# ENHANCING ORAL HEALTH LITERACY ON FLOSSING PRACTICES AMONG FOURTH-GRADE STUDENTS AT KARTIKA X-2 ELEMENTARY SCHOOL, PESANGGRAHAN, SOUTH JAKARTA

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## ABSTRACT

Research findings indicate a high prevalence of dental caries (88%) and periodontal disease (74.1%) (Susilawati et al., 2018; Andayani et al., 2021). This suggests that although tooth brushing frequency is relatively high, brushing techniques may not be fully effective, particularly in cleaning interdental areas where plaque commonly accumulates. The school period is a crucial stage in children's growth and development, as it represents a formative phase for establishing knowledge and positive habits that are likely to persist into adulthood (Fauziah et al., 2023). One of the proposed solutions to address this issue is the provision of education on flossing techniques (interdental cleaning) prior to tooth brushing, combined with the optimization of the School Dental Health Unit (UKGS). This program involved 43 fourth-grade students at Kartika X-2 Elementary School, Pesanggrahan. The activity began with a pre-test using a questionnaire to assess students basic understanding of flossing, followed by education and demonstration sessions. The program concluded with a post-test administered to all participants. The results showed that the flossing education was effective in improving students knowledge and literacy related to oral health.

**Keywords:** Literacy, Flossing, Community Partnership Programs, Oral Health

## 1. INTRODUCTION

Optimal oral health relies on the condition of both the teeth and their supporting structures; however, it remains a significant public health challenge in Indonesia, where the prevalence of dental caries reaches 88% and periodontal disease affects 74.1% of the population (Susilawati et al., 2018) (Andayani et al., 2021) . Although regular tooth brushing is a fundamental practice for maintaining oral health (Mehta DS, 2022), it may not adequately clean all tooth surfaces, particularly the interdental areas that are highly susceptible to plaque accumulation. To overcome this limitation, flossing prior to tooth brushing has been shown to be an effective preventive measure (Almassri et al., 2019) (Puspitasari et al., 2023a).

Removing plaque from the interproximal areas is essential for protecting teeth and gums and preventing dental caries and periodontal disease (Avram & Badea, 2006). The American Dental Association (ADA) notes that regular flossing can eliminate up to 80% of plaque (Noble, 2009). However, flossing is still rare in Indonesia, especially among school-aged children. School-age years are critical for growth and habit formation, making this period ideal for establishing practices that persist into adulthood (Fauziah et al., 2023).

Awareness of the importance of flossing needs to be improved, especially among elementary school children. In Indonesia, school-based oral health education is typically delivered through the School Dental Health Unit (UKGS), which includes oral health education, dental services, and the promotion of a healthy school environment (Sardjono et al., 2012). However, in some schools, such as SD Kartika X-2 in Pesanggrahan, South Jakarta, UKGS implementation is still limited. Activities are restricted to a single annual visit, providing dental check-ups only for first-grade students, whereas the program is ideally conducted continuously, at least twice a week.

SD Kartika X-2 welcomed the community partnerships that focus on improving oral health literacy, particularly regarding flossing, which has received relatively less attention. The "Smart GG" program is designed to enhance understanding and practice of flossing among schoolchildren, with the aim of fostering positive habits for maintaining oral health. This initiative also involves dental students, guided by faculty members, in carrying out the *tridharma*

*perguruan tinggi*, specifically community service directed toward communities in need.

These considerations form the background of our community service initiative under the Community Empowerment Scheme, specifically within the scope of Community Partnership Empowerment (PKM), entitled "COMMUNITY PARTNERSHIP PROGRAM FOR CHILDREN'S GROUPS 'SMART GG' AS AN EFFORT TO INCREASE LITERACY IN ORAL HEALTH PRACTICES ON FLOSSING AT SD KARTIKA X-2, PESANGGRAHAN, SOUTH JAKARTA."

## 2. METHOD

In response to the partner's priority needs, the Community Partnership Program for Children, "SMART GG" (Smart Gigi Gusi / Smart Teeth and Gums), targets children aged 9–10 years (4th grade) to improve oral health among this vulnerable age group. By implementing the program through a community partnership approach, it can more effectively address the specific needs of the partner community. As the name suggests, the program emphasizes that oral health involves not only teeth but also the gums, helping children develop a holistic understanding of oral care. Promoting good oral health at this age is expected to positively influence academic performance, supporting cognitive development and intellectual growth. The term "smart" also highlights the program's innovative approach, incorporating up-to-date scientific knowledge and technological advancements. This includes an engaging, age-appropriate oral health card and a visual flossing calendar to facilitate effective flossing practices.

