

Improvement of Students' Knowledge, Attitudes, and Behaviors Regarding Dental Health through Animated Video Education, Tooth Brushing Practice, and Little Dentists Formation

Veronica Angelia^{*1}, Siti Nurhayati², Azzahra Aulia Harda², Tiara Nirmala Welli², Karina Nola Sinamo³, Ecia Meilonna Koka⁴, Nur Ulina W. Sebayang⁵

¹Department of Prosthodontics, Faculty of Dentistry, Universitas Sumatera Utara, Medan, Indonesia

²Undergraduate Program of Dentistry, Faculty of Dentistry, Universitas Sumatera Utara, Medan, Indonesia

³Food Technology Study Program, Faculty of Agriculture, Universitas Sumatera Utara, Medan, Indonesia

⁴Nutrition Study Program, Faculty of Public Health, Universitas Sumatera Utara, Medan, Indonesia

⁵Agrotechnology Study Program, Faculty of Agriculture, Universitas Sumatera Utara, Medan, Indonesia

*Corresponding Author: veronica_angelia@usu.ac.id

ARTICLE INFO

Article history:

Received 26th April 2026

Revised 15th May 2026

Accepted 30th May 2026

Available online

<https://talenta.usu.ac.id/jst/index>

E-ISSN: 2621-4830

P-ISSN: 2621-2560

How to cite:

V. Angelia, S. Nurhayati, A.A. Harda, T.N. Welli, K.N. Sinamo, E.M. Koka, N.U.W. Sebayang "Improvement of Students' Knowledge, Attitudes, and Behaviors Regarding Dental Health through Animated Video education, tooth brushing Practices, and Little Dentists Formation," *Journal Saintech Transfer*, vol. 09, no. 01. pp. 103-112, 2026

ABSTRACT

Dental health issues, especially dental caries, are a significant concern among Indonesian elementary school children, with the highest prevalence found in those aged 10–14 years. Poor dental hygiene, irregular tooth brushing, and high sugar consumption are major contributing factors. This study aimed to evaluate the effectiveness of animated video education, proper tooth brushing practices, and the establishment of "Little Dentists" in improving dental health knowledge, attitudes, and behaviors among fifth-grade students at SDN 068003 Medan. A quasi-experimental design with a pretest-posttest approach was used, involving 51 students. The intervention included animated video education, toothbrushing training, and the formation of Little Dentists, with data collected using an 18-item questionnaire to assess students' knowledge, attitudes, and behaviors before and after the intervention. The results showed significant improvements in students' knowledge (from 57% to 96%), attitudes (from 78% to 100%), and behaviors (from 10% to 71%) following the intervention. The Wilcoxon Signed-Rank Test yielded a p-value of 0.001, confirming the effectiveness of the intervention. In conclusion, the use of animated video education, proper tooth brushing practices, and the establishment of Little Dentists were effective strategies for improving dental health knowledge, attitudes, and behaviors among elementary school students.

Keyword: Dental Hygiene, Tooth Brushing, Sugar Consumption.

ABSTRAK

Masalah kesehatan gigi dan mulut, khususnya karies gigi, masih menjadi perhatian utama pada anak sekolah dasar di Indonesia, dengan prevalensi tertinggi yang ditemukan pada kelompok usia 10–14 tahun. Kebersihan gigi yang buruk, kebiasaan menyikat gigi yang tidak teratur, serta konsumsi gula yang tinggi merupakan faktor utama penyebabnya. Penelitian ini bertujuan untuk mengevaluasi efektivitas edukasi video animasi, praktik menyikat gigi yang benar, serta pembentukan "Dokter Kecil" dalam meningkatkan pengetahuan, sikap, dan perilaku kesehatan gigi pada siswa kelas V di SDN 068003 Medan. Penelitian ini menggunakan desain kuasi-eksperimental dengan pendekatan pra-test–pascatest yang melibatkan 51 siswa. Intervensi yang diberikan meliputi edukasi menggunakan video animasi, pelatihan menyikat gigi yang benar, serta pembentukan Dokter Kecil. Pengumpulan data dilakukan menggunakan kuesioner berisi 18 butir pertanyaan untuk menilai pengetahuan, sikap, dan perilaku siswa sebelum dan sesudah intervensi. Hasil penelitian menunjukkan adanya peningkatan yang signifikan pada pengetahuan siswa (dari 57% menjadi 96%), sikap (dari 78% menjadi 100%), dan perilaku (dari 10% menjadi 71%) setelah



This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International.

