

Research on Oral Problems and Health Care Methods in Children

Mingzhuo Zhang^{1,a,*}

¹*Guangzhou New Channel-Zengcheng Experimental Middle School, Guangzhou, Guangdong Province, China*

a. Z070625@qq.com

**corresponding author*

Abstract: This article aims to explore the current situation, causes, and effective healthcare methods for children's oral problems. By analyzing the data from the Fourth National Oral Health Epidemiological Survey and combining it with clinical practice, this article elaborates in detail on the prevalence and harm of oral problems such as dental caries, periodontal disease, and abnormal tooth development in children. At the same time, this article also proposes specific measures for children's oral health care, including reasonable nutrition, strengthening oral hygiene, correcting bad habits, and regular oral examinations. Through the research in this article, the results show that there are many reasons for the formation of oral problems in children. Through the joint attention of parents and children to oral problems, effective intervention and treatment under the guidance of dentists can promote children's oral health together.

Keywords: Children's oral problems, Dental caries, Oral health care, Rational nutrition, Oral hygiene

1. Introduction

Oral health is an important part of human health and is particularly important for children. Children are in a critical period of growth and development, and oral problems not only affect their chewing, pronunciation and beauty, but also may have adverse effects on their general health. In recent years, with the improvement of living standards and the change of dietary habits, children's oral problems have become increasingly prominent and become the focus of the whole society. Thus, this paper concentrates on the primary issues that children are currently encountering and suggests pertinent solutions. This study helps solve children's oral health care, prevent and treat oral problems, and is of great significance to ensuring the healthy growth of children.

2. Current status of oral problems in children

This chapter focuses on three aspects: dental caries, periodontal disease, and abnormal tooth development.

2.1. Dental caries

Dental caries is one of the most common oral problems in children. The results of the fourth national oral health epidemiological survey show that the caries rate of 5-year-old children in China was 70.9%, up 5.8 percentage points compared with 10 years ago; the permanent caries rate of 12-year-old children was 34.5%, up 7.8 percentage points compared with ten years ago, and the prevalence of childhood caries has shown a significant increase [1]. This data shows that the problem of dental caries in children in China is still serious and needs to be paid great attention. The causes of dental caries in children are complex, mainly including the following aspects [2]: The first is anatomical morphology: neck narrowing of the deciduous teeth, crown one third bulge near the neck, facial contact between adjacent teeth, facial fissure gaps and physiological gaps are easy to retain food and become unclean areas. The second is tissue structure: thin enamel, dentin, low calcification, weak acid resistance. The 3rd food structure: children's chewing ability is poor, mostly liquid food, semi-liquid food, and sweets, are easy to lead to deciduous teeth caries. These foods are highly sticky and easy to attach to the tooth surface, and the acid produced will make the teeth decay. The last reason is poor oral self-cleaning and cleaning effectiveness: children do not consciously maintain oral hygiene, parents do not give enough attention, and in addition to long sleep time, the mouth is in a static state for a long time. At this time, saliva secretion is low, and dental plaque, soft plaque, and food residue are easy to stay on the surface of the teeth, becoming factors for dental caries.

The harm of dental caries in children cannot be ignored. Dental caries can not only affect chewing function, reduce nutritional intake and affect the growth and development of children's maxillofacial and whole body, but also may cause the problem of inheriting permanent teeth. Long-term chronic inflammation can affect the development of the inherited permanent teeth, and even lead to focal infection of other tissues of the body. But dental caries prevention in children is complex and difficult. Studies suggest that prevention of dental caries requires a combination of social, family, behavioral, political, medical / genetic and psychological factors [3]. The study also found that Community Water Fluoridation, CWF is an effective strategy for dental caries prevention, especially in [4] industrialized countries.

Another study investigated the effects of different compounds (e.g.chitosan, bioglass, silver ammonia fluoride) on remineralization of deciduous enamel, and the results showed that these compounds have potential for the prevention and treatment of dental caries [5].

2.2. Periodontal disease

Periodontal disease is another common childhood oral problem [1]. The causes of periodontal disease in children mainly include poor oral hygiene, dental plaque accumulation, dental calculus formation and so on. Therefore, strengthening oral hygiene and regular cleaning of teeth and periodontal tissues are the keys [1,2] for the prevention of periodontal disease in children.

Although the incidence of periodontal disease in children is relatively low, its harm to oral health is equally serious. Periodontal disease can not only lead to bleeding gums, swelling, pain, and other symptoms but also may cause tooth loosening, loss, and other consequences. In addition, periodontal disease is also closely related to systemic health, such as cardiovascular disease and diabetes, which are closely associated with periodontal disease.

2.3. Abnormal tooth development

The overall prevalence of abnormal tooth development was 11.20% [6], and congenital tooth loss was the most common, mostly in the mandibular anterior tooth region, and the prevalence of loss of deciduous teeth with loss of inherited permanent teeth was 97.06%. The prevalence of overborn

teeth was 4.00%, preferably in the maxillary anterior tooth area. The prevalence of fused teeth was 1.23%, mainly the fusion of lateral incisors and the prevalence of loss of inherited permanent teeth was 92.00%, mostly unilateral.

