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The Effect of Counseling Using Dental Pop-UP Book Media on Hygiene Knowledge of Grade 7 and Students at Az-Zahro Sukodno Middle School

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ABSTRACT

Background: Problems with dental and oral health can have a negative impact on daily life, including decreasing general health, reducing levels of self-confidence, and interfering with performance and attendance at school, work, or other activities. One of the factors causing dental and oral health problems in children is behavioral factors, which can be shown by children ignoring their dental and oral health. The problem of this research is the high Debris Index in grade 7 and 8 students at Az-Zahro Sukodono Sidoarjo Middle School. **Object:** The aim of this research is to determine knowledge of dental and oral hygiene using dental pop-up book media among students in grades 7 and 8 of Az-zahro Sukodono Sidoarjo Middle School. **Method:** This research method is descriptive research. The targets in this research were students in grades 7 and 8 of Az-Zahro Sukodono Sidoarjo Middle School with 52 respondents. The data collection method uses a questionnaire sheet. The data analysis method in this research is that after filling in the questionnaire, the data collected from the questionnaire is processed by scoring. Each answer will be categorized and calculated for data analysis. The total number of respondents' answers which have been calculated in percentages will be presented in table form. **Results:** The results of this study indicate that the knowledge of dental and oral hygiene using dental pop-up book media in grade 7 and 8 students at Az-zahro Sukodono Sidoarjo Middle School is included in the good.

Keywords: Knowledge, Pop-up Book, Middle School, Debris Index

BACKGROUND

Problems with dental and oral health can have a negative impact on daily life, including decreasing general health, reducing levels of self-confidence, and interfering with performance and attendance at school, work, or other activities (Arifin et al., 2022). Almost everyone has experienced dental health problems. The danger is, if left to get worse, infection will occur which will lead to death (Dewanti et al., 2023).

One of the factors causing dental and oral health problems in children is behavioral factors, which can be shown by children ignoring dental and oral health. This can occur due to children's

lack of knowledge about maintaining dental and oral health, so that the behavior they carry out can influence the good and bad of their oral health (Dewi & Sahrina, 2021).

Knowledge about dental and oral hygiene is very important for taking action to maintain dental and oral hygiene. Dental and oral hygiene is carried out to prevent dental and oral diseases, increase body resistance, and improve oral function to increase appetite. Maintaining oral hygiene at school age is one way to improve health at an early age (Djannah et al., 2023). In Indonesia, dental and oral diseases, especially caries

and periodontal disease, are still widely suffered by both children and adults. Based on Basic Health Research (RISKESDAS) data for 2013 and 2018, the percentage of the population who had dental and oral health problems increased from 25.9% to 57.6% of the Indonesian population who experienced dental and oral health problems, only 10.2% received services from medical personnel (Haryanto et al., 2021).

Tartar, which in medical terms is known as "tartar" or "dental calculus", is a hard layer that forms due to the deposition of minerals in dental plaque that is not cleaned regularly (Husaini & Haris, 2022). Dental plaque, which consists of bacteria, food debris and saliva, will harden over time into tartar, which then sticks to the surface of the teeth. Tartar can cause oral health problems, such as gum inflammation (gingivitis), periodontitis, and tooth decay. Tartar can only be cleaned with professional treatment at a dentist, because it cannot be removed just by brushing your teeth (Kemenkes RI, 2023).

According to Green and Vermilion, the assessment criteria for calculus and dental debris are divided into three categories:

Table 1.

Debris Index Category	
Score	Category
0-0,6	Good
0.7-1,8	Average
1,9-3,0	Bad

Based on the results of the initial examination obtained through dental examinations on an initial sample of 10 grade 7 students, it was found that 7 children had a Debris Index value above 3.4. This shows that this value is in the high category, so the problem in this research is the high debris index of Az-Zahro Sukodono Middle School students.

The high Debris Index figures for grade 7 and 8 students at AZ-Zahro Sidoarjo Middle School are caused by several factors, one of which is knowledge. Knowledge is a very important domain for the formation of action. Students' low knowledge about maintaining dental and oral health will have an impact on high Debris Index numbers because students' lack of understanding about knowledge of maintaining oral and dental health causes students to not behave or not do what they should do to avoid tartar or calculus, such as brushing their teeth because food residue stuck to their teeth has been cleaned with a toothbrush.