<https://doi.org/10.32734/jst.v9i1.25134>

intervensi. Uji Wilcoxon Signed-Rank menghasilkan nilai $p = 0,001$, yang menunjukkan bahwa intervensi yang diberikan efektif. Sebagai simpulan, penggunaan edukasi video animasi, praktik menyikat gigi yang benar, serta pembentukan Dokter Kecil terbukti efektif dalam meningkatkan pengetahuan, sikap, dan perilaku kesehatan gigi dan mulut pada siswa sekolah dasar.

Keyword: Kebersihan Gigi, Kebiasaan Menyikat Gigi, Konsumsi Gula.

1. Introduction

The problem of oral health, for example, dental caries, is still a big issue among Indonesian elementary school pupils. Data from the Indonesian Health Survey (SKI) 2023 reported that 43.6% of the population aged ≥ 3 years experienced dental and oral symptoms in the last year, with the highest prevalence in the 10–14 years age group [1]. The high rate of caries in children in Indonesia is caused by inadequate usage of dental health services, irregular or inappropriate teeth brushing behaviors, and the intake of high-sugar cariogenic foods such as donuts, chocolate, biscuits, and candies. Furthermore, these dental health problems have a direct effect on the quality of life of the children, physically and psychosocially. Dental and oral problems can disrupt masticatory function (chewing) and can affect a child's nutritional status and growth. Poor dental health is also related to reduced self-esteem, increased school absenteeism, lower concentration in learning, and potentially lower academic achievement [2].

Healthy lifestyle behaviors, including oral and dental health, should be instilled early, especially in elementary school years, which are a vital age for building long-term habits [3]. In this respect, schools are well-placed as a strategic tool for improving dental health. Schools are a location where children spend a lot of time and are a perfect environment for implanting healthy lifestyle habits such as proper oral hygiene. School-based interventions such as dental hygiene education programs have been shown to increase children's knowledge and behavior in caring for their oral health and lower the prevalence of caries in school-aged children [4]. Moreover, a multi-component health promotion approach including teachers, parents, healthcare professionals, and school policies has been shown to be more effective in establishing sustainable healthy lifestyle practices [5].

But how education is done is really important. Traditional lecture methods are frequently perceived as less engaging, with minimal interaction and a lack of a two-way flow. Research at SDN 04 Air Pura, Pesisir Selatan Regency demonstrates that although knowledge increased following counseling, its impact on behavior change was still restricted [6]. Hence, there is a need for innovative oral health education that is more engaging and effective. Now, educational techniques that include visual media, such as animated videos, are regarded as more appropriate and effective in engaging children. It has been demonstrated that animated videos can promote children's awareness of the need for oral hygiene and improve their toothbrushing practices [7]. This instruction might be supplemented with life skills training that has been demonstrated to be successful in increasing kids' independence, discipline, and sense of responsibility for their own health [8].

Sustainability methods in education need to be impactful in the long run. One of the best ways is to create health cadres in schools called "Little Dentists". "Little Dentists" are pupils who are given basic instruction in dental health and who are responsible for passing on dental health knowledge to their classmates. They might also be an adjunct to health workers in the promotion of health in the school setting. Studies have shown that the function of the "Little Dentist" is effective in enhancing the health knowledge and behavior of students, especially when they are well-trained and the program is run continually [9].

Peer-driven therapies, such as the role of "Little Dentist," are even suggested to be more beneficial than interventions led only by adults. A study at MIN Bukloh, Sukamakmur District, Aceh Besar Regency showed a strong association between the role of "Little Dentist" and the oral hygiene status of students ($p = 0.018$), and had a substantial effect in reducing the OHIS score [10]. Also, schools play vital roles in forming students' character and habits, including the habit of promoting healthy teeth and gums. So, when the school culture adopts common routines and values such as teeth brushing on a regular basis, then healthy living practices become part of a child's character [11].

The effectiveness of dental health education using visual media and the involvement of "Little Dentist" has been proven separately, but there has been no specific study that evaluates the synergy of the two in an integrated framework, especially in the local primary school context such as SDN 068003 Medan. The

combination of visual educational tools with peer-led "Little Dentist" training offers great promise for persistent behavior modification in oral hygiene practices of elementary students.

This study was conducted in SDN 068003 Medan as the study site because there were critical baseline conditions indicating an urgent need for oral health promotion. The school is based in Medan, North Sumatra, and serves mostly kids from low-to-middle socioeconomic families. Preliminary health assessments indicated a significant frequency of untreated dental cavities and poor toothbrushing practices among the children. This site selection offered a powerful basis for intervention and, at the same time, an unconfounded baseline setting in which to assess educational outcomes.

