

Contemporary Wayang Stories in Enhancing Cognitive and Skills of Children in Maintaining Dental and Oral Health

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Abstract: The prevalence of dental caries in children is still relatively high in Indonesia. One of the causes is neglect of oral and dental health maintenance. The school dental health business Program carried out to overcome this has not covered all elementary schools in Indonesia. Given the importance of maintaining children's dental and oral health, improving children's dental health promotion programs at school is necessary. Community service has been carried out at MI Al Khaeriyah, Jabungan Semarang city is a promotive program that aims to improve oral hygiene and children's knowledge in maintaining their dental health. Promotional efforts were carried out in packages consisting of fairy tales, interactive questions and answers, demonstrations, and mass brushing of teeth for 42 students in grades 1-6 elementary school. The results showed an increase in knowledge, both to 93% and followed by an increase in dental and oral hygiene criteria by 81%. Counseling in the form of fairy tales, interactive questions and answers, demonstrations, and mass tooth-brushes can motivate students to behave positively in maintaining healthy teeth every day. Promotive actions in children need to be increased and implemented on an ongoing basis to maintain positive behavior, reduce the prevalence rate of caries in the future, and support existing school dental health business programs.

Keywords: fairy tale; prevalence of caries; promotive action

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INTRODUCTION

Dental health is an integral part of overall health but is often overlooked. Dental and oral health issues can impact other body organs such as the heart, kidneys, brain, and others (Schwendicke et al., 2015). Therefore, efforts are needed to improve dental and oral health. Minister of Health Regulation Number 89 of 2015 outlines integrated,

integrated, and continuous dental and oral health efforts in the form of promotive, preventive, and curative measures. These efforts are particularly directed towards specific groups such as the elderly, pregnant women, adolescents, and children (Permenkes RI, 2015).

The basic health research results for 2018 show that the prevalence of dental

caries in Indonesia is 88.8% (Kemenkes RI, 2018). The highest prevalence of caries is in the age group of 5 years at 90.2%, with only 9.9% being caries-free in that age group. Meanwhile, the prevalence of caries in the 12-year-old age group is 72%, with only 34.5% being caries-free. Interestingly, 94.7% brush their teeth daily, but only 2.8% brush them correctly. This indicates challenges for children in maintaining oral hygiene.

Neglecting oral hygiene significantly affects the formation of dental plaque. Dental plaque is a thin layer on the tooth surface and serves as a breeding ground for bacteria-causing caries (Shao et al., 2023). Poorly maintained dental and oral hygiene can lead to plaque buildup, resulting in issues such as dental caries/cavities, gum inflammation, malocclusion, and more. These issues undoubtedly reduce a person's quality of life (Singh et al., 2020).

One health effort to address this problem is promotive action through dental health education for school children (WHO, 2015). A proper understanding of dental and oral health maintenance should be instilled in children from an early age to form good and correct health behaviors. Changes will follow cognitive changes in children in skills for maintaining their dental health. Promotive actions must be able to change children's behavior in maintaining their dental and oral health (Menegaz et al., 2018).

Behavioral changes in dental health can be considered through several theoretical models such as the Health Belief Model (HBM), Protection Motivation Theory (PMT), and Information Motivation Behavioral Skill Model (IMB). The Health Belief Model can analyze individual beliefs in accepting or rejecting dental and oral health preventive behaviors. PMT emphasizes behavioral change based on cognitive processes through persuasive

communication (Fatimah, 2022). Meanwhile, IMB involves behavioral change through information, motivation, and skills in adopting dental and oral health behaviors. These three theories are usually quite potent in designing effective interventions for individual behavior change (Kitsaras, Asimakopoulou, Henshaw, & Borrelli, 2023).

The relatively high prevalence of caries in school children also occurs in the Central Java province. The coverage of the School Dental Health Effort Program (Unit Kesehatan Gigi Sekolah/UKGS) in 2021 was only 37.7%. This indicates a very limited implementation of UKGS efforts in Central Java. Promotional efforts such as mass tooth brushing in schools were only 36.1%, and only 65% of students received health services at health centers. Based on this, there is a need to increase dental health promotion activities in schools to build children's cognitive skills in maintaining their dental and oral health.

