

ARTICLE

# Educational Media Dental Colouring Book as an Innovation in Dental Health Education for Young Children

Fahima Arnas Syahilla, Sunomo Hadi\*, Sri Hidayati

Department of Dental Health, Poltekkes Kemenkes Surabaya, Surabaya, Indonesia

\*Corresponding author: [sunomohadi@gmail.com](mailto:sunomohadi@gmail.com)

## Abstract

Oral health is an important aspect of comprehensive health and plays a significant role in children's growth. If disturbed, this condition can affect children's overall development and physical health, as well as reduce their quality of life. Dental caries in early childhood is a major concern because it reflects the effectiveness of dental health maintenance efforts. The problem in this study is the high percentage of dental caries in group B students at Al-Barokah Blega Bangkalan Kindergarten, which is likely caused by a lack of knowledge about dental caries, frequent consumption of cariogenic foods, minimal motivation, and irregular access to health services, especially dental health services, at Al-Barokah Blega Bangkalan Kindergarten. This study aims to determine the effectiveness of using the Dental Coloring Book media on changes in knowledge about dental caries among Group B students at Al Barokah Kindergarten in Blega sub-district, Bangkalan district. This research is a quantitative study with a pre-experimental design of the one-group pretest-posttest type, in which a pretest will be given before the intervention and a posttest after the intervention. This study involved 30 respondents from group B of Al-Barokah Blega Bangkalan kindergarten. Data analysis was carried out using the Wilcoxon test, with a result of  $\text{sig} = 0.000 < 0.05$ . This means that the null hypothesis ( $H_0$ ) was rejected and the alternative hypothesis ( $H_1$ ) was accepted, indicating that counselling using the Dental Coloring Book medium was effective in improving the knowledge of Group B students at Al-Barokah Blega Bangkalan Kindergarten in 2025.

**Keywords:** Knowledge, Dental Caries, Media, Dental Colouring Book

## 1. Introduction

Preschool children are children aged between 3 and 6 years old who have various potentials in accordance with their stage of growth and development. Stimulation is needed to help children maximise their growth and development (Marina 2024). Early childhood or preschool children have diverse and unique characteristics due to their age, parenting style, innate character, interests, and different cultural backgrounds. They tend to be honest and freely express their thoughts and feelings. At this stage, they are highly responsive to stimulation, very active and energetic, egocentric or see everything according to their own desires, easily bored and easily give up, and have a short attention span depending on their age (Monica et al., 2023).

Dental caries is a disease that affects the hard tissue of the teeth due to microorganisms fermenting carbohydrates on the surface of the teeth, producing acid and causing demineralisation in the hard tissue of the teeth. The signs are damage to the tooth tissue, starting from the surface and spreading to deeper parts (Tameon 2021). One of the causes is the habit of eating sweet or cariogenic foods. Sweet foods contain carbohydrates, are sticky, and easily break down in the mouth. Their consumption is associated with the risk of dental caries, as they can trigger the formation of plaque on the surface of the teeth. Plaque becomes a breeding ground for bacteria that convert glucose into acid, lowering the pH of the mouth to 4.5 and causing tooth enamel to dissolve. If too many carbohydrates are consumed, bacteria will produce acid more frequently, increasing the acidity of the oral cavity and causing more tooth enamel to dissolve (Fitri Shinta Muliyah and Fida' Husain 2022).

The prevalence of dental caries remains high, especially among preschoolers, due to their lack of knowledge about how to maintain dental health and their ignorance of the fact that the cariogenic foods they usually eat can cause dental caries (Fadjeri *et al.*, 2023). Regular teeth cleaning is an important factor in preventing oral diseases. Limited awareness of dental and oral health, poor knowledge of dental and oral hygiene habits are commonly experienced by children aged 5-12 years (Sultana *et al.* 2022). If students' knowledge of dental caries is low, they will not be able to take measures to prevent dental caries.

The impact of early caries not only interferes with the function of teeth as chewing tools, but can also cause children to become fussy, have swollen gums, and experience difficulty carrying out daily activities. As a result, children may lose their appetite, which can potentially lead to malnutrition. This malnutrition can affect children's concentration and intelligence, thereby hindering the learning process. In addition, malnutrition can also lower children's immune systems, making them more susceptible to disease (Pariati and Lanasari 2021). Although dental and oral health does not pose a threat to life, its impact on general health, healthcare, and an individual's quality of life is significant, affecting sleep and intellectual activity (Dumitrescu *et al.* 2022).