Based on the above background, the objective of this study was to analyze the effectiveness of dental health education using animated videos, good tooth brushing practices, and the formation of "Little Dentist" cadres in increasing the knowledge, attitudes, and dental health behaviors of fifth-grade students at SDN 068003 Medan. It is envisaged that using this method can make a substantial contribution to improving children's oral health in primary schools and serve as a platform for the sustainable implementation of dental health promotion programs in the school environment.

2. Methods

This study employed a quantitative method with a design of quasi-experimental one-group pretest-posttest design, which is a quasi-experiment that has only one group of participants; there is no control group, and the participants are provided treatment or intervention. This strategy allows for the measurement before and after the intervention to determine the changes that happened. The intervention was conducted for 4 weeks in September 2025 at SDN 068003 Medan. The population of the research was all fifth-grade students of SDN 068003 Medan. The entire population was the fifth grade of SDN 068003 Medan with 51 pupils, and the sample size was established by utilizing the total population. The sampling used purposive sampling of 51 students who were willing to become samples in all series of educational and practical activities.

The data were collected by a questionnaire consisting of 18 questions about students' knowledge, attitudes, and practices around oral and dental health. The questionnaire was administered as a pretest (before the intervention) and posttest (after the intervention) to assess the changes that occurred.

Implementation steps.

1. Pretest: An initial examination of the students' knowledge, attitudes, and behaviors regarding oral health was completed using a standardized questionnaire before the intervention.
2. Education thru animation film: An animated video of about 15 minutes in duration was shown to educate students about oral health. This film provided information on the significance of preserving dental health, effective tooth brushing practices, and the consequences of eating high-sugar foods. After the film, there was a question-and-answer period to make sure the pupils understood what was presented.
3. Tooth brushing training: The kids were given hands-on training on the correct method of brushing their teeth after viewing the animated film. A dentist gave a demonstration, and pupils were required to practice teeth brushing techniques in groups under supervision.
4. Training of Little Dentist Cadres: From the student group, 6 students were selected as "Little Dentist" cadres, depending on several factors such as interest, communication skills, and activeness. In 2 training sessions of 1 hour each, these cadres were trained further on how to conduct dental health education and peer-to-peer education strategies.
5. Activities of Promotion by Little Dentist: After training, the "Little Dentist" cadres routinely organized dental health education activities for their classmates for 4 weeks. The activities included urging their peers to brush their teeth, giving a little instruction, and inspecting their own oral hygiene on their own under the observation of teachers and dentists.
6. Final data collection (Posttest): The students' knowledge, attitudes, and behaviors related to oral health were reassessed after 4 weeks with the same questionnaire used in the pretest. The data collected in the posttest were evaluated to find out the changes that occurred after the intervention.

The pretest and posttest data will be evaluated using the paired t-test (for normally distributed data) or the Wilcoxon Signed-Rank Test (for non-normally distributed data). This test is intended to identify the significant differences in knowledge, attitude, and behavior of students before and after the intervention. Data analysis was performed using SPSS Statistics 25.

3. Results and Discussion

The study was conducted at SDN 068003 Medan, which is strategically located because the eastern, western, southern, and northern borders are residential houses, so that students are easy to reach it.

3.1 Characteristics of Subjects

The demographic features of 5th-grade students at SDN 068003 Medan indicate a balanced distribution between boys (51%) and girls (49%), with the majority aged 10 years (53%), followed by 11 years (41%) and 12 years (6%) (Table 1). This age range is a critical stage for school-aged children as cognitive development helps them to more effectively absorb, retain, and process health-related information. Oral health maintenance at school age is a vital part of overall child health and development, laying the foundation for lifelong hygiene behaviors [12]. There is significant global evidence supporting the introduction of targeted health interventions directly inside the primary school setting. Interventions in primary schools in low- and middle-income countries have proven to be highly effective in increasing children's knowledge and habits related to oral health [4]. In addition, personalized health education for school-aged children leads to considerable improvements in their comprehension of appropriate dental care practices [13]. Thus, the 5th grade (10-12 years old) pupils are in an opportune educational window to expand their knowledge, positive attitudes, and establish sustainable dental hygiene habits in the school.

Table 1. Frequency distribution of student characteristics by age and gender

Age		
10 years	27	53%
11 years	21	41%
12 years	3	6%
Gender		
Boy	26	51%
Girl	25	49%

3.2 Students' Knowledge of Oral and Dental Health

Figure 1 shows that before education (pretest), the majority of students had good knowledge of good oral and dental health, with 29 students (57%), but after education (posttest), the number of students with good knowledge significantly increased to 49 students (96%). This result indicates that the education provided had a positive impact on increasing students' knowledge.