The uneven coverage of UKGS in schools, including in Semarang, impacts students' cognitive abilities and skills in maintaining their dental and oral health. Al Khaeriyah Jabungan Elementary School, located in a remote area of Semarang, is one such school that has not received UKGS services. The def-t index for the 42 students in this Islamic school is 3.67, categorizing as moderate. This means that, on average, each student has approximately 4 problematic teeth. The average oral hygiene index (OHIS) falls into the moderate category (1.47). The prevalence of caries and oral hygiene among Al Khaeriyah Elementary School students poses a dental and oral health problem.

Therefore, promotive actions are required through health education on the importance of maintaining dental and oral health to address the fundamental issues of the needs of Al Khaeriyah Elementary School students. The

selection of media and teaching methods significantly motivates children to improve their cognition and skills in correctly maintaining their dental health. Dental health education under the age of 12 is crucial for shaping correct behaviors in the maintenance of children's dental health. This community service aims to increase students' knowledge and motivation to maintain their dental and oral health so that the prevalence of caries can be reduced in the future. Through this promotive package of community service-consisting of lectures, interactive Q&A sessions, attractive demonstrations, and mass tooth brushing - it is hoped that students will become more pleased and motivated to maintain their dental health in the future, thus improving their attitudes and behaviors in dental and oral health maintenance.

METHOD

This community service was conducted on Saturday, September 23, 2023, at Al Khaeriyah Elementary School in Semarang City. The approach used in this PKM is the Asset-Based Community Development (ABCD) approach (Mcknight, 2017; Risnah, Irwan, Arafah, Isriani, & Syikir, 2023). Promotive actions based on identified problems were carried out during the preparation phase. The promotive actions included storytelling through contemporary wayang media, interactive Q&A sessions, demonstrations of tooth brushing using a phantom tooth, and mass tooth brushing. It is hoped that through this community service, children will realize the importance of maintaining their dental health and willingly brush their teeth regularly.

Preparation Phase:

In this phase, issues were identified through a Preliminary Survey on the cognition and skills of students in maintaining oral hygiene. The survey

was conducted on 42 students using questionnaires and checklists. The results of this survey were analyzed to identify priority issues and determine the topic for the upcoming educational sessions.

Implementation Phase:

Before the educational sessions, students were given a pre-test questionnaire, and their oral hygiene was measured using the Oral Hygiene Index-Simplified (OHIS). The educational session involved storytelling about the importance of keeping teeth healthy using contemporary wayang. After the storytelling, students were given the opportunity to interact through Q&A sessions related to the story. Subsequently, a demonstration of tooth brushing using a phantom was carried out, allowing some students to practice tooth brushing on the phantom teeth.

Evaluation Phase:

At the end of the educational session, students were given a post-test questionnaire regarding their knowledge of dental health maintenance. Following that, students participated in a group tooth-brushing activity, and their oral hygiene was measured. The measurement was done using the Oral Hygiene Index-Simplified (OHI-S), an index used to measure the degree of an individual's dental cleanliness.

- a. Good criteria: 0 – 1.2
- b. Moderate criteria: 1.3 – 3.0
- c. Poor criteria: 3.1 – 6.0

RESULTS & DISCUSSION

This community service was conducted in September 2023 at Al Khaeriyah Elementary School, Jabungan-Semarang. The respondents involved were all students, comprising 42 students from Grades 1 to 6. The gender distribution of students was balanced, with the largest proportion in the age

group of 10-12 years (50.0%) as seen in Table 1.

Table 1 Distribution of frequency characteristics of students in grades 1-6

Characteristic	Frequency	Percentage
Age		
6-7 years old	9	21.4
8-9 years old	12	28.6
10-12 years old	21	50.0
Gender		
Male	20	47.6
Female	22	52.4
Total	42	100

The implementation process of the educational session using contemporary wayang was able to capture the students' interest in following each instruction given. Students were enthusiastic about listening to the storytelling and participating in interactive Q&A sessions, as shown in Figure 1.



