

Research Report

Knowledge improvement after dental health education for elementary school students in Surabaya, East Java

Ratri Maya Sitalaksmi¹, Utari Kresnoadi¹, Karina Mundiratri¹, Farasaty Utami², Meinar Nur Ashrin²

¹Department of Prosthodontics, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

²Resident Department of Prosthodontics, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

ABSTRACT

Background: During the coronavirus disease-19 (COVID-19) pandemic, many people were afraid to go to the dentist, which affected their dental and oral health conditions. Dental cavities may hamper children's growth and development; if this condition continues, it will affect the children's dietary intake, which may impact their quality of life and, if allowed to, cause stunting. Although in this condition, we still have to take preventive precautions with dental health education in school-age children. This required increasing dental health knowledge and understanding of dental disorders, particularly. **Purpose:** To describe oral and dental health knowledge improved following dental health education at Muhammadiyah 4 Elementary School, which is located in Pucang, Surabaya City, East Java. **Methods:** Two surveyors were responsible for data collecting. This study's sample size was 105 people ranging from third to fifth grade. The seminar covered dental and oral health via a hybrid method. The participants were asked to fill out a questionnaire form for the pre-and post-test to determine the improvement of oral and dental health knowledge for the dental health education evaluation. **Results:** Most oral and dental health participants understood the presentation on oral and dental health education. The post-test percentage was higher (89.14%) than the pre-test rate (60.29%). **Conclusion:** The program findings demonstrated that oral and dental health education with a hybrid method effectively increased elementary school children's understanding of dental and oral health status.

Keywords: caries; dental health; education; elementary school; stunting

Correspondence: Ratri Maya Sitalaksmi, Department of Prosthodontics, Faculty of Dental Medicine, Universitas Airlangga. Jl. Mayjen Prof. Dr. Moestopo 47 Surabaya, 60132 Indonesia. Email: ratri.maya.s@fkg.unair.ac.id

INTRODUCTION

The COVID-19 pandemic caused the number of visits to the dentist to decrease because people were afraid to go to the dentist. The survey, conducted on 1009 respondents regarding visiting the dentist, stated that 67% of Indonesians avoided visiting the dentist during the COVID-19 pandemic. This condition can cause dental caries in school-age children.¹

Dental caries is the most prevalent chronic oral disease, particularly in school-age children. Dental caries in school-age children may cause pain, discomfort, eating disorder, tooth loss, and delayed speech. Furthermore, dental caries also affects children's concentration in school, and dental treatment expenses may sometimes become a particular financial burden on families. Dental caries is a common public health problem among primary school children in Surabaya. Toothbrush usage, soda consumption, and the parents' educational level were the associated factors for dental caries. Therefore, health education on oral hygiene,

dietary habits, and dental visit should be given to school-age children to prevent and control dental caries.²

Nutritional status is an important indicator to measure children's quality of life. The physical growth and nutritional status of school-age children are very important because they represent the general health status of the entire community. At present, stunting is still a priority for nutritional problems in Indonesia.³

In child dental care, three components need to work together. These components are illustrated in a triangle of child dental care. In the triangle, the dentist and family (especially the mother) are placed at the bottom of two edges, and the child as a patient is at the top of the edge. The triangle is dynamically interconnected. Mothers play as a motivator, education, and facilitator in child dental care. Videos about dental and oral health are effective educational media for dental and oral health education parents can provide to their children.⁴

Prevention of dental caries can be done through preventive measures by providing education to school-age

children. Several previous studies have shown that caries' prevalence increases with age. Therefore, it is important to provide early knowledge about the prevention of dental caries to achieve optimal oral and dental health. This activity provides contributions or benefits to school-age children, firstly increasing the awareness of school-age children on the importance of maintaining dental and oral health from an early age to prevent dental and oral diseases. Secondly, students can change attitudes and behavior in maintaining oral health to behave according to the expected health pattern. Third, students can learn and practice preventive dental and oral disease measures.⁵

Media of books and pocketbooks have been used for teaching children tooth brushing in elementary school-age children and kindergarten. However, the media of a leaflet shows better than a book. Audiovisual media has also been used for teaching children tooth brushing and shows effectiveness in improving the tooth-brushing skills of the children. However, an improvement in audiovisuals should also be considered to develop and enhance to be convenient for children. Dental health education using animated videos has been conducted, which has shown that it can increase the level of knowledge of dental health.^{6,7} In this community service, we did dental health education using a hybrid method with ZOOM at the Graduate School of Dentistry, Tohoku University, Japan. In this dental health education, we did an audiovisual method to make the school-age children interested, and we assisted students during their toothbrush practice in a fun way.

