



## **Integration of Dental Health into School Curriculum: A Comparison of Models from 5 Countries**

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### **ABSTRACT**

Dental health among school-aged children is a critical issue that directly impacts quality of life and academic achievement. This article examines models for integrating dental health education into school curricula in Indonesia and other countries to formulate effective strategies for the national context. The methodology involves a literature review with an international comparative study approach. The analysis reveals that countries such as Finland, Japan, Malaysia, and New Zealand have successfully implemented relevant, effective, and sustainable intervention models. Drawing from these best practices, this article recommends developing a hybrid model for Indonesia that integrates daily thematic activities, collaboration with healthcare professionals, and active engagement of parents and communities within the education system.

**Keywords:** children's dental health, school curriculum, educational integration, international models, national strategies.

### **INTRODUCTION**

The issue of dental health and oral hygiene among school-aged children in Indonesia is a concerning matter. According to the latest data from the 2023 Indonesian Health Survey (IHS), dental caries remains a primary health concern for children in Indonesia. The prevalence of dental caries among children aged 5 to 9 years reaches 84.8%, indicating that only approximately 15.2% of children within this age range are free from dental caries.

Dental caries, caused by the accumulation of bacteria and acids from poorly cleaned food, not only affects oral health but can also impact overall health and the quality of life of children. Therefore, it is crucial to understand the root of this problem and seek effective solutions.

One of the main causes of the high prevalence of dental health issues is the lack of understanding regarding clean and healthy living behaviours (CHLB). Many children are not taught how to properly care for their teeth, such as brushing regularly, avoiding excessive sugary foods, and routinely visiting the dentist. This highlights the necessity for effective dental health education to cultivate healthy habits from an early age. By integrating dental health education into the school curriculum, we can enhance children's awareness of the importance of maintaining their dental and oral health. (Baig & Ali, 2019)

Integrated dental health education within the school curriculum can assist children in understanding the significance of oral health. For instance, through enjoyable and interactive learning experiences, such as educational games or art activities, children can learn the correct way to brush their teeth and the importance of consuming healthy foods. Additionally, by involving educators and health professionals, children can receive accurate and reliable information regarding dental health.

This can create a supportive learning environment that encourages healthy living behaviours. In this analysis, five models of dental health education from various countries that have successfully integrated dental health into their education systems are compared. Finland, Japan, Malaysia, New Zealand, and Indonesia adopt different approaches; however, they all share the same objective: to enhance awareness and healthy behaviours among children. (Garba et al., 2020) By studying the best practices from these countries, Indonesia can gain valuable insights into designing an effective dental health education curriculum..

## METHODS

This research employs a literature review methodology (Snyder, 2021). A literature review not only involves the collection of sources but also requires critical analysis to discover or achieve the research objectives, namely to understand and describe the Integration of Dental Health into the School Curriculum of five dental health education models from five countries. The primary data sources consist of official government reports, scholarly journals, and documents from the World Health Organization (WHO).

The analysis is conducted by comparing five dental health education models from Finland, Japan, Malaysia, New Zealand, and Indonesia based on implementation strategies, measurable impacts, and the involvement of educational and health stakeholders. (Memon et al., 2022) Thus, the research findings will be more relevant in addressing practical implementation in response to issues within schools.

## RESULTS AND DISCUSSION

### International Comparison of School-Based Dental Health Integration Models

To enrich the analysis and formulate strategies for integrating dental health in Indonesia, it is essential to conduct an international comparative study of dental health education models that have been successfully implemented in various countries. Learning from other nations provides a tangible illustration of how dental health interventions can be effectively integrated into educational systems. The following table presents a comparison of five primary models from different countries.

**Table 1. Comparison of School Dental Health Programs in Five Countries**

Country	Intervention Model	Implementation Strategy	Measured Impact	Source
Finland	School Health Study	National survey on oral health behavior and school achievement among adolescents. Internalizing the delivery of oral health materials to teachers and students.	Students with the highest grades (9–10) had a twice-daily toothbrushing habit of 73.1%; students with the lowest grades ( $\leq 6.9$ ) only 33.8%.	Rantanen et al., 2020
Japan	School-Based Health Education	Toothbrushing after meals, annual evaluations, parental involvement	Up to a 40% reduction in the risk of caries by age 15	Fujimoto et al., 2021



Country	Intervention Model	Implementation Strategy	Measured Impact	Source
Malaysia	Dentist Goes to School	School-dentist collaboration, routine education, annual screenings	>50% reduction in complaints of tooth pain and related school absenteeism	Saub et al., 2018 and Ministry of Education Malaysia. (2022)
New Zealand	School Dental Nurse	Permanent dental health professionals in schools, regular check-ups and preventive measures	Dental service coverage reaches 90% of primary school children	Moffat et al., 2021
Indonesia	SDHE (School Dental Health Efforts)	Periodic education, screenings, referrals, but not yet nationally integrated into the thematic curriculum	Coverage only 45% of schools, high inter-regional disparities	Kemenkes RI, 2020

### Analysis and Strategy Implications

In this analysis, we will delve deeper into the strategy for implementing dental health integration within the school curriculum by adopting models that have been successfully applied in various countries. Emphasising the aspects of curriculum integration consistency, human resource support, and active involvement of families and communities will provide a more comprehensive understanding of the challenges and solutions for effectively implementing dental health models in Indonesia. (Sadeghi et al., 2019)

#### 1. Consistency of Integration in Curriculum

##### a. Integration of Dental Health in Thematic Curriculum

In Indonesia, the application of thematic models based on the 2013 Curriculum and the Merdeka Curriculum presents significant potential for integrating dental health education within broader subjects. Sulianti & Rachmawati (2019) The thematic approach teaches children health-related concepts through a more holistic context, such as "Self" or "Healthy Living." By designing learning that involves topics such as proper tooth brushing techniques, selecting healthy foods, and maintaining oral hygiene, dental health education can be seamlessly integrated into daily learning. (Jones & Burell, 2020). Furthermore, the Pancasila Student Profile Project can serve as a unique medium, inviting experts, simulations, and evaluations in engaging project forms that can be effectively utilised by students in their lives.