Molar Incisor Hypomineralisation, MIH and Hypomineralised Second Primary Molars, HSPMs are common tooth development problems with a prevalence of 14% and 9% [7], respectively. Molar tibial hypomineralization (MIH) is a developmental defect of enamel. In clinical practice, MIH often presents as mild lesions involving a single tooth surface. The more teeth involved, the more severe the clinical manifestations tend to be, which can be classified as mild, moderate, or severe based on the number of affected tooth surfaces and the appearance of the teeth. The treatment of MIH mainly focuses on prevention, symptomatic treatment, and regular follow-up. Mild damage to posterior teeth may result in remineralization and closure of pits and grooves; Recommended resin repair for moderate donations; Severe damage can be treated with pre crown, embedded or extracted orthodontic treatment. Micro grinding and resin infiltration are feasible for anterior teeth, and bleaching and veneer restoration are feasible in adulthood [8]. Low mineralization second molars (HSPM) refer to systemic low mineralization that affects one to four second molars, leading to white spots, loss, and dental caries on the surface of the teeth [9]. There is a correlation between the occurrence of HSPM and MIH, and their treatments are also similar.

3. Oral health care methods for children

In view of the current situation of children's oral problems, this paper proposes the following health care method, which aims to help parents and oral doctors promote children's oral health together.

3.1. Reasonable nutrition

Reasonable nutrition is the basis for maintaining children's oral health. Parents should ensure that their children eat a balanced diet, which includes nutrients such as protein, fat, carbohydrates, vitamins and minerals. At the same time, sugar intake should be controlled, because too much sugar is the main factor leading to dental caries. Parents can choose foods that are low or sugar-free, or control the amount of sugar consumed each time. Proper intake of foods containing minerals such as calcium and phosphorus can help you maintain the health of your teeth and bones.

In addition, parents can also encourage their children to eat more appropriate hardness and rough food, such as nuts, vegetables and so on. These foods can clean your teeth and exercise your chewing muscles, which are good for your oral health.

3.2. Strengthen oral hygiene

Strengthening oral hygiene is the key to preventing oral problems in children. Parents should teach their children to develop the good habit of brushing their teeth in the morning and evening and gargling after meals. When choosing a toothbrush and toothpaste, the choice should be based on the child's age and oral condition. For children under 6 years of age, parents should help them brush their teeth to ensure their effectiveness. At the same time, parents should also replace the toothbrush regularly to avoid bristle deformation or wear that affects the effect of brushing.

In addition to brushing and gargling, parents can also use tools such as dental floss and dental brushing to help their children clean their open teeth and periodontal tissue. These tools can effectively remove dental plaque and food debris and prevent the occurrence of periodontal disease.

3.3. Correct bad habits

Bad habits are one of the important factors leading to oral problems in children. Parents should pay close attention to their children's daily behavior and correct their bad habits in time. For example, avoid long-term feeding on one side to avoid uneven development of the jaw; avoid long-term unilateral chewing, use the teeth on both sides in turn; avoid open-mouth breathing, which may lead to dry mouth and uneven teeth; and avoid lip and tongue biting, which may lead to malocclusion.

In addition, parents should also avoid chewing their teeth during non-eating times, such as pen biting and nail biting. These behaviors may not only affect tooth aesthetics, but may also cause damage to the teeth and gums.

3.4. Regular oral examination

Regular oral examination is an effective means to detect and treat children's oral problems in time. Parents should regularly take their children to the stomatology department for a comprehensive oral examination and cleaning. Through oral examination, doctors can timely find out potential oral problems, such as dental caries, periodontal disease, etc., and give corresponding treatment suggestions. At the same time, doctors can also provide professional oral cleaning services for children, which can help them to remove dental plaque and dental stones so that to prevent the occurrence of oral problems.

Preventing oral problems in children requires various efforts, including community water fluoridation, parental education, regular oral examinations, etc. For children who already suffer from oral problems, parents should actively cooperate with the doctor's treatment plan, and return to the patients on time to ensure the treatment effect. At the same time, parents should also pay attention to the child's oral health status, if there is any abnormality, they should seek medical advice in time. Future studies should further explore the implementation efficacy and feasibility of these strategies [3,4].

4. Case analysis

The following is a case analysis of a pediatric oral problem designed to further illustrate the importance and methods of pediatric oral health care.

4.1. Case background

Xiao Ming, male, 5 years old. Parents found that their deciduous teeth appeared to have multiple dental caries and were accompanied by bleeding gums, swelling, and other symptoms. After examination by the stomatologist, she was diagnosed with deciduous dental caries and mild periodontal disease.

4.2. Hygienic measures

In view of Xiao Ming's oral problems, the doctor has formulated the following health care measures:

Reasonable nutrition: It is recommended that parents provide Xiaoming with a balanced diet, control the intake of sugar, and appropriately intake foods containing calcium, phosphorus and other minerals. At the same time, encourage Xiao Ming to eat some appropriate hardness and rough food, such as vegetables, fruits, etc.

