

THE IMPLEMENTATION OF THE COMMUNITY PARTNERSHIP PROGRAM TO ENHANCE FLOSSING PRACTICE UTILIZATION AMONG PRIMARY SCHOOL CHILDREN

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ABSTRACT

Flossing plays a crucial role in maintaining oral health by removing plaque from interdental areas that cannot be reached with toothbrushing alone. In Indonesia, the practice of flossing remains uncommon, particularly among children, contributing to the high prevalence of periodontal disease. This highlights the urgent need for preventive strategies through early education to encourage proper and consistent oral hygiene behaviors. To address this issue, the SMART GG Community Partnership Program (CPP) was implemented as a school-based intervention aimed at providing flossing practice utilization among primary school children. The program included health education sessions, demonstrations of proper flossing techniques, the use of flossing cards, and 21-day calendars for self-monitoring. A pre-experimental design with a one-group pre-test and post-test approach was conducted among 43 fourth-grade students at SD Kartika X-2, Jakarta. The results indicated an increase in flossing utilization scores after the intervention, showing positive changes in students' behavior. In conclusion, the SMART GG program effectively enhanced flossing practice utilization among schoolchildren and presents a sustainable model for strengthening oral health education in Indonesia.

Keywords: Utilization, Flossing, Community Partnership Programs, Oral Health

1. INTRODUCTION

Oral health remains a major public health challenge in Indonesia, with dental and periodontal conditions continuing to affect a large proportion of the population. It was found that as many as 91.1% of Indonesians brush their teeth on a daily basis. However, only 7.3% of the population actually perform toothbrushing correctly, following the proper technique and covering all necessary tooth surfaces (Fauziah et al., 2023). This high figure underscores the urgent need for preventive strategies, particularly among children, who are in a critical stage of habit formation. Despite the recognized importance of preventive care, flossing remains infrequently adopted, especially among primary school children. The data indicate an alarmingly high prevalence of dental caries, reaching as much as 88%, which suggests that the majority of the population is affected by this oral health issue. In addition, periodontal disease is also recorded at a considerably high rate of 74.1%, further highlighting the widespread burden of oral health problems within the community. (Susilawati et al., 2018) (Andayani et al., 2021). To address such gaps, Community Partnership Programs (Program Kemitraan Masyarakat/PKM) have been widely implemented across Indonesia as participatory approaches to improve health and social outcomes. These initiatives have proven effective in empowering communities, enhancing health literacy, and modifying behaviors. However, oral health-focused PKM projects remain limited, and interventions specifically promoting flossing are still rare. Low flossing utilization is not only an issue in Indonesia but also across Southeast Asia; for example, (Olak et al., 2018) This evidence highlights a broader regional neglect of flossing practices and reinforces the urgency of introducing structured, school-based interventions in Indonesia. Within this context, SD Kartika X-2 in Pesanggrahan, South Jakarta, was chosen as the partner school. Preliminary assessments revealed that students had minimal exposure to systematic interdental cleaning practices, while existing school dental health activities (UKGS) were infrequent and insufficiently structured. These conditions provided both the challenge and opportunity for implementing the SMART GG (Smart Teeth and Gums) Community Partnership Program, conceived as an innovative, school-based initiative aimed at fostering sustainable flossing practices among primary school children.

The prevalence of dental caries and periodontal disease among young children remains considerably high, raising concerns about whether current toothbrushing habits are being carried out properly, particularly in terms of cleaning all tooth surfaces, including the interdental areas. The interproximal, or interdental spaces, are areas where dental plaque commonly accumulates and become vulnerable if not adequately cleaned. One effective method of cleaning these areas is through flossing prior to toothbrushing (Almassri et al., 2019) (Puspitasari et al., 2023). Unfortunately, the practice of flossing remains relatively uncommon in Indonesia, particularly among school-aged children.

To address such gaps, Community Partnership Programs (Program Kemitraan Masyarakat/PKM) have been widely implemented across Indonesia as participatory approaches to improve health and social outcomes. These initiatives have proven effective in empowering communities, enhancing health literacy, and modifying behaviors. Within this context, SD Kartika X-2 in Pesanggrahan, South Jakarta, was chosen as the partner school. Preliminary assessments revealed that students had minimal exposure to systematic interdental cleaning practices, while existing school dental health activities (UKGS) were infrequent and insufficiently structured. These conditions provided both the challenge and opportunity for implementing the SMART GG (Smart Teeth and Gums) Community Partnership Program, conceived as an innovative, school-based initiative aimed at fostering sustainable flossing practices among primary school children.