Oral health is an important aspect of comprehensive health and plays a significant role in the normal growth of children. If disturbed, it can affect the overall development of children, their physical health, and reduce their quality of life. Dental caries in early childhood is a major concern because it reflects the effectiveness of dental health maintenance efforts. Teeth play a vital role in a child's growth process, both as a tool for chewing and as a support for facial appearance, especially milk teeth, which act as a guide for the growth of permanent teeth (Amelia *et al.*, 2020).

According to data from the 2018 Riskesdas, the biggest dental problem in Indonesia is damaged, decayed, or painful teeth, with a proportion of 45.3%. The data also shows that the prevalence of dental caries among children aged 3-4 years reaches 81.1%, among those aged 5-9 years it is 92.6%, and among those aged 10-14 years it is 73.4%. Half of the 75 million children in Indonesia have dental caries, and this number continues to increase every year (Andriyani *et al.* 2023). Findings from a study by (Rosmalia *et al.*, 2023) The findings of the D-F-M index in preschool children in Puhun Pintu Kabun Village, Mandiangin Koto Selayan District, Bukittinggi City in 2023 show that the number of D-F-M was 550 teeth, with an average D-F-M of 4.87, with the highest component being decay at 427 teeth (77.6%) and filling at only 2 teeth (0.36%). This is relevant to a study by (Dharmawan *et al.* 2024) produced an average def-t index of 5.5% among preschool children, which is classified as high.

Various studies from the Kingdom of Saudi Arabia have reported a high prevalence of caries among preschool children. Recent reports from Italy and Australia show an uneven distribution of caries among preschool children. Both studies report a high prevalence of caries and suggest that the severity of caries in preschool children depends on ethnic group and immigration status (Mallineni *et al.* 2023).

From the initial examination conducted by researchers on 20 July 2024 on 21 students in group B at Al Barokah Blega Bangkalan Kindergarten, the following data was obtained:  $d = 105$ ;  $e = 23$ ;  $f = 0$  with a total def-t = 128, with an average def-t = 6.09, which according to the WHO is classified as high.

Based on this data, the problems identified in this study are as follows. namely the high percentage of

dental caries among students in group B at Al-Barokah Blega Bangkalan Kindergarten, with the possible causes being a lack of knowledge about dental caries, frequent consumption of cariogenic foods, minimal motivation, and irregular access to health services, especially dental health services, at Al-Barokah Blega Bangkalan Kindergarten.

Dental and oral health education is needed to educate preschool children about the causes of dental caries so that they understand and can avoid habits that can cause dental caries. Learning using media aids is very important to improve the quality of education. The use of health promotion media is one method and effort to convey messages and information from communicators to increase the audience's knowledge, which is ultimately expected to lead to positive behavioural changes (Lestari, Larasati, and Edi 2023).

One form of health promotion media that is suitable for pre-school children is visual media in the form of a book, namely the *Dental Coloring Book* created by researchers. The *Dental Coloring Book* is a colouring book designed specifically for pre-school children, helping them learn about cavities in a fun and interactive way. The visual-interactive approach through colouring activities increases children's engagement and information retention, in line with the results of the *Colouring Sheet* study in India, which showed a high level of understanding of oral hygiene concepts among primary school students (Murthy, Fareed, and Hiremath 2020). In addition, RCT studies in Turkey and Australia confirm that *Storybook* with character illustrations can improve knowledge and toothbrushing behaviour in preschool children (Sagdic and Öztürk 2025). The *Dental Colouring Book* has been scientifically proven in several studies to be an effective and innovative teaching material and method for supporting preventive caries education in young children.

## 2. Materials and Methods

### 2.1 Research Design

This study is a quantitative study using a pre-experimental design of the *one group pretest–posttest design* type. This design was used to determine the effectiveness of the *Dental Coloring Book* media on changes in preschool children's knowledge about dental caries. In this design, measurements were taken twice, before the treatment (*pre-test*) and after the treatment (*post-test*). The treatment referred to is oral health education activities using the *Dental Coloring Book* media. This design allows researchers to assess the extent to which the intervention can improve children's knowledge, as each respondent acts as a control for themselves. Conceptually, this research design can be described as 01–X–02, where 01 is the initial measurement (*pre-test*), X is the treatment in the form of using the *Dental Coloring Book*, and 02 is the final measurement (*post-test*).