Based on existing data, the problem in this research is the high debris index rate in grade 7 and 8 students at AZ-Zahro Sukodono Middle School, Sidoarjo.

RESEARCH METHODS

The research design used is descriptive research. The research location is at Az-Zahro Sukodono Middle School, Sidoarjo which is located on Jl. Raya Bangsri No.59 Sukodono, Bangsri, Kec. Sukodono, Kab. Sidoarjo Province. East Java 61258. This research was carried out from July 2024 to July 2025.

Table 2.

Variables and Operational Definitions

No	Variable	Operational Definition	Indicator	Measuring instrument
1	Knowledge of grade 7 students and 8 Az-Zahro Middle Schools regarding dental and oral hygiene	<p>Knowledge is a thinking activity carried out by humans.</p> <p>Knowledge about dental and oral hygiene known to junior high school students includes:</p> <ol style="list-style-type: none"> 1. Understanding 2. Debris 3. Mechanism of debris formation 4. Due to debris 5. How to brush your teeth properly and correctly. 	<ol style="list-style-type: none"> 1. Debris is food debris left in the oral cavity after eating. 2. Debris occurs due to lack of maintaining dental hygiene. 3. The result of debris is the formation of plaque and tartar. 4. There are 4 ways to brush your teeth properly and correctly <ul style="list-style-type: none"> - Frequency and time of brushing teeth at least 2 times a day for 2 to 3 minutes - How to clean tartar by doing scaling 	<p>Knowledge Criteria:</p> <p>Good: If the answer is between 75%</p> <p>-</p> <p>100%</p> <p>Average: If the answer is 54%</p> <p>- 74%</p> <p>Bad: If the correct answer is between \leq 54%</p>

The target of this research were 52 students in grades 7 and 8 of Az-Zahro Sukodono Middle School.

