 23,25%: decayed - 6,52%; filled - 15,13%; missing teeth - 1,6%, and 76,7% was sealed (Fig. 1).



Males: DMF scores specially for first permanent molars was 21,19%: decayed - 6,37%, filled - 13,25%; missing teeth – 1,56%, and 78,8% was sealed (Fig. 2).



In females DMF scores specially for first permanent molars was 25,32%: decayed - 6,68%; filled - 17%; missing - 1,6%, and 74,7% was sealed (Fig. 3).



Between males and females has no significant differences.

DMFT index specially for first permanent molars was 0,92: decayed – 0,26; filled – 0,6; and missing teeth - 0,06. Sealed first permanent molars was 3,07.

Males: DMFT index specially for first permanent molars was 0,84: decayed - 0,25; filled – 0,52; and missing teeth – 0,06. Sealed first permanent molars was 3,15.

In females DMFT index specially for first permanent molars was 1,02: decayed – 0,27; filled – 0,69; and missing teeth – 0,06. Sealed first permanent molars was 2,97.

DISCUSSION

Despite the numerous studies by foreign expert and popular journals about the first permanent molar, we are relatively deficient with this problem, we were looking that four first permanent molars are highest morbidity.

Carvalho [6] concluded that the first and second permanent molars are showing the greatest caries incidence. Also, Machiulskiene, Nyvad and Baelum [7] suggest that in 95% of the population, all four molars are or have been affected by caries. The prevalence of caries is greater among mandibular molars (47%) than in the maxillary first molar (25%).

Warnakulasuriya seed 36% of all those molars were healthy, while among 11% of them all first permanent molars were affected by caries in Sri Lankan children, aged 13-16 years, in 1986. [9] According Dukić et al, Cheng et al, Jaafar and Nor [10,5,11], the first mandibular molar tooth is most often missing, and often the number of carious teeth is greater than the number of people with adequate filled teeth.

Rossete Melo and all. [12] suggested that 25.4% of caries lesions on occlusal caries occurs on occlusal surfaces on the first permanent molars, and is destined with a history of caries disease and the presence of biofilm on teeth. Caries incidence correlated with socio-demographic, behavioral and biological risk factors.

Per Halicoglu and all. [2] mandibular first permanent molars are most common extracted teeth, and significantly more of all permanent teeth. Bigger prevalence for the extraction of the first permanent molars among Turkish adolescents and youth shows a need for guidance on the dental prevention and other dental treatments to reduce the number of extracted first permanent molars.

Orthodontic treatment performed by extraction of the first molars increases empty space required for the third molars. [13]

According to the newest epidemiological examinations, the DMFT index in children aged 12 in the FYROM is 6.88, which ranks our country as a country with extremely high prevalence of dental caries according to the WHO (DMFT in children aged 12 shouldn't be higher than 3). Because the occlusal fissure is a much vulnerable site, the best preventive activity for this was fissure sealing of the first permanent molars in the children, like a method of decreasing the caries incidence of the population. From that point of view, in accordance with the recommendations of the World Health Organization, the Government of the Republic of Macedonia before 8 years is accepting the National Oral Strategy, whose main dental preventive program is fissure sealing of first permanent molars in 6-year-old school children with GC Tooth Mousse. [8]

CONCLUSION

Low awareness of oral health, insufficient oral hygiene, inappropriate diet, lack of fluoride, need for urgent implementation of other included components of the National Oral Strategy.

REFERENCES

- [1] Eskandarian T, Baghi S, Alipoor A. Comparison of Clinical Success of Applying a Kind of Fissure Sealant on the Lower Permanent Molar Teeth in Dry and Wet Conditions. *Journal of Dentistry* 2015;16(3):162-168.
- [2] Halicioglu K, Toptas O, Akkas I, Celikoglu M. Permanent first molar extraction in adolescents and young adults and its effect on the development of the third molar. *Clin Oral Investig* 2014; 18(5):1489-94.
- [3] Kondeva VK, Kukleva MT, Petrova SG, Mileva SP. Dynamics of occlusal caries in permanent molars and premolars in children aged 7 to 14 years. *Folia Med (Plovdiv)* 2008; 50(3):58-64.
- [4] Al-Samadani KHM, Ahmad MS. Prevalence of First Permanent Molar Caries and Its Relationship to the Dental Knowledge of 9–12-Year Olds from Jeddah, Kingdom of Saudi Arabia. *ISRN Dentistry* 2012, 391068.
- [5] Cheng RB, Tao W, Zhang Y, Cheng M, Li Y. Analysis of the first permanent molar caries epidemiological investigation in the area of northeast China. *West China Journal of Stomatology* 2008; 26:73-6.
- [6] Carvalho JC. Caries Process on Occlusal Surfaces: Evolving Evidence and Understanding. *Caries Res* 2014; 48:339-346.
- [7] Machiulskiene V, Nyvad B, Baelum V. Prevalence and severity of dental caries in 12-year-old children in Kaunas, Lithuania 1995. *Caries Res* 1998; 32(3):175-80.
- [8] Sarakinova O, Carceva M, Getova B, Carceva-Salja S, Janevska S. National strategy for prevention of oral diseases in children from 0 to 14 years old age in the Republic of Macedonia for the period 2008-2018. *Contributions Sec. Med. Sci.*, XXXIV 2, 2013.
- [9] Warnakulasuriya S. Caries susceptibility of first permanent molars and treatment needs in Sri Lankan children, aged 13-16 years, in 1986. *Community Dent Health* 1991; 8(2):167-72.
- [10] Dukić W, Delija B, Lulić-Dukić O. Caries prevalence among schoolchildren in Zagreb, Croatia. *Croatian Medical Journal* 2011; 52(6): 665–671.
- [11] Jaafar N, Nor GM. The prevalence of post-extraction complications in an outpatient dental clinic in Kuala Lumpur, Malaysia - a retrospective survey. *Singapore Dent J* 2000; 23(1):24-8.
- [12] Rossete Melo R, Rezende JS, Gomes VE, Ferreira E, Oliveira AC. Sociodemographic, biological and behavioural risk factors associated with incidence of dental caries in schoolchildren's first permanent molars: a 3-year follow-up study. *Eur J Paediatr Dent* 2013; 14(1):8-12.
- [13] Bayram M, Ozer M, Arici S. Effects of first molar extraction on third molar angulation and eruption space. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2009; 107(2):14-20.