The SMART GG (Smart Teeth and Gums) Community Partnership Program was designed to enhance the utilization of flossing practices among primary school children. By combining oral health education, demonstration methods, and supportive tools such as flossing cards and 21-day flossing calendars, the program seeks to establish flossing as a sustainable daily practice. The objective of this initiative is not only to increase children's immediate utilization of flossing but also to contribute to long-term behavioral change, thereby supporting national efforts to reduce the burden of periodontal disease.

2. METHOD

A study reported a high prevalence of gingivitis among children aged 9–12 years, with 63.83% experiencing mild inflammation and 27.66% presenting with moderate inflammation (Pontoluli et al., 2021). The severity of gingivitis in children and adolescents tends to increase with age, peaking during puberty, underscoring the importance of maintaining oral health from an early age. Preventive education and the promotion of oral hygiene can therefore be effectively introduced at the primary school level. Among the recommended measures, flossing plays a crucial role in removing interdental plaque that toothbrushing alone cannot eliminate. However, despite its importance, flossing remains one of the least practiced oral health behaviors among children in Indonesia.

To address this gap, the SMART GG (Smart Teeth and Gums) Community Partnership Program was developed as a school-based intervention designed to increase the use of flossing practices. The program combined oral health education, live demonstrations of flossing techniques, and the use of supportive tools such as flossing cards and personalized 21-day calendars to encourage habit formation. The design adopted a pre-experimental, one-group pre-test and post-test approach, involving 43 fourth-grade students at SD Kartika X-2, Pesanggrahan, Jakarta, aged 9–10 years. The method was organized into sequential stages, as outlined below.

Preparatory Stage

Coordination was first conducted with SD Kartika X-2 and key stakeholders, including the principal, teachers, parents, and the local Public Health Center (Puskesmas). Preparations included scheduling activities, selecting classrooms for program delivery, and ensuring resources were available. Calibration training was then provided for surveyors to standardize the assessment of students' oral health, ensuring accuracy and reliability of the data collected. Training took place in the Integrated Laboratory of the Faculty of Dentistry, Universitas Prof. Dr. Moestopo (Beragama), with the multipurpose hall available as an alternative venue when needed. This stage also included rehearsal sessions to anticipate technical challenges.

Socialization

The next stage involved program socialization to introduce the objectives of SMART GG and secure the commitment of all parties. This process targeted the school community, particularly students and their parents, through discussions, distribution of leaflets, and orientation sessions. Teachers and parents were encouraged to play an active role in supporting children's daily flossing routines at home, as their involvement was critical to sustaining behavior change.

Training and Mentoring

Training was directed at strengthening students' knowledge and skills related to flossing. Oral health education was delivered using a large-format educational poster (60 × 160 cm) that illustrated the importance of flossing and outlined step-by-step techniques. Demonstrations were conducted by the research team using phantom teeth models and floss picks, followed by hands-on practice. Students were mentored individually and encouraged to record their practice in flossing cards and calendars. Teachers and parents were briefed to continue mentoring during the 21-day practice period at home.



Figure 1. Demonstration using educational poster

Implementation of the 21-Day Flossing Calendar Program

Each student received a flossing calendar to monitor daily flossing for 21 consecutive days. Designed to be visually engaging and age-appropriate, the calendar functioned as both a motivational and accountability tool. The 21 days were based on behavioral science principles suggesting that consistent repetition for approximately three weeks fosters habit formation. This stage emphasized student self-monitoring, while parents and teachers provided daily supervision.



Figure 2. Example of 21-Day Flossing Calendar

Evaluation

After the 21-day program, students completed a post-test questionnaire to measure changes in knowledge, attitudes, and flossing utilization. Data were gathered from flossing cards and calendars to assess adherence and identify irregularities. Comparative analysis between pre-test and post-test scores provided insight into behavioral improvements.