The issue discovered in the Muhammadiyah 4 Elementary School, located in Pucang, Surabaya City, East Java, is a lack of knowledge/awareness of the significance of dental and oral health and hygiene. Thus, the goal of this community empowerment is to improve and provide counseling about the importance of awareness of health and quality life, the covid-19 pandemic, and nutritional needs by conducting hybrid method oral and dental health empowerment to increase understanding of the importance of Quality of Life Related to Oral Health.

Table 1. The participant detail and questionnaire pre-post test

Participant detail (N=105)		Percentage (%)
Gender	Male	42.86
	Female	54.14
Age	7-8	5.17
	8-9	74.29
	9-10	20
Grades	third	5.17
	fourth	74.29
	fifth	20
Pre-test score		60.29
Post-test score		89.14

MATERIAS AND METHODS

Muhammadiyah 4 Elementary School, located in Pucang, Surabaya City, East Java, gathered the study data. Two surveyors were responsible for data collection. This study's sample size was 105 people ranging from third to fifth grade. When collecting data, study volunteers were in a questionnaire state. The initiative used an indirect health teaching technique that included parents and school teachers. The seminar covered dental and oral health and was provided via hybrid methods. The participants were asked to fill out a questionnaire form for the pre-and post-test to determine the improvement of oral and dental health knowledge for the dental health education evaluation.

RESULTS

Table 1 shows the oral and dental health empowerment participation. The majority of oral and dental health participants comprehend the presentation on oral and dental health empowerment. The post-test percentage was higher (89.14%) than the pre-test rate (60.29%).

DISCUSSION

Dental caries that are not treated will develop into rampant caries and attack the entire tooth crown by involving all teeth, leading to premature loss of primary teeth. This condition will have a negative impact on the child's ability to eat and get good nutrition. As a result, if the child has difficulty eating because of dental caries, he will have inadequate daily nutritional intake, a weakened immune system, and be more likely to experience malnutrition and illness. Several studies have stated that poor and unbalanced nutrition has a positive relationship to the severity of dental caries or cavities and tends to have more teeth with caries than children with adequate nutrition. There is a significant relationship between stunting and the severity of dental caries in children aged. In addition, children with poor nutritional conditions will have atrophic salivary glands, whereas saliva (saliva) has an essential role in cleaning teeth and mouth and preventing dental caries.⁸⁻¹¹

The goal of this community empowerment was to successfully provide counseling about the importance of awareness of health and quality of life, the covid-19 pandemic, and nutritional needs, and also to improve the oral and dental health at Muhammadiyah 4 Elementary School, which is located in Pucang, Surabaya City, East Java, by conducting a hybrid method oral and dental health empowerment to increase understanding of the importance of Quality of Life Related to Oral Health by increasing the post-test score as much as 89.14% than pre-test score only 60.29%. The oral and dental health empowerment program participants were passionate about the care and monitoring of their dental health. The knowledge of parents and teachers pertains to parenting or care in reducing dental caries in early

infancy because knowledge is a vital domain in molding one's activities, an action based on knowledge is preferable to an action based on ignorance. The more a youngster knows about dental and oral health, the better his or her dental and oral health will be. Furthermore, information and attitudes can influence children's, parents', and teachers' intentions to maintain excellent oral health.

CONCLUSION

The findings of the oral and dental health empowerment program showed that teledentistry was an excellent medium for boosting elementary school children's comprehension of dental and oral health status. A further empowerment program related to oral health is required to increase the student's quality of life.

ACKNOWLEDGEMENT

The authors would like to thank Faculty of Dental Medicine, Universitas Airlangga, for the support and Muhammadiyah 4 Elementary School, located in Pucang, Surabaya City, East Java, for kind cooperation. This empowerment program was supported by Program Pengabdian kepada Masyarakat funding from Universitas Airlangga with appointment number 1023/UN3/2022.