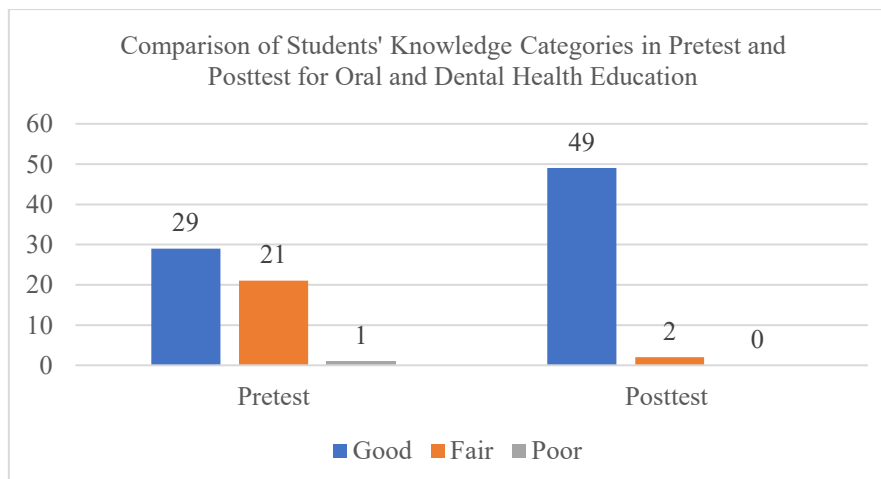


Figure 1. Comparison of students' knowledge categories in pretest and posttest for oral and dental health education.

This significant improvement indicates that the use of animated videos, correct teeth brushing practice, and the creation of the “Little Dentist” cadres have effectively improved students’ comprehension of oral health. The increase in students’ knowledge from 57% to 96% is very substantial. This proves the effectiveness of animation-based educational media to deliver complex information on the importance of keeping teeth and mouth healthy. This is consistent with earlier studies which showed that educational movies can increase children’s understanding of oral hygiene in a more engaging and understandable way [14].

The data from this study show the effectiveness of direct educational programs such as interactive animated videos in increasing children’s knowledge, which is important because audiovisual media can involve multiple senses at the same time, present material in a more attractive way, and improve learners’ attention and focus, which helps children understand and accept knowledge about proper tooth care and brushing techniques [15].

3.3 Students’ Attitudes Towards Oral and Dental Health

Figure 2 demonstrates that before education, the majority of pupils, 40 students (78%), had a favorable attitude concerning oral health. The 51 pupils (100%) had a positive attitude toward dental health after schooling. This shows that education not only enhances knowledge, but also changes students’ perceptions toward the significance of dental and oral health. This change can be seen as a direct effect of the success of the educational intervention in engaging the kids and developing a good attitude toward oral hygiene. This finding is in line with the literature, which has shown that education can develop and affect attitudes toward health, specifically oral health [16].

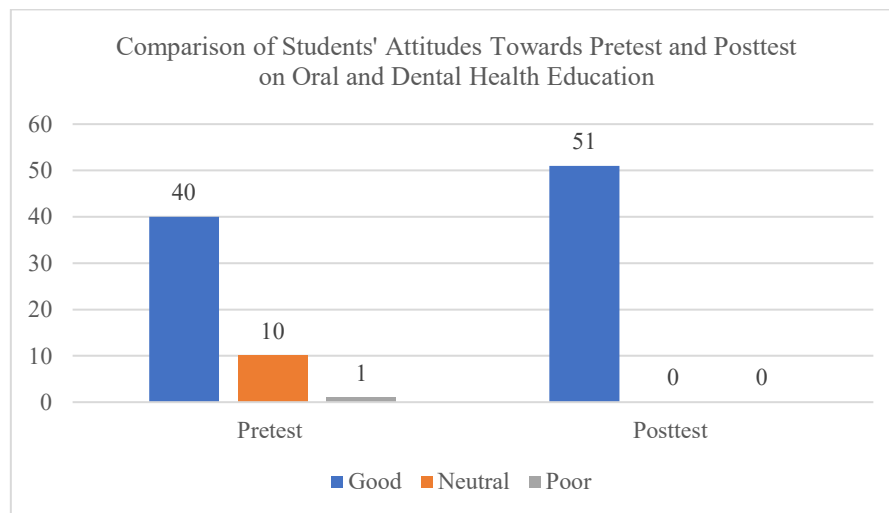


Figure 2. Comparison of student attitudes towards pretest and posttest on oral and dental health education.

The change in attitude is in accordance with previous research, which has demonstrated that instruction using audiovisual means can increase children’s awareness and positive attitude about the value of sustaining dental health [17]. Therefore, more engaging tactics such as animated videos and live demonstrations are effective in inducing behavior modification.