Monitoring and Feedback

Throughout the intervention, regular monitoring was conducted with support from teachers and parents. At the end of the program, students shared their experiences with the flossing calendar, while teachers reported observable behavioral changes. Feedback was used to refine program strategies and ensure integration into the school's UKGS (Usaha Kesehatan Gigi Sekolah) framework. To support continuity, collaboration with the Puskesmas was strengthened, and recommendations were made for SD Kartika X-2 to be designated as a partner school for future oral health initiatives.

Role of Students and Sustainability Measures

The program was led by the chairperson and supported by a team of faculty members with expertise in public health and health promotion. Undergraduate students in their seventh semester contributed as part of their Community Service (KKN) program, assisting in designing oral health cards and calendars, documenting activities, and preparing audiovisual materials. Their involvement was linked to academic recognition, with up to 8 credits awarded by the Faculty of Dentistry, Universitas Prof. Dr. Moestopo (Beragama), encompassing 3 credits for KKN and 5 credits for undergraduate thesis work. This structure was formally approved by the Dean and Vice Dean I for Academic Affairs. To ensure long-term sustainability, a Training of Trainers (TOT) was conducted for teachers and selected student health ambassadors. These ambassadors were tasked with leading daily toothbrushing and flossing routines within the school, embedding healthy habits into the school's culture. By combining academic collaboration, parental involvement, and

institutional support, SMART GG aimed not only to improve immediate flossing utilization but also to establish a sustainable model for oral health promotion in primary schools.

3. RESULTS AND DISCUSSION

The Community Partnership Program “SMART GG” for children was implemented at SD Kartika X-2 Pesanggrahan on September 18, 2024. The participants consisted of 43 fourth-grade students, comprising 18 boys (42%) and 25 girls (58%) (Table 1), with an age range of 9-10 years.

Table 1. Participant Distribution by Gender

	n	%
Girls	25	58
Boys	18	42
Total	43	100

The implementation of the Children’s Community Partnership Program “SMART GG” took place on September 18, 2024, at SD Kartika X-2 Pesanggrahan. A total of 43 students in the fourth grade participated, consisting of 18 boys (42%) and 25 girls (58%), all within the age range of 9–10 years (diagram 1). This distribution highlights a slightly higher proportion of female participants compared to male students, a demographic detail that provides useful context for interpreting the program outcomes.

The evaluation of the program began with the examination of students’ oral health status (figure 3), which was systematically recorded using individual flossing cards. Each student’s flossing behavior and related findings were noted and compiled into a comprehensive dataset, later visualized into a consolidated figure to illustrate the overall distribution of baseline practices.



Figure 3. Oral Health Examination Figure 4. Goodie Bag for Students

Beyond assessment, students were provided with a carefully prepared goodie bag containing their personal flossing card (figure 4), a 21-day flossing calendar equipped with stickers, and a selection of healthy snacks. The design of the package was intentionally appealing and playful, which successfully captured the children’s interest and motivated them to engage with the materials. The calendar also included a simple step-by-step guide on flossing techniques, serving as a quick reference whenever children forgot the demonstrations presented during class (figure 6). This combination of engaging design and practical guidance reinforced the continuity of the program outside the school setting.



Figure 5. Flossing CalendarFigure 6. Flossing Card

The flossing calendar played a pivotal role in monitoring daily practice and provided insight into habit formation over the 21 days. A comparison between baseline and post-intervention calendar entries revealed diverse patterns of engagement. Some students filled out the calendar consistently for both morning and evening sessions across all 21 days, demonstrating strong adherence. Others recorded flossing activities only during the initial days (days 1–4), later shifting to a single evening routine. This variation highlights the adaptability of the intervention, as even partial consistency—such as adopting flossing once daily—represents a substantial improvement compared to the absence of flossing before the program. This proves that visual, child-friendly monitoring tools can effectively guide behavior change by translating abstract health instructions into tangible, trackable actions.