### 2.2 Population and Sample

The population in this study consisted of all students in group B at Al-Barokah Blega Bangkalan Kindergarten aged 5–6 years, with a total of 33 children. Sampling was conducted using simple random sampling, whereby each child in the population had an equal chance of being selected as a research respondent. The sample size was determined using the Slovin formula with a margin of error ( $\alpha$ ) of 0.05. Based on the calculation results, a sample size of 30 children was obtained, who then became the research subjects. All respondents completed all stages of the study, from the *pre-test*, intervention, to the *post-test*, with no drop-outs.

### 2.3 Research Instruments

The instrument used in this study was a questionnaire on dental caries knowledge, which was compiled based on indicators of children's ability to recognise the function of teeth, the causes of caries, and how to maintain dental and oral hygiene. This questionnaire consisted of 15 simple multiple-choice questions tailored to the cognitive abilities of children aged 5–6 years. Before being used in the study, the questionnaire underwent validity and reliability testing. The validity test results showed that most of the questions had item-total correlation coefficients that met the eligibility criteria, while the reliability test results using Cronbach's Alpha method showed a value of 0.47, which is considered

sufficient and acceptable for early childhood education research. Therefore, this instrument is considered suitable for use in measuring the knowledge of preschool children.

## 2.4 Data Collection Procedure

Data collection was conducted in three stages, namely pre-test, intervention, and post-test. The first stage was the implementation of the pre-test, in which researchers gave questionnaires to students before providing education to determine their initial level of knowledge about dental caries. The second stage was an educational intervention, namely an educational activity using the media *Dental Coloring Book*. The colouring book contained interesting illustrations about the structure of teeth, foods that cause dental caries, how to brush teeth properly, and messages about clean and healthy living. The children were given the opportunity to colour while listening to explanations from the researchers and teaching staff. The final stage was the implementation of a post-test, which was conducted after all the children had finished colouring and discussing the contents of the book with their teachers. The same questionnaire was used to assess changes in knowledge after the educational session.

During the activity, class teachers accompanied the children to ensure that everything ran smoothly, and researchers ensured that each child understood the questions before answering. The activity was carried out in a fun and conducive learning environment to keep the children focused and enthusiastic.

## 2.5 Data Analysis

The data obtained from the pre-test and post-test results were processed quantitatively using SPSS version 25 software. The first step was to group the knowledge scores into categories, namely "good" for scores of 76–100%, "fair" for scores of 56–75%, and "poor" for scores below 55%. The data was then analysed to calculate the mean, standard deviation, and frequency distribution for each category. To test the effectiveness of the *Dental Colouring Book* media on improving children's knowledge, the Wilcoxon Signed Rank Test was used because the data was ordinal and came from two paired measurements (pre-test and post-test). The Wilcoxon test was chosen because it is more suitable for non-parametric data that is not normally distributed. The test results are considered significant if the p-value is 0.05.

## 3. Results and Discussion

**Table 1. Characteristics of Respondents in Group B at Al-Barokah Blega Bangkalan Kindergarten (n = 30)**

| Characteristics | Category | Frequency (n) | Percentage (%) |
|-----------------|----------|---------------|----------------|
| Age (years)     | 5        | 8             | 26.7           |
|                 | 6        | 22            | 73.3           |
| Gender          | Male     | 9             | 30.0           |
|                 | Woman    | 21            | 70.0           |

Based on Table 1, it is known that most respondents were 6 years old (73.3%), while the rest were 5 years old (26.7%). This illustrates that the majority of research participants were in the final stage of preschool age, where children's cognitive and fine motor skills were more developed so that they could follow educational activities such as colouring well. In addition, the majority of students were female (70%), indicating that girls' participation was more dominant in this study. In general, the distribution of these characteristics supports the effectiveness of using the *Dental Coloring Book* media because 5-6-year-old children have a high interest in visual activities and learning through play.

**Table 2. Distribution of Students' Knowledge Before and After Education Using Dental Colouring Books (n = 30)**

| Knowledge Category | Pre-Test (n/%) | Post-Test (n/%) |
|--------------------|----------------|-----------------|
| Good               | 6 (20.0)       | 25 (83.3)       |

|       |           |          |
|-------|-----------|----------|
| Fair  | 10 (33.3) | 5 (16.7) |
| Less  | 14 (46.7) | 0 (0.0)  |
| Total | 30 (100)  | 30 (100) |

As shown in Table 2, before receiving education using the *Dental Coloring Book* media, students' knowledge of dental caries was still relatively low. Most respondents were in the poor knowledge category (46.7%), while only 20% had good knowledge. After receiving the education, there was a very significant increase: 83.3% of students were in the good category, and no students were in the poor category. This change in distribution shows that the use of the *Dental Coloring Book* as an educational medium is effective in improving preschoolers' understanding of the importance of maintaining dental health. Visual activities such as colouring help children understand the concept of caries in a more enjoyable way that is appropriate for their cognitive development stage.