In countries like Finland, there are national surveys on dental health behaviours and academic performance among adolescents, as well as the internalisation of dental health material delivery to teachers and students. The "Tooth Trolls" learning initiative combines dental health education with storytelling and play-based learning, transforming dental health topics into enjoyable experiences for children. This approach is highly effective as it shifts children's perceptions of dental health from something daunting to a positive and enjoyable activity. Such strategies can be adapted within the Indonesian context by developing culturally relevant game-based learning aids.

##### b. Challenges and Solutions in Curriculum Integration

The primary challenge in integrating dental health education within the curriculum in Indonesia is the lack of consistency in implementation. Although some schools have adopted dental health programmes, there is no standardisation ensuring that all schools follow the same programme with consistent quality. One solution to this issue is the

development of standardised thematic learning modules that must be implemented across all schools in Indonesia. These modules should be adaptable to various grade levels and equipped with engaging teaching materials and evaluations to measure behavioural changes in children following the intervention.

## **2. Competent Human Resources Support**

### **a. The Role of Teachers in Dental Health Education**

Teachers play a crucial role in the successful integration of dental health within the school curriculum. However, to carry out this task effectively, teachers must be equipped with adequate training. Teacher training should encompass a fundamental understanding of the importance of dental health, engaging methods for teaching dental health in a fun and appealing manner, as well as the use of innovative learning aids.

According to WHO (2021), early childhood dental health education has been shown to prevent dental diseases in the long term. A study by Çavuş (2022) indicates the necessity of raising awareness about dental health and care activities among preschool children aged 36-48 months. The findings suggest that early interventions can lead to desired behavioural changes in maintaining children's dental health.

The best examples come from Japan, where the practice of tooth brushing after meals has become not only a school habit but also involves training for teachers on how to teach children about dental hygiene in a fun and participatory manner. In Indonesia, similar training needs to be conducted regularly to ensure that teachers across schools can effectively teach dental health.

### **b. Collaboration with Dental Health Professionals**

Competent human resources in dental health programmes also include health professionals, such as dentists and dental nurses. In countries like New Zealand, dental nurses work in schools to provide routine check-ups, direct education, and preventive measures to students. This model can be adapted in Indonesia by introducing programmes that involve more dental health professionals in schools, who not only provide check-ups but also educate students and teachers.

In Indonesia, the School Dental Health Efforts (SDHE) programme can be strengthened by involving more dental health professionals in schools and providing them with training on how to manage dental health programmes effectively. These dental health professionals can educate children about the importance of good dental care and ensure that children practice what they have been taught.

## **3. Active Involvement of Family and Community**

### **a. The Role of Parents in Dental Health Education**

Parental involvement is crucial in supporting dental health education programmes implemented in schools. Parents serve as the primary companions for children in practising healthy habits at home, including regular tooth brushing. The Minister of Primary and Secondary Education, Abdul Mu'ti (2024), stated that education is not merely about imparting knowledge but also about character building, which includes seven habits for children, such as maintaining health and consuming nutritious food.

The Japanese model demonstrates that parental involvement can significantly enhance the success of dental health programmes. Parents who participate in annual evaluations and routine tooth brushing with their children can create a more consistent healthy lifestyle. In Indonesia, to enhance parental involvement, schools can hold regular meetings with parents to educate them about the importance of maintaining their children's dental health. Additionally, schools can provide educational materials that children can take home to share with their parents. This ensures that education regarding dental health does not cease within the school environment but is also practised at home.

### **b. Community Involvement in Dental Health Education**

The community surrounding schools, such as posyandu and puskesmas, can act as partners in supporting dental health education. Through outreach activities involving professional health personnel, communities can assist children in practising dental health habits more broadly. For instance, communities can organise dental health outreach activities in collaboration with schools, which not only educate children but also parents and the surrounding community.

According to the Ministry of Education Malaysia (2022), the Dentist Goes to School programme exemplifies how collaboration between schools and dentists can enhance access to dental health education. By utilising existing community facilities, Indonesia can expand the reach of dental health programmes to underserved areas, such as rural regions.

## **4. Financing and Infrastructure for Implementation**

### **a. Sustainable Financing for School Dental Health Programs**

Although the SDHE programme has been implemented in Indonesia, disparities in funding still exist, leading to limitations in implementation in several regions. Therefore, there is a need for more consistent and well-allocated funding sources to ensure that all schools, particularly in remote areas, can effectively implement dental health education programmes. This funding could come from both central and local governments, as well as from the private sector through partnerships with the health industry.

### **b. School Infrastructure Improvement**

Supporting infrastructure such as facilities for practising tooth brushing (e.g., sinks in every classroom) and engaging learning aids need to be established. Schools must ensure that these facilities are available to facilitate the smooth running of dental health education. Funding from local governments to provide necessary facilities in schools could be an effective solution.

## **CONCLUSION**

To implement effective dental health education in Indonesian schools, a more comprehensive and collaborative approach is required. Models from other countries provide valuable insights into how dental health education can be well integrated into the school curriculum. By paying attention to consistency in the curriculum, enhancing training for teachers, collaborating with health professionals, and fostering active involvement from parents and communities, Indonesia can develop an effective and sustainable model to improve children's dental health. The implementation of these more actionable solutions is expected to address the current challenges, including inter-regional disparities and limited access to dental health services in certain areas.

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