Figure 1 Educational session in community service

The results of dental examinations on 42 respondents showed that only 14% were caries-free, and there was even one respondent with more than 10 cavities. Most students had cavities, with the majority averaging 1-5 cavities/tooth holes, as seen in Table 2. This indicates neglect in maintaining dental and oral health among students. This situation will undoubtedly increase plaque formation on the tooth surface. Bacteria that develop in plaque

accumulation will cause cavities. If left untreated, this condition will increase the prevalence of cavities in children.

Table 2 Distribution of frequency of cavities in students in grades 1-6

Dental Cavities	F	%
No Cavities	6	14
1-5 cavities	28	67
6-10 cavities	7	17
>10 cavities	1	2
	42	100

Knowledge about dental health maintenance is quite high (62%) and increased to 93% after the educational session (Figure 2). Educational sessions packaged in the form of storytelling and interactive Q&A sessions were able to motivate children to enhance their cognitive domain (Sayer, Kristiawan, & Agustina, 2018). Through storytelling and interactive Q&A sessions, children are motivated to believe in the importance of maintaining their dental and oral health. Children better understand new knowledge through stories, and media influences children's cognition in increasing their confidence in maintaining dental and oral health. This is in line with the Health Belief Model (HBM) behavior theory, where they believe that changing dental health maintenance behavior can reduce the risk of cavities.

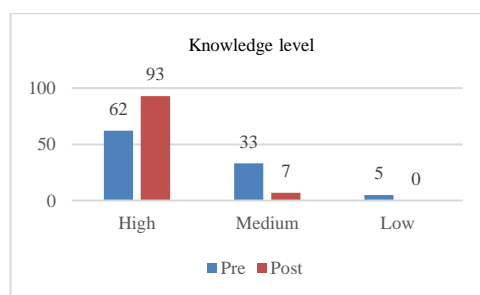


Figure 2 Overview of knowledge levels before and after the educational session

Children's cognitive abilities also influence their tooth-brushing skills

(Ranum et al., 2023). Understanding how to brush teeth properly can improve the level of dental and oral hygiene among students. In this case, there is a change in tooth-brushing behavior through persuasive communication. This aligns with the Protection Motivation Theory (PMT) (Fatimah, 2022) regarding individual behavior change. Storytelling and interactive Q&A sessions can persuasively communicate children's dental health maintenance. In addition, tooth-brushing demonstrations followed by mass tooth-brushing make children aware of behaving correctly in maintaining their dental and oral health. Behavioral change has occurred at this stage through information, motivation, and skills. This is consistent with the Information Motivation Behavioral Skill Model (IMB) behavior theory (Chang et al., 2014).

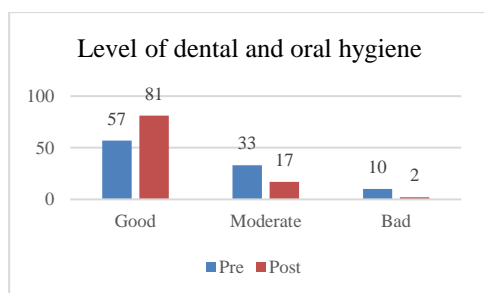


Figure 3 Overview of dental and oral hygiene levels before and after the educational session

CONCLUSION

Educational sessions using storytelling and contemporary wayang can indeed build motivation for children to maintain their dental health. Dental health information presented through storytelling and interactive Q&A sessions becomes interesting and generates positive awareness in children. There is a significant increase in both knowledge (93%) and good dental hygiene (81%). This indicates the need for children to engage in continuous dental and oral health promotion activities. Changes in children's

behavior in maintaining their dental health must be continually maintained through ongoing promotive activities so that good behavior will develop and help reduce the prevalence of dental and oral diseases in the future.

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