**Table 3. Comparison of Average Values and Wilcoxon Test Results of Student Knowledge Scores Before and After Education**

| Variable  | Average (Mean $\pm$ SD) | p-value (Uji Wilcoxon) | Description                       |
|-----------|-------------------------|------------------------|-----------------------------------|
| Pre-Test  | 55,66 $\pm$ 15,75       | 0,000                  | There is a significant difference |
| Post-Test | 88,33 $\pm$ 9,44        |                        |                                   |

The results in Table 3 show that the average knowledge score of students increased sharply from 55.66 (fair–poor category) to 88.33 (good category) after being given counselling using the *Dental Coloring Book*. The standard deviation (SD) decreased from 15.75 to 9.44, indicating that after the intervention, the students' understanding became more uniform and consistent. The Wilcoxon statistical test showed a p-value of 0.000 (0.05), so it can be concluded that there was a significant difference between the knowledge scores before and after the education. Thus, education using the *Dental Coloring Book* medium proved to be statistically effective in increasing preschool children's knowledge about dental caries. The high average score increase and decrease in variation between respondents show that visual-interactive media play an important role in strengthening experiential learning in early childhood.

Based on the results of the *Pre-Test* questionnaire on dental caries knowledge conducted by researchers on students in group B at Al-Barokah Blega Bangkalan Kindergarten before the students were given education using the *Dental Coloring Book* media, the results were categorized as poor. This occurred because the students lacked understanding about maintaining dental and oral health, including methods of preventing dental caries, how to maintain dental hygiene, the correct technique and timing for brushing their teeth, and they were also unable to distinguish between foods that were healthy and unhealthy for their teeth. Lack of knowledge and skills affects children's dental and oral health. . Therefore, knowledge can be improved through health promotion, such as education (Nyoman et al. 2024).

In conducting health promotion/education for preschool children (kindergarten), attractive and educational media are needed, because preschool children tend to get bored easily. Therefore, learning or material delivery must be interspersed with games. This is in line with the findings (Mardelita et al. 2024). To attract children's interest in learning, media and games that can spark their interest are needed. Learning activities for children should be made fun, because learning in a cheerful atmosphere can evoke positive emotions in children, so that they feel that learning is an enjoyable activity.

This is also reinforced by studies (Regina et al. 2023) which shows that MEGI (Colouring and Brushing Teeth) media is effective in increasing children's knowledge about how to brush their teeth. Similarly, research (Khairiah et al. 2024) which used the *Art Therapy* method to improve toothbrushing behaviour in preschool children. Both studies showed that visual approaches and hands-on activities were able to improve children's understanding and behaviour. In the context of this study, the *Dental Colouring Book* also relied on visual communication and colouring activities that were appropriate for the learning characteristics of young children.

After the intervention using the media *Dental Colouring Book*, there was an increase in students' knowledge about dental and oral hygiene among students in group B at Al-Barokah Blega Bangkalan Kindergarten in 2025. This is based on the results of the Post-Test questionnaire data collection among students in group B at Al-Barokah Blega Bangkalan Kindergarten, which yielded good results. Therefore, it can be concluded that counselling using the *Dental Coloring Book* media on students in group B at Al-Barokah Blega Bangkalan Kindergarten was effective in helping students understand the material on dental caries. Colouring books containing material and pictures are effective as learning media for preschool-aged children, increasing their knowledge and creativity, as well as increasing their interest in playing while learning so that they do not get bored easily.

This is due to changes in knowledge, as stated in the book. (Adventus *et al.*, 2019) Knowledge occurs as a result of the process of acquiring information, after a person interacts with stimuli or objects observed through the five senses, especially sight and hearing, which then leads to increased understanding or changes in cognitive aspects, while cognition is important in shaping changes in a person's behaviour.