3.4 Students’ Behavior in Maintaining Oral and Dental Health

Based on Figure 3, the majority of students before education had good oral and dental health maintenance behavior, namely 31 students (61%), and after education, the number of students who had good conduct in caring for their teeth increased to 36 students (71%). This shows a good shift in behavior after the intervention. This improvement shows that education affects not only knowledge and attitude but can also directly influence students’ behavior positively, and these healthy habits are very important in the prevention of future dental health problems. Using interactive approaches like this can motivate youngsters to follow good habits more often, as shown in a study at SDN 101827 [18].

In addition, behavior change models such as the Health Belief Model and the Theory of Planned Behavior suggest that changes in knowledge and attitudes are also crucial preconditions for behavior change [19]. The results of this study are in favor of this theoretical framework, as the intervention was able to boost the students' health behaviors by enhancing knowledge and attitudes regarding oral health. This is also in line with earlier studies which have shown how health education interventions can lead to improved health behaviors, notably in oral hygiene practices [20].

However, remember that after the intervention, 29% of students still had reasonably good dental health maintenance behaviors. This implies that while the intervention had a great effect, more efforts may be needed to induce more sustainable behavioral changes. Several studies have confirmed that changes in health behavior need reinforcement and follow-up continuously to be able to maintain the effect in the long run. Such sustainability will be more optimal if accompanied by regular supervision and monitoring by health care specialists and active collaboration with parents and school staff. The collaborative nature of this approach is essential in developing excellent oral health behaviors in adolescents, and the educational interventions given will have a lasting effect [21].

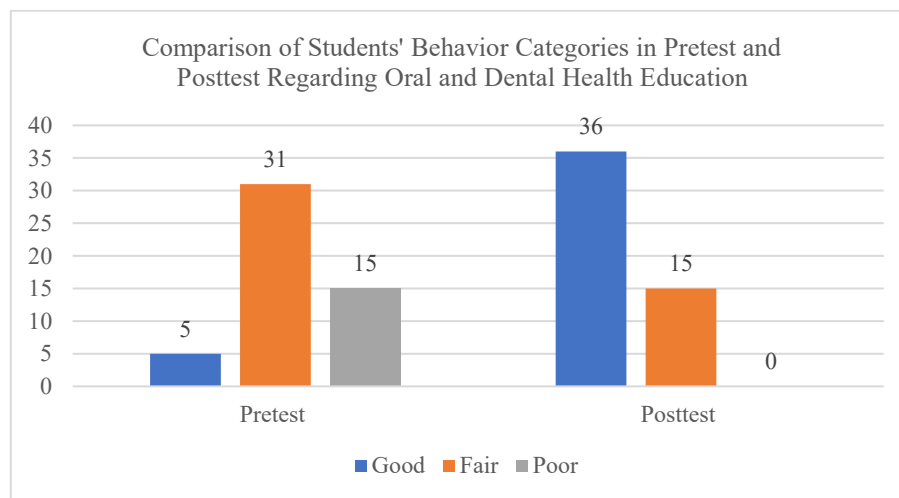


Figure 3. Comparison of students' behavior categories in pretest and posttest regarding oral and dental health education

3.4.1 Knowledge

Results of the Wilcoxon Signed-Rank Test (Table 2) indicated a substantial increase in knowledge scores following the educational session ($p=0.001$). Of the 51 participants, 39 students had higher posttest results (positive ranks), 12 students had no change (ties), and none of the students had lower scores (negative ranks). The results showed that the educational intervention had a considerable impact on students' awareness of oral health.

Table 2. Results of the Wilcoxon Signed-Rank Test Analysis on pretest and posttest scores of students' knowledge about oral and dental health

Student Characteristic	N	Mean Rank	Sum of Rank	p
Negative Rank	0	0.00	0.00	0.001
Positive Rank	39	20.00	780.00	
Ties	12	0.00	0.00	
Total	51			

This significant result confirms that the educational intervention played an important role in improving students' knowledge of oral and dental health. This finding is supported by previous studies showing that interactive learning methods involving peer discussions, visual aids, and hands-on activities play a significant role in improving health information retention among students. This is because peer interaction allows for the exchange of information, social support, and the formation of healthy behaviors through modelling, where students tend to imitate the behaviors of health promoters such as young dentists who serve as role models in

the transfer of knowledge and the habituation of oral and dental health behaviors in the school environment [22, 23]. The significant difference observed between pretest and posttest scores ($p = 0.000$) supports the statement that this intervention played an important role in improving students' knowledge of oral and dental health practices, highlighting the importance of school-based interventions in building health awareness.