The implementation method for this community service initiative through the "SMART GG" partnership program consists of several stages, including socialization, training, application of "SMART GG" technology, mentoring and evaluation, as well as program sustainability. The socialization stage is carried out with the stakeholders of SD Kartika X-2, including the school principal, teachers, the targeted group of students, along with their parents or caretakers. This comprehensive socialization was deliberately designed based on the proposing team's consideration that children still have limitations in decision-making, including matters related to their oral health. To ensure the program runs effectively and sustainably, fostering the adaptation of positive oral health habits among children, it is essential that the initiative be well understood by the children's entire surrounding community. The socialization was conducted by the proposing team through the delivery of a presentation to all stakeholders regarding the detailed stages of the program. This process aimed to establish a clear understanding and alignment of perspectives with the community service implementers, and concluded with a question-and-answer session to gather feedback on the material presented. The next method involves training, specifically calibration training for the entire community service implementation team, along with the preparation of materials and equipment to be used during execution. In addition, a rehearsal is conducted to ensure that the implementation of the "SMART GG" program at the partner site can proceed smoothly. Calibration training is conducted for oral health survey personnel assigned to assess the dental and oral health status of the target group, children aged 9–10 years namely 4th grade. This training represents an equally essential stage, as it serves to strengthen the preparation for the implementation of the "SMART GG" program at SD Kartika X-2. The subsequent stage involves the implementation of the "SMART GG" children's partnership program technology, which broadly comprises a series of components. The process begins with an oral health survey of the target group, the results of which are detailed and recorded on each students individual oral health card, reflecting their oral health status. Following this, oral health education activities are conducted, with a primary focus on flossing. This includes the use of a 60 × 160 cm educational poster as a visual aid, complemented by a live demonstration of proper flossing techniques. Knowledge assessment is commonly performed through interviews or respondent-adjusted instruments to ensure accuracy. The effectiveness of educational interventions and the level of knowledge gained by participants are evaluated using pre-tests and post-tests administered before and after the session. Several statements included in the pre-test were as follows;

(1) Flossing is the same as toothbrushing;
(2) Flossing is performed using dental floss;
(3) Flossing is done after toothbrushing;
(4) Flossing is best performed in the morning and evening;
(5) Flossing should be done daily, or at least once a day;
(6) Children do not need to floss;
(7) The purpose of flossing is to prevent plaque formation;
(8) Flossing can help remove food debris from the teeth.

Knowledge/literacy was assessed using true or false responses to the eight statements. The activity concludes with a question-and-answer session, providing an opportunity for two-way communication in which participants may raise any questions related to the material presented. Each target participant will receive their own oral health card, thereby providing added value to the children as the partner group and enhancing the overall impact of this community service activity.

| | Soal *Pre* dan *Post Test*<br>Edukasi Mengenai *Flossing*<br>di SD Kartika X-2<br>Pesanggrahan, Jakarta Selatan | No. *Document* | |
|---|---|---|---|
| | | Hari | Rabu |
| | | Tanggal | 18 Sept 2024 |

Nama Siswa :
Jenis Kelamin :
Kelas - Absen :

Keterangan : *Pre Test*

**INSTRUKSI**
**Bacalah setiap soal dengan seksama kemudian tuliskan jawaban anda dengan memberi tanda centang (✓) pada pilihan yang menurut anda paling benar.**

| | Gambaran Pengetahuan Responden terhadap *Dental Floss* dan *Flossing*. | | |
|---|---|---|---|
| **No.** | **PERNYATAAN** | **Benar** | **Salah** |
| 1. | *Flossing* sama dengan menyikat gigi. | | |
| 2. | *Flossing* dilakukan dengan menggunakan *Dental Floss*. | | |
| 3. | *Flossing* dilakukan setelah menyikat gigi. | | |
| 4 | *Flossing* baik dilakukan pada pagi dan malam hari. | | |
| 5. | *Flossing* digunakan setiap hari atau minimal sehari sekali | | |
| 6. | Anak-anak tidak perlu melakukan *Flossing*. | | |
| 7. | Tujuan *Flossing* adalah mencegah pertumbuhan plak. | | |
| 8. | *Flossing* dapat membantu menghilangkan sisa makanan pada gigi. | | |