Strengthen oral hygiene: teach Xiao Ming to develop the good habit of brushing his teeth in the morning and evening and gargling after meals. Choose the right toothbrush and toothpaste, and

assist them to brush their teeth every day. At the same time, the use of dental floss and other tools to help Xiaoming clean the gap teeth and periodontal tissue.

Correct bad habits: If Xiao Ming has lip sucking, tongue biting and other bad habits, correct them in time. Meanwhile, Xiao Ming was encouraged to chew food in turn using both teeth.

Regular oral examination: it is recommended that parents take Xiao Ming to the stomatology department for comprehensive oral examination and cleaning. Through oral examination, timely detection and treatment of potential oral problems.

4.3. Treatment effect

After a period of health care treatment, Xiao Ming's oral problems have significantly improved. Caries in deciduous teeth were effectively controlled, and the symptoms of periodontal disease were relieved. The parents said they would continue to follow their doctors' advice for oral health care to ensure Xiao Ming's oral health.

5. Conclusion

Through the study of the current situation, causes, and health care methods of children's oral problems, the following conclusions are drawn:

The current situation of oral problems in children is severe; the incidence of dental caries and periodontal disease in China is high and increasing. This requires parents and oral doctors to pay attention to children's oral health and strengthen prevention and treatment work.

Reasonable nutrition, strengthening oral hygiene, and correcting bad habits are the keys to preventing children's oral problems. Parents should ensure that children eat a balanced diet and control sugar intake; strengthen oral hygiene; develop a good habit of brushing teeth in the morning and evening and gargle after meals; and correct bad habits in time to avoid adverse effects on oral health.

Regular oral examination is an effective means of timely detection and treatment of children's oral problems. Parents should regularly take their children to the stomatology department for comprehensive oral examination and cleaning and find and treat potential oral problems in time.

Looking into the future, with the continuous progress of science and technology and the continuous development of oral medicine, it is believed that more advanced oral health care technologies and methods will be applied in the field of children's oral health. At the same time, we also expect that parents and all sectors of society can pay more attention to children's oral health and jointly contribute to the healthy growth of children.

References

- [1] Feng Xiping. (2018). *Oral health status of Chinese residents - Report on the fourth epidemiological survey of oral health in China*. (eds.) *Proceedings of the 18th Annual Academic Conference of the Chinese Stomatological Association on Oral Preventive Medicine in 2018* (pp. 14+13). School of Stomatology, Shanghai Jiao Tong University; Shanghai Institute of Stomatology; Department of Oral Preventive Medicine, the Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine; Chinese Stomatological Association; Oral Health Professional Committee of the Chinese Preventive Medicine Association; Expert Committee on Test Question Development of the National Medical Examination Center; Stomatological Branch of the Chinese Medical Doctor Association; Shanghai Stomatological Association;
- [2] Chen Tao, Yan Minmin & Yang Xiaoying. (2019). *Research on children's oral health and oral health care services*. *Chinese Journal of Drugs and Clinics* (23), 4145-4147.
- [3] Twetman, S. (2024). *Why Is Caries Prevention in Children So Difficult? A Narrative Opinion*. *International Journal of Environmental Research and Public Health*, 21(10), 1316.
- [4] Iheozor-Ejiogor, Z., Worthington, H. V., Walsh, T., O'Malley, L., Clarkson, J. E., Macey, R., ... & Glenny, A. M. (2015). *Water fluoridation for the prevention of dental caries*. *Cochrane database of systematic reviews*, (6).

- [5] Meshki, R., Ghahramani, N., Kouchak, M., & Taravati, S. (2024). Comparison of the Effect of Bioglass, Chitosan, and SDF Compounds on Remineralization of Primary Caries Lesions in Primary Teeth: An in vitro Study. *Journal of Dentistry*, 25(3), 229.
- [6] Li Hui, Dong Shi & Xu Qingan. (2022). Analysis of dental development abnormalities in children aged 3 to 12 years in Wuhan. *Oral Medicine Research* (07), 636-639. doi:10.13701/j.cnki.kqxyj.2022.07.011.
- [7] Elfrink, M. E., & Weerheijm, K. (2024). Clinical Characteristics and Differential Diagnosis of Hypomineralised Second Primary Molars and Molar Incisor Hypomineralisation. *Monographs in oral science*, 32, 35-42.
- [8] Liu YC, He M. (2022) Clinical treatment of hypomineralization of molars and incisors. *Journal of Oral Medicine Research*. 38 (12): 1115-1118.
- [9] Mc Carra, C., Olegário, I. C., O'Connell, A. C., & Leith, R. (2023). General dentists' perceptions and clinical management of hypomineralised second primary molars (HSPM) in Ireland. *European Archives of Paediatric Dentistry*, 24(6), 751-757.
- [10] Ge R.F. (2020). Clinical study on comprehensive oral care intervention to prevent dental caries in children. *Chinese Journal of Drugs and Clinics* (15), 2655-2657.
- [11] Wang Guorong, Wei Lantian & Qiao Zhen. (2021). Clinical effectiveness study of comprehensive oral health care in preventing dental caries in children. *Chinese Journal of Drugs and Clinics* (11), 1890-1891.