This is due to changes in knowledge, as stated in the book. (Adventus *et al.*, 2019) Knowledge occurs as a result of the process of acquiring information, after a person interacts with stimuli or objects observed through the five senses, especially sight and hearing, which then leads to increased understanding or changes in cognitive aspects, while cognition is important in shaping changes in a person's behaviour.

Promotive efforts are also important because they can improve health, including individual health maintenance such as improving dental health, getting adequate rest and balanced activity, getting sufficient exercise, and maintaining or preventing disease. (Riolina and S. 2022) In this context, there is a need for promotional efforts to increase knowledge among preschool children so that they develop oral health care behaviours from an early age. As in the book Salfiyadi and Rasidah (2024) Dental health promotion is an effort to increase awareness, knowledge, and positive behaviour related to dental and oral health at the population level because the goal of health promotion is to prevent dental and oral health problems and improve general well-being.

In the context of this study, the stimulus was the *Dental Colouring Book* (Stimulus) which aims to trigger a specific response from students in group B at Al-Barokah Kindergarten (Organism) through interesting message delivery techniques. If students in group B show interest and attention to the media and explanations provided by the researcher, they will understand the material presented through the *Dental Coloring Book* media. Support from the media and environmental influences can act as stimuli that affect individual actions and encourage behavioural change (Response).

The effectiveness of this medium can be explained through the visual communication theory approach, whereby the use of images, colours and interactive activities such as colouring can increase attention and information absorption in early childhood. Preschool children tend to learn through visual and concrete stimulation, which supports their cognitive development and emotional involvement in the learning process. Research by (Anggraini and Yuwono 2022) shows that artistic activities such as drawing and painting play an important role in developing creativity and interest in learning among preschool children. This is also reinforced by studies (Ferenç 2021), which states that art therapy has a very strong influence on children's personal development, including emotional aspects, concentration and self-confidence. Research (Fauziyyah, Ifdil, and Putri 2020) also emphasises that colouring activities can be an effective form of art therapy to help children channel their emotions positively. Therefore, the use of the *Dental Coloring Book* in this study not only serves as an educational medium, but also as a means of visual therapy that is appropriate for the developmental needs of preschool children.

#### 4. Conclusion

From the results of data analysis and discussion, researchers can conclude that the knowledge of students in group B at Al-Barokah Blega Bangkalan Kindergarten before the education using the *Dental Coloring Book* media was in the poor category. However, after the education session using the *Dental Coloring Book* media, the knowledge of students in group B at Al-Barokah Blega Bangkalan Kindergarten was in the good category. Thus, there is effectiveness in the use of the *Dental Coloring*

*Book* media on changes in knowledge about dental caries in group B students at Al-Barokah Blega Bangkalan Kindergarten.

The researcher has a number of suggestions, the first of which is that after this study, it is hoped that students will have a better understanding and be able to apply the methods of dental and oral health care described during the counselling session so that they can adopt new habits that are good for their dental and oral health. Second, it is hoped that teachers can continue to motivate their students to maintain their dental and oral health, with the addition of new effective learning media, namely the *Dental Coloring Book*. Thirdly, it is hoped that local health workers can conduct regular health education and dental health checks. During the education sessions, it is hoped that concepts and media that attract students' attention can be used so that dental health education can be well received by students in group B at Al-Barokah Blega Bangkalan Kindergarten, thereby increasing students' awareness and knowledge as well as their habit of understanding the importance of maintaining dental and oral health.

## Ethics approval and consent to participate

This study has obtained ethical approval from the school and parents of students through written permission letters. Each child participated in the counselling activities with the consent of their guardians. The researchers ensured that all educational activities were conducted using a child-friendly approach and without coercion. The confidentiality of respondent data was strictly maintained, and the research results were used solely for academic purposes.