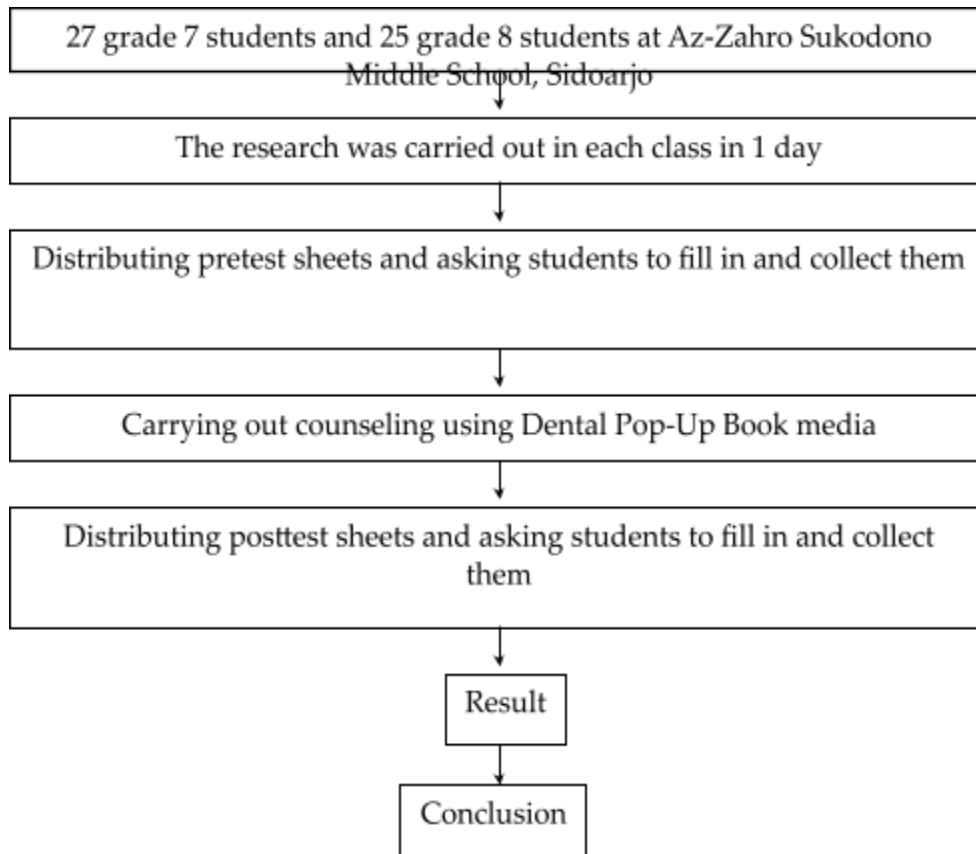


Figure 1. Research Flow

This Research data uses a questionnaire sheet method and is filled in directly by the respondents. The data collection procedure was carried out by the researcher by :

1. Researchers visited Az-Zahro Sukodono Middle School to ask the principal for permission to conduct research at the school
2. After obtaining permission from the school, the researcher asked for permission to collect data and collect targets
3. Researchers enter the classroom to collect data.
4. Researchers convey the objectives to respondents.
5. The researcher distributed the pretest questionnaire and explained the flow of the questionnaire by giving respondents a mark (X) on the correct answer.
6. Researchers accompany respondents during the process of filling out the questionnaire.
7. Collection of questionnaire sheets by

respondents to researchers.

8. Researchers provided education to respondents about dental and oral hygiene using dental pop-up book media.
9. The researcher distributed the posttest questionnaire and explained the flow of the questionnaire by giving marks
10. (X) on the correct answer to the respondent.
11. Researchers accompany respondents during the process of filling out the questionnaire.
12. Collection of questionnaire sheets by respondents to researchers.
13. Researchers process the data that has been obtained. The data collection method used in this research uses sheets.

Questionnaires were distributed before and after counseling using dental pop-up book media. In this research, the instrument used in data collection was a questionnaire sheet. The data analysis technique used in this research is to

calculate the average answer based on the scoring of each respondent's answer. The total number of answers obtained from respondents was calculated on average and then presented as a percentage and presented in table form.

Sukodono, Kab. Sidoarjo, East Java. This study aims to determine the knowledge of grade 7 and 8 students at Az-Zahro Sukodono Sidoarjo Middle School about dental and oral hygiene using dental pop-up book media as many as 52 students.

RESULT AND DISCUSSION

The location of the research was at Az-Zahro Sukodono Middle School, Sidoarjo Regency on Jl. Raya Bangsri No.59 Sukodono, Bangsri, Kec.

This research was conducted in May 2025 on grade 7 and 8 students who were given counseling using dental pop-up book media on how to maintain oral hygiene.

Table 3.

Distribution by Age and Gender of Grade 7 and 8 Students at Az-Zahro Sukodono Sidoarjo Middle School in 2025

No	Questions	Respondent's		Criteria
		<u>Answer</u>		
		Correct	Wrong	
1.	What is meant by debris in dental and oral health?	7 (13,5%)	45 (85,5%)	Good : 75%-
2.	What forms if debris is not removed properly?	15 (29%)	37 (71,1%)	100%
3.	What is one of the impacts of leaving tartar on your teeth?	23 (44%)	29 (55,7%)	Average : 54%-74%
4.	When is the right time to brush your teeth?	12 (23%)	40 (77%)	Bad : <54%
5.	How many times do we brush our teeth at least in a day?	43 (82%)	9 (17,3%)	
6.	Which way of brushing your teeth is incorrect?	37 (71,2%)	15 (29%)	
	What is the purpose of brushing your teeth regularly?	35	17	

No	Questions	Respondent's		Criteria
		<u>Answer</u>		
		Correct	Wrong	
7.		(67%)	(32,6%)	
8.	Which parts of the mouth need to be cleaned when brushing your teeth?	25 (48,5%)	27 (52%)	
9.	Why is the use of dental floss recommended?	32 (61%)	20 (38%)	
10.	What should I do if tartar has accumulated?	9 (17,3%)	43 (82%)	
		238 (455,2%)	282 (541,8%)	
	Amount			
		22 (46%)	30 (54,2%)	
	Average			
	Knowledge Criteria		Bad	

Based on table 3, it is known that students' knowledge about dental and oral hygiene before using dental pop-up book

media, the average for all students in the poor category, is 46%.