3.4.2. Attitude

Based on the results of the Wilcoxon Signed-Rank Test in Table 3, it can be seen that most students experienced an increase in their attitude scores after the intervention. Out of 51 students, 28 showed improvement (positive ranks), 1 experienced a decline (negative ranks), and 22 showed no change (ties). The test results showed a significant difference between the pretest and posttest attitude scores with significance ($p=0.001$). Thus, it can be concluded that there is an effect of providing educational intervention on students' attitudes.

Table 3. Results of the Wilcoxon Signed-Rank Test Analysis on pretest and posttest scores of students' attitudes towards oral and dental health students' characteristics

Student Characteristic	N	Mean Rank	Sum of Rank	p
Negative Rank	1	5.50	5.50	0.001
Positive Rank	28	15.34	429.50	
Ties	22	0.00	0.00	
Total	51			

This finding demonstrates that health education is important not only to increase knowledge but also to develop favorable attitudes toward oral health. A positive attitude toward health practices is frequently seen as a vital first step in transitioning to healthier actions. This is supported by the findings of this study, where the intervention led to favorable changes in students' attitudes toward oral health. This demonstrates that health education is necessary in boosting students' knowledge and forming positive attitudes that ultimately change their views and beliefs about oral health practices [24].

In particular, this intervention may have provided a greater understanding of the importance of dental health, not just for looks but for overall health, and this may explain the favorable change in attitudes. Oral health is an important component of general health, and risk factors for oral disorders are associated with a variety of systemic illnesses and their impact on overall well-being. Awareness of the wider health consequences of oral hygiene practices may help to form more positive views and attitudes toward oral health behaviors, even amongst children [25].

3.4.3. Behavior

The Wilcoxon Signed-Rank Test results are presented in Table 4 and showed that the majority of students exhibited a rise in behavior scores after the intervention. Positive ranks were observed in 45 out of 51 students. No pupils declined (negative ranks), and 6 tied (no change). The test findings demonstrate that there is a substantial difference between pretest and posttest attitude scores with significance ($p=0.001$). Therefore, it may be concluded that to provide instructional intervention on student behavior.

Table 4. Results of the Wilcoxon Signed-Rank Test Analysis on pretest and posttest scores of students' behavior regarding oral and dental health

Students' behavior	N	Mean Rank	Sum of Rank	p
Negative Rank	0	0.00	0.00	0.001
Positive Rank	45	23.00	1035.00	
Ties	6	0.00	0.00	
Total	51			

The results indicate the effectiveness of the intervention in encouraging good behavioral change. Importantly, the formation of "Little Dentist" cadres appeared to be a key factor in this outcome, because these pupils served as peer educators and change agents in the school setting. Students were fully engaged in the program to learn and share knowledge with their peers, reinforcing health-promoting behaviors through social

modeling. This result is consistent with earlier reports which have shown that training of the “Little Dentist” cadres dramatically improves the students’ knowledge and practice of appropriate oral and dental health behaviors [26].

The Wilcoxon test data for all three variables (knowledge, attitude, and conduct) indicated significant improvement following the intervention. All the p-values for knowledge, attitude, and behavior were 0.001, suggesting significant change in all these aspects. The findings provide solid evidence that the educational intervention was successful in achieving its goals and in having a long-term impact on students’ health-related behaviors. This is in line with earlier studies that show the positive effects of educational interventions on health knowledge, attitudes, and practices [13, 19].

Although the outcomes of this study are promising, there are some limitations that need to be considered. One of these is the relatively small sample size, which is only 51 students, which can affect the generalizability of the findings. Further study involving a bigger and more diverse population will help confirm these outcomes and offer a broader insight into the impact of oral health education. Additionally, this study only relies on pretest and posttest data from the same cohort, without including a control group to compare the effects of the intervention. A study involving a control group would strengthen the conclusions by separating the intervention's effects from other factors that might influence the results.

Posttest results indicated considerable improvements in knowledge, attitudes, and behaviors related to oral health, but it has to be seen whether these changes would be sustained in the long term. Longitudinal research on the long-term impacts of such interventions will provide further insight into the sustainability of behavior changes and potential long-term health outcomes [26]. Finally, investigating how family engagement can improve health education and affect student behavior might provide key insights into how to increase the effectiveness of interventions in schools.

The findings of this study give useful evidence in favor of the efficacy of school-based oral health education programs. The favorable outcomes seen in student knowledge, attitudes, and behaviors relating to oral health serve as a compelling rationale for the integration of oral health education as a standard part of the school curriculum. The present study further emphasizes the significance of early intervention in changing children’s health behaviors and illustrates the need for ongoing health education initiatives to improve the public’s health in the long run.