REFERENCES

1. Chairunissa RT, Astoeti TE, Panjaitan CC. Pemanfaatan Teledentistry Untuk Deteksi Karies Gigi Di Masa Pandemi COVID-19: A Scoping Review. *J Kedokt Gigi Terpadu*. 2022;4(1):7–10.
2. Bramantoro T, Setijanto RD, Palupi R, Aghazy AZ, Irmalia WR. Dental Caries and Associated Factors among Primary School Children in Metropolitan City with the Largest Javanese Race Population: A Crosssectional Study. *Contemp Clin Dent*. 2019;10(2):274–83.
3. Abri N, Sirajuddin S, Bahar B, Jafar N, Russeng SS, Zakaria Z, et al. Determinants of Incident Stunting in Elementary School Children in Endemic Area Iodine Deficiency Disorders Enrekang Regency. *Open Access Maced J Med Sci*. 2022 Jan 6;10(E):161–7.
4. Ramadhani A, Raharyani HD. Improving Knowledge of Oral and Dental Health in Parents of Elementary School Children Through 'Gigi Sehat' Video Channel. *Indones J Dent Med*. 2020 Dec 28;3(2):41–3.
5. Ermawati T, Yani RWE, Syafriadi M. Improving oral and dental health through counseling to elementary school students in Jember. *J Community Serv Empower*. 2021 Apr 19;2(1):1–7.
6. Harapan IK, Ratuella JE, Salikun S. Analysis between animated video and dental phantom in tooth brushing education. *J Ris Kesehatan*. 2022 May 31;11(1):33–9.
7. Dali TA., Limbu R, Boeky DLA. Increase in Knowledge of Dental Health Using Animated Video. *Lontar J Community Heal*. 2020 Dec 7;2(1):21–5.
8. Lutfi A, Flora R, Idris H, Zulkarnain M. Hubungan Stunting dengan Tingkat Keparahan Karies Gigi pada Anak Usia 10-12 Tahun di Kecamatan Tuah Negeri Kabupaten Musi Rawas. *J Akad Baiturrahim Jambi*. 2021 Sep 18;10(2):426.
9. Vieira KA, Rosa-Júnior LS, Souza MAV, Santos NB, Florêncio TMMT, Bussadori SK. Chronic malnutrition and oral health status in children aged 1 to 5 years: An observational study. *Medicine (Baltimore)*. 2020 May;99(18):e19595.
10. Paqué PN, Herz C, Wiedemeier DB, Mitsakakis K, Atin T, Bao K, et al. Salivary Biomarkers for Dental Caries Detection and Personalized Monitoring. *J Pers Med*. 2021 Mar 23;11(3):235.
11. Lalloo R, Tadakamadla SK, Kroon J, Tut O, Kularatna S, Boase R, et al. Salivary characteristics and dental caries experience in remote Indigenous children in Australia: a cross-sectional study. *BMC Oral Health*. 2019 Dec 17;19(1):21.
12. Naidu RS, Nunn JH. Oral Health Knowledge, Attitudes and Behaviour of Parents and Caregivers of Preschool Children: Implications for Oral Health Promotion. *Oral Health Prev Dent*. 2020 Apr 1;18(1):245–52.
13. Geetha Priya PR, Asokan S, Janani RG, Kandaswamy D. Effectiveness of school dental health education on the oral health status and knowledge of children: A systematic review. *Indian J Dent Res*. 2019;30(3):437–49.
14. Nepal P, Mahomed O. Influence of Parents' Oral Health Knowledge and Attitudes on Oral Health Practices of Children (5-12 Years) in a Rural School in KwaZulu-Natal, South Africa. *J Int Soc Prev Community Dent*. 2020;10(5):605–12.
15. Tahani B, Asgari I, Golkar S, Ghorani A, Hasan Zadeh Tehrani N, Arezoo Moghadam F. Effectiveness of an integrated model of oral health-promoting schools in improving children's knowledge and the KAP of their parents, Iran. *BMC Oral Health*. 2022 Dec 12;22(1):599.