Table 4.

Distribution of Dental and Oral Hygiene Knowledge Results After Using Dental Pop-Up Book Media among Grade 7 and 8 Students of Az-Zahro Sukodono Sidoarjo Middle School in 2025

No	Questions	Respondent's		Criteria
		Answer		
		Correct	Wrong	
1.	What is meant by debris in dental and oral health?	52 (100%)	0 (0%)	Good : 75% - 100%
				Average : 54%- 74%
				Bad : <54%
2.	What forms if debris is not removed properly?	47 (90,2%)	5 (9,61%)	
3.	What is one of the impacts of leaving tartar on your teeth?	52 (100%)	0 (0%)	
4.	When is the right time to brush your teeth?	48 (92%)	4 (7,6%)	
5.	How many times do we brush our teeth at least in a day?	49 (94%)	3 (5,7%)	
6.	Which way of brushing your teeth is incorrect?	52 (100%)	0 (0%)	
7.	What is the purpose of brushing your teeth regularly?	50 (96%)	2 (3,8%)	
8.	Which parts of the mouth need to be cleaned when brushing your teeth?	45 (86,5%)	7 (13,5%)	
9.	Why is the use of dental floss recommended?	47 (90,2%)	5 (9,61%)	
10.	What should I do if tartar has accumulated?	52	0	
Amount		494 (949,7%)	26 (49,7%)	

Average	49,5 (95%)	2,6 (5%)
Knowledge Criteria	Good	

Based on table 4, it is known that the respondents' answers regarding knowledge of dental and oral hygiene after using dental pop-up book media, the average of all

students in the good category is 95%, while 5% do not know about knowledge of dental and oral hygiene.

Table 5.

Recapitulation of dental and oral hygiene knowledge results using dental pop-up book media for students in grades 7 and 8 of Az-Zahro Sukodono Sidoarjo Middle School

Variable	Average	Categori
Dental and Oral Hygiene Knowledge Before Using Dental Pop-Up Book Media with Class Students 7 and 8 Az-Zahro Sukodono Sidoarjo Middle School	(46%)	Bad
Knowledge of Dental and Oral Hygiene After Using Dental Pop-Up Book Media among Class Students 7 and 8 Az-Zahro Sukodono Sidoarjo Middle School	(95%)	Good

Based on table 5, it is known that the data obtained before conducting counseling using dental pop-up book media, the average student had poor knowledge, namely 46%, and after providing counseling using dental pop-up book media, the average student had good knowledge, namely 95%.

This study aims to determine knowledge of maintaining dental and oral health using dental pop-up book media among students in grades 7 and 8 of Az-Zahro Sukodono Sidoarjo Middle School. Based on the results of the data collection and analysis that has been carried out, the following things can be explained.

Knowledge about Dental and Oral Hygiene for Grade 7 and 8 studentss of AzhZahro Sukodono Sidoarjo Middle School Before Counseling Using dental Pop-up Book Media

Based on the research results, it was found that maintaining oral hygiene for students in grades 7 and 8 of Az-Zahro Sukodono Sidoarjo Middle School before being given media showed that the students' average knowledge was in the poor category. Students' lack of knowledge regarding dental and oral hygiene can be caused by many influences. Based on the results in the field, many students do not know the frequency of brushing their teeth and when is the right time to brush their teeth. This means that students still don't understand the frequency of brushing their teeth and when is the right time to brush their teeth.

The best and correct time to brush your teeth is before going to bed at night because during sleep, saliva decreases so that the acid produced by plaque becomes more concentrated and its ability to damage teeth is of course greater

(Larasati, 2022). After breakfast, plaque will start to form again during a night's sleep, therefore a tooth brushing routine must be carried out every day so that the plaque that forms does not get thicker (Mulyani, 2020).