To summarize, the study shows that an animated video-based educational strategy and training for young dentists can improve students' knowledge, attitudes, and oral health behaviors. But there are numerous things to be considered for the sustainability of this program, such as the significance of parental involvement to promote children’s healthy behaviors at home and expanding access to dental health services in schools. Therefore, the integration of this program with School Health Unit operations and cooperation with community health centers might be a strategic move to ensure that oral health education can continue and have a stronger impact in the future.

4. Conclusion

Animated video-based education with demonstrations, toothbrushing practice, and training for young dentists is an effective method for improving students’ knowledge, attitudes, and behaviors regarding oral health. It is recommended to integrate the program into the operations of the School Health Unit and to collaborate with the health center to ensure sustainability.

5. Acknowledgments

The author would like to thank the Institute for Community Service at Universitas Sumatera Utara for their support in providing funding for this article through the Non-PNBP Funding Source Community Service Program for the 2025 fiscal year, as indicated in the Community Service Implementation Assignment Agreement Letter (Health Service Theme, Number: 205/UN5.4.11.K/Contract/PM.01.02/2025). Special thanks also go to the principal and teachers of SDN 068003 for their important collaboration and assistance in the success of implementing this initiative.

References

- [1] Kementerian Kesehatan Republik Indonesia, *Survei Kesehatan Indonesia 2023*. Jakarta: Kementerian Kesehatan Republik Indonesia, 2023.
- [2] D. Laiya, L. Boekoesoe, and L. Kadir, “Faktor risiko kejadian karies gigi pada anak sekolah di SDN 16 Limboto Barat, Kabupaten Gorontalo,” *Health Information: Jurnal Penelitian*, vol. 15, no. 2, p. 1160, 2023.
- [3] A. Nazari, M. Hajhashemi, S. R. Safavi, R. Ataei, and M. Hosseinnia, “Health promotion theory-based educational interventions for improving oral health in children and adolescents: A systematic review and meta-analysis,” *BMC Oral Health*, vol. 25, no. 1, p. 1153, 2025.
- [4] P. Aker, S. E. Kennedy, R. Lingam, M. J. Obwolo, A. E. Schutte, and R. Richmond, “Effectiveness of primary school-based interventions in improving oral health of children in low- and middle-income countries: A systematic review and meta-analysis,” *BMC Oral Health*, vol. 22, no. 1, p. 264, 2022.
- [5] J. Zurek and C. Laaksonen, “Effectiveness of health promotion interventions in primary schools—A mixed methods literature review,” *Healthcare*, vol. 11, no. 13, p. 1817, 2023.
- [6] A. Arnetty, I. Ifitri, A. Warman, E. P. A. Anggraini, and A. Amiruddin, “Perbedaan pengetahuan menyikat gigi melalui penyuluhan dengan metode ceramah dan pemutaran video kartun pada murid sekolah dasar,” *Jurnal SAGO Gizi dan Kesehatan*, vol. 5, no. 3B, pp. 1156–1163, 2024.
- [7] S. E. Sari, H. Farhan, E. Gyamera, and M. D. Paghubasan, “The influence of education using animated videos on dental and oral health behavior in elementary school children,” *Journal of Educational Technology and Learning Creativity*, vol. 3, no. 1, pp. 1–11, 2025.
- [8] W. I. Pawestri, H. Cahyono, and M. A. Muttaqin, “Implementasi practical life skill dalam menumbuhkan rasa kesadaran diri pada anak usia dini,” *Journal of Education Research*, vol. 5, no. 3, pp. 3148–3157, 2024.
- [9] H. Failasufa, F. Fatkhurrohman, R. Kusniati, and E. Wardhana, “Pelatihan dokter kecil untuk peningkatan status kesehatan umum dan kesehatan gigi mulut di wilayah kerja Puskesmas Pegandon Kota Semarang,” *JIPMI*, vol. 2, no. 2, pp. 23–26, 2023.
- [10] M. Farhan and I. Liana, “Hubungan peran dokter kecil dalam program UKGS dengan status kebersihan gigi dan mulut pada murid,” *NASUWAKES: Jurnal Kesehatan Ilmiah*, vol. 15, no. 2, pp. 148–154, 2022.
- [11] R. Juwita, “Pengaruh budaya sekolah terhadap karakter peserta didik di sekolah dasar,” *Jurnal Ilmu Tarbiyah dan Keguruan*, vol. 3, no. 1, pp. 117–124, 2022.
- [12] N. Theresia, F. Rahmawaty, E. I. Sylvia, and A. Yusup, “Kesehatan gigi sangat penting untuk anak usia sekolah,” *Jurnal Forum Kesehatan*, vol. 11, no. 1, pp. 31–37, 2022.
- [13] M. Suri, J. Alfajri, and V. S. Putri, “Pengaruh pendidikan kesehatan terhadap pengetahuan kesehatan gigi pada anak usia sekolah di SD Islam Al-Falah Jambi,” *Jurnal Akademika Baiturrahim Jambi*, vol. 14, no. 1, pp. 49–56, 2025.
- [14] A. Supriatna, K. N. Widyastuti, B. S. Wahyudadi, and N. A. Rahmah, “Penggunaan video edukasi menyikat gigi terhadap pengetahuan dan keterampilan pada siswa sekolah dasar,” *Media Kesehatan Gigi Politeknik Kesehatan Makassar*, vol. 23, no. 1, pp. 10–17, 2024.
- [15] N. F. Husna, T. Widyastuti, Y. Heriyanto, and U. Utami, “Pengaruh penyuluhan menggunakan video interaktif terhadap pengetahuan menyikat gigi dengan teknik roll pada siswa SDN Sukalangu 3 Kabupaten Pandeglang,” *Jurnal Terapi Gigi dan Mulut*, vol. 3, no. 2, pp. 132–141, 2024.
- [16] N. R. S. Agustini, K. S. A. Agustina, N. K. A. D. Utami, and L. D. Bainuan, “Implementasi penggunaan media edukasi video terhadap peningkatan pengetahuan menggosok gigi yang benar pada anak prasekolah melalui edukasi kesehatan gigi dan mulut,” *Jurnal Abdimas ITEKES Bali*, vol. 4, no. 1, pp. 24–31, 2024.
- [17] R. M. Sitalaksmi, U. Kresnadi, K. Mundiratri, F. Utami, and M. N. Ashrin, “Knowledge improvement after dental health education for elementary school students in Surabaya, East Java,” *Indonesian Journal of Dental Medicine*, vol. 6, no. 1, pp. 16–18, 2023.
- [18] A. A. Nasution, F. A. Ghaida, F. Revalina, M. A. Situmorang, and R. Habibuan, “Edukasi pentingnya menjaga kesehatan gigi untuk anak SDN 101827,” *EMAAS: Jurnal Pengabdian kepada Masyarakat*, vol. 7, no. 2, pp. 41–50, 2025.
- [19] I. Abigayl and M. Adiatman, “Integration of gamification and health belief model to promote dental health in school children: A narrative review for digital intervention development,” *Interdental: Jurnal Kedokteran Gigi (IJKG)*, vol. 21, no. 2, pp. 308–318, 2025.
- [20] E. Suryaningsih, M. R. Widayanti, and N. N. W. Lestariana, “Pengaruh penyuluhan kesehatan terhadap sikap siswa dalam perawatan gigi di SDN 601 Menanggal Surabaya,” *Jurnal Ilmiah Keperawatan*, vol. 6, no. 2, pp. 220–224, 2020.