Figure 7. Sample Completed Flossing Calendars

The post-program analysis of the flossing calendars further demonstrated their utility as more than just a monitoring tool. For students, the calendar functioned as a daily reminder, a motivational device through visual progress tracking, and a learning aid that reinforced the new habit. For teachers and parents, it provided a clear record of adherence, helping them to supervise and encourage the children more effectively. These findings underscore the practicality of simple, low-cost tools in health education interventions, particularly when targeting young populations. At the end of the session, students were given the same post-test questionnaire to allow direct comparison of knowledge and attitudes before and after the intervention. This was complemented by a question-and-answer session, enabling clarification of any remaining misconceptions.

Table 2. Frequency Distribution of Respondents' Actions in Pre-Test and Post-Test

Category	n	%
Increased	19	44.1
Unchanged	22	51.2
Decreased	2	4.7

The results demonstrated a measurable shift in children's attitudes toward flossing. Pre-test scores ranged from 1 to 5, with a mean of 3.98, while post-test scores ranged from 2 to 5, with a mean of 4.58. This indicates an improvement in attitude following the educational intervention. However, when analyzed further (table 2), it was observed that 19 students (44.1%) showed improvement, 22 students (51.2%) remained unchanged, and 2 students (4.7%) experienced a decline. This pattern suggests that although immediate knowledge and attitudes improved, the timing of pre- and post-tests—administered on the same day—may have limited the ability to capture more sustained changes. To address

this limitation, it is recommended that post-tests be repeated after the 21-day practice period to better assess long-term impact.

Table 3. Categories of Respondents' Behavioral Changes Before and After Flossing Education

Category	n	%
Increased	25	58.2
Unchanged	17	39.5
Decreased	1	2.3

Significant gains were observed in flossing practices/utilization (Table 3). Pre-test scores ranged from 0 to 3 with a mean of 0.56, whereas post-test scores ranged from 0 to 3 with a mean of 1.33. Among the 43 students, 25 (58.2%) demonstrated improvement, 17 (39.5%) remained unchanged, and only 1 (2.3%) showed a decline. These findings indicate that the intervention produced measurable improvements in students' flossing practices, with a 58.1% overall increase in utilization.

These improvements are consistent with existing evidence that highlights the importance of interdental cleaning for preventing periodontal disease, as many periodontal lesions originate in proximal and interdental regions. Flossing is widely recognized as a vital adjunct to toothbrushing for effective plaque removal, given that rinsing or irrigation alone cannot eliminate interdental plaque (*Fione R et al., 2015*).

Introducing flossing education during childhood is particularly impactful, as it shapes habits early and promotes consistent adoption into adulthood (Rifky et al., 2024).

These results not only confirm the effectiveness of the SMART GG program but also highlight the broader potential of behavior-based interventions for oral health promotion. By integrating education with engaging visual tools and structured follow-up, the program successfully addressed the gap in flossing utilization among primary school children. Importantly, this study demonstrates that oral health education can extend beyond knowledge acquisition to foster concrete behavioral change, which is a critical step in reducing the risk of periodontal disease in the long term.

Future development of this program can focus on strengthening sustainability and scalability. Embedding the flossing calendar approach into routine school health activities, such as classroom-based hygiene checks or integration with digital platforms, may extend its reach and impact. Additionally, expanding training for teachers and involving parents more deeply can ensure continued reinforcement of flossing habits at home. Documentation in the form of posters, video tutorials, and program manuals can further enhance dissemination and replication in other schools. Ultimately, the SMART GG program provides a model for how community partnership initiatives can generate innovative, practical solutions to persistent public health challenges.

4. CONCLUSION

The *SMART GG* Community Partnership Program was demonstrated to be highly effective in enhancing the utilization of flossing practices among primary school children. The introduction of a flossing calendar served as a practical innovation, promoting 21 consecutive days of adherence and supporting the establishment of new habits. Complementary tools such as posters and live demonstrations enabled students to actively engage with the material, transforming knowledge into practice. As a result, flossing behavior improved substantially, with practice rates increasing by 90.7% after the intervention. Nonetheless, several limitations were noted. Restricted time allocation by the school compressed data collection, while classroom conditions occasionally reduced student concentration. Furthermore, some respondents required additional guidance to fully comprehend questionnaire items. Despite these constraints, the study underscores the promise of simple, low-cost educational strategies to drive meaningful and sustainable improvements in oral health behavior. Future initiatives could expand this model to strengthen long-term oral hygiene practices within broader community health programs.

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