The efforts to maintain oral health and foster dental health, especially for school children, need special attention because at this age children are undergoing the process of growth and development (Nasution et al., 2023). School age children, especially children in elementary school, are very easily exposed to oral and dental diseases, this is because school age children usually have habits or personal behavior that are the opposite in an effort to achieve healthy mouths and teeth (Ningsih et al., 2023).

Students' lack of information about dental and oral health is caused by their ignorance about maintaining adequate dental health for students. Students neglect their oral health, are unaware of the factors that contribute to dental hygiene, and are unaware of the long-term effects of neglected oral conditions (Notoatmodjo, 2010).

There are many ways that can be done to minimize the number of lack of knowledge that can be applied to school age children, especially students in grades 7 and 8 of Az-Zahro Sukodono Sidoarjo Middle School, namely that health efforts need to be made, one of which is by improving health, namely promotive and preventive to prevent dental and oral health problems by providing dental and oral health education from an early age (Octaviana et al., 2021). Based on the description above, it can be concluded that maintaining oral health for students in grades 7 and 8 of Az-Zahro Sukodono Sidoarjo Middle School before being given dental pop-up book media shows that the average knowledge of students is in the poor category.

Knowledge about Dental and Oral Hygiene for Grade 7 and 8 students of

AzhZahro Sukodono Sidoarjo Middle School After Counseling Using Dental Pop-up Book Media

Based on the research results, it was found that maintaining oral health for students in grades 7 and 8 of Az-Zahro Sukodono Sidoarjo Middle School after being given dental pop-up book media showed that the average results of students' knowledge were in the good category. This is because the media is very influential on knowledge, that is, it has the advantage of attracting students' attention and making students understand the content of the counseling material better.

The health education provided using various media can make it easier to increase students' knowledge. Based on the description above, it can be concluded that counseling can help increase students' knowledge, especially using media that attracts students' attention. In this research, dental pop-up book media was used (Santosa et al., 2022). Dental pop-up books are media that are suitable for middle school children.

The use of learning media is very important in today's increasingly developing era. Media is a tool that makes it easier for students to understand learning (Sopianah et al., 2023). It is emphasized that to make communication effective and attract attention between teachers and students in the learning process at school, tools, methods and techniques are needed which are often referred to as learning media (Susanto, 2016).

Learning media can help to achieve learning goals because it can provide enthusiasm and motivation for students in learning. Learning media can also generate new interests and desires, stimulate learning, generate motivation, and have an influence on students' psychology (Tauchid et al., 2017).

One of the stimuli that can be used to provide dental health education to children is a pop-up book, a book with 3-dimensional pictures. This can help

learning activities and can increase students' interest in reading. The use of this media can also help students to focus more on the content of the material being presented (Utami et al., 2022).

Pop-up books are very effective as learning aids. This is because the pop-up book media provides a visual experience so that children increase their learning motivation and make complex concepts simpler and easier to understand. Pop-up books are picture book media that are not monotonous but also contain 3-dimensional images that can make children, especially school children, enthusiastic about listening to learning.

Thus, the conclusion from the results of this study, based on the researchers' initial data, is that the debris index value is in the bad category, which is influenced by several factors, one of which is a lack of knowledge about the importance of maintaining oral and dental hygiene. This is related to what researchers at Az-Zahro Sukodono Sidoarjo Middle School did, which showed that students' knowledge regarding dental and oral hygiene before using the dental pop-up book media was in the poor category and after using the dental pop-up book media was included in the good category, although there were still some students who did not understand which parts of the mouth needed to be cleaned when brushing their teeth and the recommendations for using dental floss.

The conclusions from research results and theory are in line and state that behavior is a response to stimulation. Behavior can emerge through responses when counseling is carried out using dental pop-up book media which interacts with organisms to find solutions to overcome the problem of being lazy about studying and reading in the hope of helping students increase their knowledge in maintaining oral and dental hygiene.