- [21] S. Christiono, R. Amalina, S. Pradopo, and S. N. Yuniar, “Optimasi program usaha kesehatan gigi sekolah (UKGS) melalui edukasi pada dokter gigi kecil di SD IT Asshodihiyah Semarang,” *Karya Kesehatan: Journal of Community Engagement*, vol. 5, no. 1, pp. 6–11, 2024.
- [22] S. Nuryati, S. S. Habibah, and D. Danan, “Pembentukan dan pembekalan dokter cilik sebagai upaya pemberdayaan anak sekolah dasar sebagai promotor kesehatan gigi dan mulut di lingkungan sekolahnya,” *Jurnal Rakat Sehat: Pengabdian Kepada Masyarakat*, vol. 3, no. 1, pp. 58–62, 2024.
- [23] N. P. A. Ratnasari, P. Rejeki, L. A. Rahaswanti, and K. A. Putri, “The effect of little dentist education on the knowledge level of dental and oral health of elementary school children in Badung,” *Makassar Dental Journal*, vol. 13, no. 1, pp. 16–20, 2024.
- [24] Suhartik and E. Kusumawatik, “Edukasi kesehatan gigi dan mulut untuk membangun kebiasaan sehat sejak dini di PAUD At-Taqlwa Mojokampung Bojonegoro,” *JAMAS: Jurnal Abdi Masyarakat*, vol. 3, no. 3, pp. 1054–1060, 2025.
- [25] N. Fatikhah, I. Supriyanto, and S. Restuning, “The effect of using the training module on the knowledge level of small dentist cadres,” *JDHT: Journal of Dental Hygiene and Therapy*, vol. 4, no. 1, pp. 25–31, 2023.
- [26] D. N. P. Pratamawari, G. A. Balgies, and Y. A. B. Buunk-Werkhoven, “How effective is toothbrush education through environmental changes in elementary school children,” *Journal of Dental Hygiene Science*, vol. 22, no. 1, pp. 30–36, 2022.