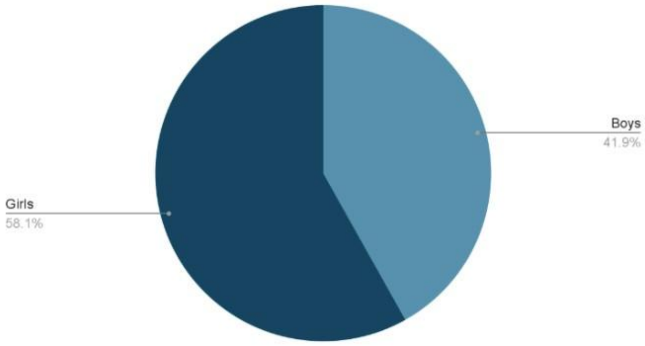
| |
|---|
| Benar (Skor 1) |
| Salah (Skor 0) |
| Total Skor : |

Figure 1. Assesment Sheet

## 3. RESULTS AND DISCUSSION

The "SMART GG" Community Partnership Program for children took place at SD Kartika X-2 Pesanggrahan on Wednesday, September 18, 2024. The event was attended by 43 fourth-grade students from the school, including 18 boys (42%) and 25 girls (58%) (see Diagram 1), with ages ranging from 9 to 10 years.

Diagram 1. Participant Desription by Gender




The implementation stages of the "SMART GG" community service partnership program consist of several steps, such as socialization, training, application of "SMART GG" technology, mentoring, evaluation, and program sustainability. Socialization is carried out with the stakeholders of SD Kartika X-2, including the principal, teachers, target group students, as well as their parents or caretakers. The training phase involves calibration for the entire implementation team, preparation of the necessary tools and materials, and a rehearsal to ensure that the "SMART GG" program at the partner site runs smoothly.

The field activities began with welcoming remarks and an introduction of the proposing team in the classroom of SD Kartika X-2. Following this, participants were asked to complete a pre-test (Figure 1 & 2) using the questionnaires sheet

and their own writing instruments. The purpose of this pre-test was to assess the students baseline knowledge regarding flossing as a method of maintaining oral health.

After the pre-test, the activity continued with the delivery of educational material on flossing, followed by a demonstration of how to use dental floss. A dental and oral examination (Figure 2) was then conducted in relation to the flossing status recorded on the flossing card. Baseline data collected included the frequency of flossing and toothbrushing (morning and evening), the presence or absence of calculus in the interdental and non-interdental areas, and the presence or absence of food debris in the interdental and non-interdental areas

Figure 2. Pre-test.

Figure 3. Oral health examination

The flossing education session was conducted using a visual aid poster (Figure 6) prepared by the proposing team. The content explained the definition of flossing, its benefits, the appropriate timing for flossing, an overview of different types of dental floss, and step-by-step instructions for correct use. The session also included a live demonstration of flossing by both the team and community partners (Figure 5). Students were randomly chosen to practice the flossing technique in front of the class, reinforcing the expectation that they would continue flossing independently at home. The demonstration employed a dental phantom model and floss picks.

Figure 4. Flossing Demonstration

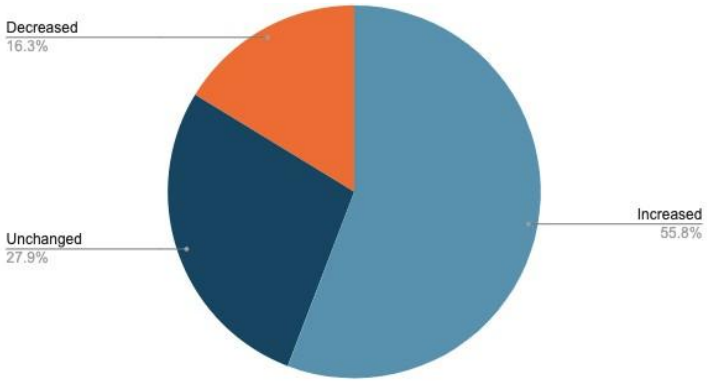

Figure 5. Flossing poster

Figure 6. Flossing education

At the conclusion of the activity, a post-test was administered using questionnaires prepared by the team to evaluate the students knowledge and literacy toward the educational material. The post-test questions mirrored those used in the pre-test, allowing for a comparison of students initial knowledge at the start of the activity. Furthermore, a question-and-answer session was conducted to deepen the students understanding of flossing and oral health.