## References

- Adventus, Marsanti Raja, Dony Mahendra, and I Made Merta Jaya. 2019. "Buku Ajar Promosi Kesehatan." *Program Studi Diploma Tiga Keperawatan Fakultas Vokasi UKI*, 1–107. [\[Publisher\]](#)
- Andriyani, Andriyani, Nikite Putri, Nurmalia Lusida, Ernyasih Ernyasih, Dede Rosyada, Suherman Jaksa, and Abul Ala Al-Maududi. 2023. "Faktor Yang Berhubungan Dengan Perilaku Orangtua Dalam Pencegahan Karies Gigi Anak Di Jakarta Timur." *Jurnal Kedokteran Dan Kesehatan* 19 (1): 11. [\[Crossref\]](#) [\[Publisher\]](#)
- Anggraini, Lilia, and Haryono Yuwono. 2022. "Improve Creativity of Early Children Age with Art Activities." *Early Childhood Research Journal (ECRJ)* 5 (1): 42–56. [\[Crossref\]](#) [\[Publisher\]](#)
- Dharmawan, I Made Yudha, R. Harry Dharmawan Setyawardhana, Muhammad Yanuar Ichrom Nahzi, Diana Wibowo, and Ika Kusuma Wardani. 2024. "Hubungan Pola Asuh Orang Tua Dan Karies Anak Usia Prasekolah." *Dentin Jurnal Kedokteran Gigi VIII* (1): 6–11. [\[Publisher\]](#)
- Dumitrescu, Ramona, Ruxandra Sava-Rosianu, Daniela Jumanca, Octavia Balean, Lia Raluca Damian, Guglielmo Giuseppe Campus, Laurentiu Maricutoiu, et al. 2022. "Dental Caries, Oral Health Behavior, and Living Conditions in 6–8-Year-Old Romanian School Children." *Children* 9 (6): 1–11. [\[Crossref\]](#) [\[Publisher\]](#)
- Fadjeri, Indrayati, Rini Widiyastuti, and Erwin Erwin. 2023. "Edukasi Sikagi Pada Anak Prasekolah Di Wilayah Pasar Minggu, Cilandak Jakarta Selatan." *GEMAKES: Jurnal Pengabdian Kepada Masyarakat* 3 (2): 262–67. [\[Crossref\]](#) [\[Publisher\]](#)
- Fauziyyah, Siti Azizi, Ifdil Ifdil, and Yola Eka Putri. 2020. "Art Therapy Sebagai Penyaluran Emosi Anak." *SCHOULID: Indonesian Journal of School Counseling* 5 (3): 109. [\[Crossref\]](#) [\[Publisher\]](#)
- Ferent, Paula. 2021. "The Importance of Art Therapy In Preschoolers Personal Development," 481–90. [\[Crossref\]](#) [\[Publisher\]](#)
- Firmansyah, Deri, and Dede. 2022. "Teknik Pengambilan Sampel Umum Dalam Metodologi." *Jurnal Ilmiah Pendidikan Holistik (JIPH)* 1 (2): 85–114. [\[Crossref\]](#) [\[Publisher\]](#)
- Fitri Shinta Muliya, and Fida' Husain. 2022. "Gambaran Pengetahuan Dan Sikap Orang Tua Tentang Makanan Kariogenik Pada Anak Usia Prasekolah Yang Menyebabkan Karies Gigi Di Tk 'Aisyiyah Karangasem." *Sehat Rakyat: Jurnal Kesehatan Masyarakat* 1 (4): 363–69. [\[Crossref\]](#) [\[Publisher\]](#)
- Khairiah, Miratin, Bagian Ilmu, Kedokteran Gigi, Ricky Amran, and Hanim Khalida. 2024. "Effectiveness of Art Therapy Methods on Tooth Brushing Behaviour of Preschool Children in Padang City Efektivitas Metode Art Therapy Terhadap Perilaku Menyikat Gigi Dari Anak Usia