CONCLUSIONS

Based on the results of research and discussion regarding the influence of counseling using dental pop-up book media on dental and oral hygiene knowledge of grade 7 and 8 students at Az-Zahro Sukodono Sidoarjo Middle School, it can be concluded that knowledge of dental and oral hygiene before using dental pop-up book media among students in grades 7 and 8 of Az-Zahro Sukodono Sidoarjo Middle School is classified as lacking. Knowledge of dental and oral hygiene before using dental pop-up book media among students in grades 7 and 8 of Az-Zahro Sukodono Sidoarjo Middle School is classified as lacking.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest in this manuscript

REFERENCES

- Arifin, Z., Rahmawati, N., & Hidayah, N. (2022). The impact of dental calculus on oral health: A review. *Journal of Dental Health*, 12(2), 123–130.
- Dewanti, T. M. G. A., Sugito, B. H., & Marjianto, A. (2023). Pengetahuan menyikat gigi yang benar pada siswa kelas I SDN Kertajaya 1-207 Surabaya. *Indonesian Journal of Health and Medical*, 3(3), 60–75.
- Dewi, K., & Sahrina, A. (2021). Urgensi augmented reality sebagai media inovasi pembelajaran dalam melestarikan kebudayaan. *Jurnal Integrasi dan Harmoni Inovatif Ilmu-Ilmu Sosial (JIHI3S)*, 1(10), 1077–1089.
<https://doi.org/10.17977/um063v1i10p1077-1089>
- Djannah, S. N., Handayani, L., Fitriyanur, F., & Wahyuni, I. T. (2023). *Buku saku kesehatan gigi dan mulut bagi pelajar/mahasiswa*. Universitas Ahmad Dahlan.
<https://eprints.uad.ac.id/43667/>
- Haryanto, R., Ningsih, A., & Salim, H.

- (2021). The effectiveness of pop-up book media in dental health education for children. *Journal of Dental Education*, 85(10), 1345–1352.
- Husaini, M., & Haris, M. (2022). Peran tindakan preventif dalam meningkatkan kesehatan masyarakat. *Jurnal Kesehatan Masyarakat*, 16(2), 45–52.
- Kementerian Kesehatan Republik Indonesia. (2023). *Kesehatan gigi dan mulut di Indonesia: Survei Kesehatan Indonesia 2023*. Badan Kebijakan Pembangunan Kesehatan.
- Larasati, R. (2022). *Pemeliharaan kebersihan gigi dan mulut anak*. Deepublish.
- Mulyani, S. (2020). Hubungan tingkat pengetahuan tentang kesehatan gigi dengan perilaku menyikat gigi pada siswa SMP. *Jurnal Kesehatan Gigi*, 8(2), 45–52.
<https://doi.org/10.20473/jkg.v8i2.2020.45-52>
- Nasution, M., Sari, D., & Hidayah, N. (2023). The impact of periodontitis on oral and systemic health: A review. *International Journal of Dentistry*, 2023.
- Ningsih, N.S., & Setiawaty, N. (2023). *Kesehatan Gigi dan Mulut Masyarakat Indonesia*. Medsan. ISBN 978-623-195-481-7.
- Notoatmodjo, S. (2020). *Metodologi penelitian kesehatan*. Rineka Cipta.
- Octaviana, D. R., & Ramadhani, R. A. (2021). Hakikat manusia: Pengetahuan (knowledge), ilmu pengetahuan (sains), filsafat dan agama. *Jurnal Tawadhu*, 2(2), 143–159.
- Santosa, A., Prabowo, E., & Wibowo, A. (2022). The impact of plaque control on gingivitis: A clinical study. *Journal of Periodontology*, 93(4), 567–573.
- Sopianah, Y., Rahayu, C., Kusmana, A., & Robbihi, H. I. (2023). *Buku saku menjaga kesehatan gigi dan mulut pada anak*. Perkumpulan Rumah Cemerlang Indonesia. ISBN 978-623-448-508-0
- Susanto, A. (2018). *Kesehatan gigi dan mulut*. Sunda Kelapa Pustaka. ISBN 978-602-5854-57-6
- Tauchid, S. N., Pudentiana, R. R. E., & Subandini, S. L. (2017). *Buku ajar pendidikan kesehatan gigi*. EGC.
- Utami, S., Anwar, M., & Hidayati, N. (2022). The impact of subgingival calculus on periodontal health: A review. *Journal of Periodontal Research*, 57(3), 210–218.