Based on the participants questionnaire results, students knowledge of flossing before the educational session ranged from a minimum score of 1 to a maximum of 7 on the pre-test. The assessment was conducted using the Guttman scale, where a correct answer was scored as 1 and an incorrect answer as 0. A high score was categorized as 7–8, a moderate score as 3–6, and a low score as 1–3. In the post-test, scores ranged from 3 to 8. The mean pre-test score was 5.33, while the mean post-test score increased to 6.07. These results indicate an improvement in students knowledge following the educational intervention at SD Kartika X-2 Pesanggrahan, South Jakarta.

Diagram 2. Description of Knowledge/Literacy Score Changes Based on Pre-Test and Post-test




According to Diagram 2, 24 students (55.8%) demonstrated an improvement in their scores, 12 students (27.9%) showed no change, and 7 students (16.3%) experienced a decrease. These findings highlight a notable 55.8% improvement in students knowledge following the flossing education at SD Kartika X-2 Pesanggrahan, South Jakarta.

Many dental conditions, especially periodontal disease, begin on the proximal surfaces of teeth and in the interdental spaces. Flossing is widely used to clean these areas through friction. Dental plaque cannot be effectively removed by rinsing or water sprays alone; mechanical methods, mainly toothbrushing, are required for proper removal. Alongside toothbrushing, flossing serves as an additional method for eliminating dental plaque. (Fione R et al., 2015)

Oral health issues can be prevented early by fostering healthy habits that support proper oral hygiene. Health education is an effective way to convey these habits, aiming to improve individuals' knowledge and encourage preventive measures (Rifky et al., 2024). Changing children's routines helps correct poor oral health behaviors, supporting the prevention and management of dental caries. Key elements of oral hygiene include toothbrushing, flossing, and professional dental care. Teaching and reinforcing toothbrushing skills in children of all ages is essential, and flossing should also be emphasized, as it is a skill that requires practice to perform correctly. (Angela, 2005)

Introducing flossing to children from an early age is an appropriate strategy to establish this habit from the beginning. Results from the Community Partnership Program (PKM) indicate that flossing education for children can improve participants knowledge regarding proper oral hygiene practices through the use of dental floss. These findings are consistent with the study by (Puspitasari et al., 2023b), which demonstrated that education and demonstration can enhance both knowledge/literacy and attitudes of participants/students toward flossing.

The activity concluded with the distribution of a flossing educational poster, certificates, a dental model, and a fruit parcel to the school stakeholders (Figure 7). Participants also received a gift package containing a toothbrush and toothpaste, a toy, and dental floss. The educational poster was handed over to the partner school and displayed in the UKGS area of SD Kartika X-2 (Figure 8), with the aim of enhancing all students understandding of flossing.

Figure 7. Handover of Posters and Dental Models to School Stakeholders

Figure 8. Educational Poster Display at UKGS, SD Kartika X-2

## 4. CONCLUSION

The early introduction of appropriate oral hygiene practices such as tooth brushing, flossing, and regular professional dental care is essential for maintaining oral health and preventing the development of dental caries and periodontal disease. Knowledge acquired during this stage of life is more likely to be retained and carried into adolescence and adulthood. Evidence from the Community Partnership Program 'SMART GG' at SD Kartika X-2 underscores the value of school-based health education. The program demonstrated that focused flossing education effectively improved students understanding of the importance of interdental cleaning as well as the correct flossing technique. These findings suggest that structured educational interventions in primary schools can play a pivotal role in enhancing childrens oral health knowledge, thereby contributing to the long-term reduction of dental problems within the community.

## ACKNOWLEDMENT

The authors express their gratitude to the Ministry of Education, Culture, Research, and Technology for providing financial support to the Institute for Research and Community Service (LPPM), Universitas Prof. Dr. Moestopo (Beragama), through the 2024 Hibah Dikti Program.

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