- Prasekolah Di Kota Padang” 13 (April): 31–34. [[Crossref](#)] [[Publisher](#)]
- Laily Prima Monica, Maria Ulfa, Ika Agustina. 2023. “Hubungan Stimulasi Alat Permainan Edukatif Dengan Perkembangan Anak Pra Sekolah.” *Indonesian Journal of Professional Nursing* 4 (1): 60. [[Crossref](#)] [[Publisher](#)]
- Lestari, Putri Dia, Ratih Larasati, and Imam Sarwo Edi. 2023. “Pengaruh Penggunaan Media Pop-Up Picture Book Terhadap Keterampilan Menggosok Gigi Anak Pra-Sekolah.” *Jurnal Ilmiah Keperawatan Gigi* 4 (3): 138–49.
- Mallineni, Sreekanth Kumar, Abdullah Alassaf, Basim Almulhim, and Sara Alghamdi. 2023. “Influence of Tooth Brushing and Previous Dental Visits on Dental Caries Status among Saudi Arabian Children.” *Children* 10 (3): 1–11. [[Crossref](#)] [[Publisher](#)]
- Mardelita, Sisca, Cut Ratna Keumala, Fahira Safriani, and Poltekkes Kemenkes Aceh. 2024. “Pengaruh Penyuluhan Media Dental Story Sticker Terhadap Tingkat Pengetahuan Kesehatan Gigi Dan Mulut Pada Siswa Sdn 22 Banda Aceh the Effect of Dental Story Sticker Media Counseling on the Level of Knowledge of Dental and Oral Health in Students of Sdn 22.” *Jurnal Kesehatan Gigi Dan Mulut (JKGM)* 6 (1): 53–59. [[Crossref](#)] [[Publisher](#)]
- Murthy, ArchanaKrishna, Nusrath Fareed, and SS Hiremath. 2020. “Coloring Sheets for Oral Health Education on Prevention of Dental Caries in Children: Development and Evaluation.” *Journal of Indian Association of Public Health Dentistry* 18 (3): 216. [[Crossref](#)] [[Publisher](#)]
- Nyoman, Ni, Dewi Supariani, Ni Wayan Arini, and Asep Arifin Senjaya. 2024. “Tingkat Pengetahuan Tentang Pemeliharaan Kesehatan Gigi Dan Mulut Serta Keterampilan Menyikat Gigi Pada Siswa Kelas V SD N 10 Sumerta Denpasar Timur Tahun 2023.” *Jurnal Kesehatan Gigi* 11:32–39. [[Crossref](#)] [[Publisher](#)]
- Pariati, and Nur Aini Lanasari. 2021. “Kebersihan Gigi Dan Mulut Terhadap Terjadinya Karies Pada Anak Sekolah Dasar Di Makassar.” *Media Kesehatan Gigi: Politeknik Kesehatan Makassar* 20 (1): 49–54. [[Crossref](#)] [[Publisher](#)]
- Regina, Ghiza Sekar, Siti Fatimah, Eliza Herijulianti, and Rr. Megananda Hiranya Putri. 2023. “Effect of Health Education Media MEGI (Coloring and Brushing Teeth) on Dental and Oral Hygiene in Elementary School Students.” *Dental Therapist Journal* 5 (2): 44–49. [[Crossref](#)] [[Publisher](#)]
- Riolina, Ana, and Arin Oktaviani S. 2022. *Kesehatan Gigi Masyarakat*. 1st ed. Muhammadiyah University Press. [[Publisher](#)]
- Risqi Amelia, Zulfa, Imam Sarwo Edi, and Sunomo Hadi. 2020. “Pengetahuan Ibu Tentang Karies Gigi Anak Prasekolah.” *Jurnal Skala Kesehatan Politeknik Kesehatan Banjarmasin* 11 (2): 90–96. [[Crossref](#)] [[Publisher](#)]
- Rosmalia, Dewi, Sri Suci Hidayati, and Zulfikri Zulfikri. 2023. “Gambaran Indeks Def-t Pada Anak Prasekolah Di Kelurahan Puhun Pintu Kabun Kecamatan Mandiangin Koto Selayan Kota Bukittinggi.” *Jurnal Sehat Mandiri* 18 (2): 304–10. [[Crossref](#)] [[Publisher](#)]
- Sağdıç, Serpil, and Zeynep Öztürk. 2025. “Evaluation of Turkish Illustrated Story Books on Oral Hygiene.” *BMC Oral Health* 25 (1). [[Crossref](#)] [[Publisher](#)]
- Salfiyadi, Teuku, and Rasidah. 2024. *Manajemen Pelayanan Asuhan Keperawatan Gigi*. 1st ed. PT Nasya Expanding Management. [[Publisher](#)]
- Sultana, Sharmin, Parvin Mst Sonia, Taohidul Islam, and Emdadul Haque Chowdhury. 2022. “Prevalence of Dental Caries in Children in Mymensingh and Its,” 1–16. [[Crossref](#)] [[Publisher](#)]
- Tameon, Josinta Elsiana Maryanti. 2021. “Hubungan Pengetahuan Anak Dengan Karies Gigi Anak Kelas VA SDI Raden Paku Surabaya Tahun 2020.” *Jurnal Skala Kesehatan* 12 (1): 8–19. [[Crossref](#)] [[Publisher](#)]
- Umarina, Ratnawati. 2024. “Gambaran Perkembangan Anak Usia Prasekolah Di TK Islam Futuhiyyah Doro.” *OBAT: Jurnal Riset Ilmu Farmasi Dan Kesehatan* 2 (4). [[Crossref](#)] [[Publisher](#)]