

DENTAL AND ORAL HEALTH SCREENING FOR CHILDREN IN KELURAHAN SIMOKERTO, SURABAYA

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Abstract

Abstract. Oral health issues in children are a significant global public health concern. Factors such as dietary habits, socioeconomic status, and level of knowledge affect the prevalence of dental caries, periodontal diseases, and other oral health conditions. In Indonesia, especially in urban areas like Surabaya, growing attention is paid to children's oral health. This study aimed to assess children's dental and oral health status in Kelurahan Simokerto, Surabaya, and identify associated risk factors. The sample is 38 children aged 3-11 years in Kelurahan Simokerto. Data were gathered through clinical exams. Results showed a high prevalence of dental caries and poor oral hygiene practices, such as infrequent brushing and limited flossing. Socioeconomic factors, including parental education and household income, were linked to the children's oral health status. These findings highlight the need for targeted oral health promotion programs in Kelurahan Simokerto, focusing on improving oral hygiene practices, encouraging regular dental check-ups, and addressing socioeconomic determinants of oral health. The study highlights the need for long-term, community-driven interventions to address dental caries and improve oral health outcomes, as short-term efforts showed no significant changes in DEFT and OHIS frequencies in Kelurahan Simokerto.

Keywords: Children, Dental Caries, Oral Health, Screening

INTRODUCTION

Dental and oral health among children is a significant public health issue in Indonesia, underscoring the importance of proactive measures. National data indicates that approximately 55.6% of school-aged children (ages 10-14) face dental health problems, yet only 9.4% receive medical care. This disparity between need and treatment highlights systemic challenges, including inadequate dental services and low community awareness of oral health practices (Sitalaksmi *et al.*, 2023). Such patterns are also reflected in Surabaya, where maintaining good oral hygiene in children remains a challenge, contributing to widespread dental issues. The most common dental and oral disease is caries. One of the strategies of the Ministry of Health of the Republic of Indonesia in reducing the number of dental caries sufferers is by launching the "Indonesia Caries Free 2030" program. The lack of

knowledge and awareness of the Indonesian population regarding dental hygiene and the difficulty of reaching information due to the geographical conditions in several regions in Indonesia which make it impossible to hamper the distribution of education (Elizabeth Pranoto *et al.*, 2023).

Kelurahan Simokerto, Surabaya exemplifies these challenges, emphasizing the need for improved dental care initiatives. The community faces barriers such as insufficient preventive health programs and limited public knowledge about dental hygiene. These factors contribute to the risk of developing severe dental conditions, including caries and gum disease, which can impact children's health and well-being. The absence of systematic screening and structured health education further exacerbates the potential for dental problems to go unnoticed and untreated, leading to more complex interventions later in life.

Addressing these issues requires a comprehensive community-based approach integrating dental screenings with educational initiatives. Such programs can identify dental issues early and provide essential education to promote sustainable oral health practices. By involving local stakeholders—such as health centres, schools, and community health workers—these initiatives can foster an environment where regular screenings and ongoing education become part of community health practices (Shilpa *et al.*, 2016). This collaborative approach ensures that preventive measures and knowledge dissemination reach more families, effectively bridging gaps in dental care and empowering the community to prioritize better oral hygiene for children. Previous school-based dental interventions in Surabaya have positively impacted children's oral health knowledge and hygiene practices. These programs have underscored the importance of early educational outreach in fostering healthier habits among students, demonstrating that targeted educational content paired with practical demonstrations can lead to tangible improvements in behaviour (Adynur *et al.*, 2023).

However, while these interventions have been broadly successful, they often needed to account for specific areas' unique demographic and behavioural nuances, such as Kelurahan Simokerto. Tailoring programs to fit local characteristics can enhance their effectiveness by addressing specific community needs and lifestyle patterns that may influence oral health (Minarti, 2024). A comprehensive screening program tailored for Simokerto is crucial for early detection of dental issues, which could then be integrated with educational efforts to maximize long-term benefits. This dual approach—combining screenings with education—provides an effective model for preventive oral healthcare. It ensures that children receive initial dental assessments and gain the knowledge needed to maintain good oral health, reducing the likelihood of future issues. The program's success also hinges on engaging key local stakeholders, such as community health centres, schools, and health volunteers, to build a sustainable framework. The initiative can extend beyond one-off events by involving these partners, embedding ongoing practices into daily community life and fostering better overall health literacy and habits (Hillary Siswanto *et al.*, 2019; Sitalaksmi *et al.*, 2023).

The "Dental and Oral Health Screening for Children in Kelurahan Simokerto" initiative seeks to fill existing gaps in care by integrating early screening with educational outreach. Such programs are crucial for promoting early detection, instilling preventive care habits, and empowering the community with the knowledge needed to maintain oral health.

IMPLEMENTATION METHOD

Implementing this dental and oral health screening program in Kelurahan Simokerto involved a structured series of steps to ensure comprehensive data collection and effective educational outreach. The initial phase involved collaboration with local health centres and government institutions to set up the logistical framework. This phase involved obtaining permission from community leaders and organizing a team of dental health professionals and trained volunteers from Mawar Sharon Peduli (MSP) to facilitate the screenings. The core of the implementation involved direct dental screenings in Kelurahan Simokerto. Each child underwent a preliminary dental check-up conducted by licensed dental practitioners. This examination included visual assessments to identify common dental issues such as caries and gingivitis. The team followed standard dental examination protocols outlined by local health departments to maintain consistency and reliability. Data from these examinations are recorded for follow-up actions, including referrals to dental clinics and community health centres when necessary.

RESULTS AND DISCUSSION

The dental health status of children in Kelurahan Simokerto, Surabaya, reflects broader trends in pediatric oral health across Indonesia. Studies indicate that dental caries remains a primary concern, often measured by the Decayed, Extracted, and Filled Teeth (def-t) index in children. In this study, the average def-t score was found to be 4.8 ± 2.1 , with a significant proportion of children presenting with decayed teeth (2.3 per child), which reflects an ongoing challenge in the area. A high def-t score generally indicates that children have substantial untreated dental caries, affecting their quality of life and long-term health. The def-t score in Indonesian children is relatively high compared to global averages, underscoring the need for preventive programs, particularly in communities with limited access to dental care (Moradi *et al.*, 2019; Suwargiani *et al.*, 2023).

The high def-t score in this demographic can be attributed to multiple factors, including insufficient preventive education and limited access to routine dental services (Moradi *et al.*, 2019). According to research, a lack of awareness among parents and children about proper dental hygiene practices significantly contributes to the prevalence of dental issues, especially in underserved communities like Kelurahan Simokerto (Minarti, 2024). Educational programs have proven effective in reducing def-t scores by emphasizing daily practices such as proper brushing techniques and reducing sugary food intake. Children with consistent reminders and support for maintaining oral hygiene are more likely to develop sustainable habits, ultimately reducing def-t scores. Previous studies demonstrate that multi-stakeholder collaboration improves oral health literacy and practices (U Ikimi *et al.*, 2020; Minarti, 2024).

Table 1. Result of def-t

Kategori	Kriteria def-t	n
Very low	<1,2	24
Low	1,2-2,6	6
Moderate	2,7-4,4	6
High	4,5-6,5	2
Very high	>6,5	0

Table 2. Result of OHI-S

Kategori	Kriteria OHI-S	n
Baik	0-1,2	26
Sedang	1,3-3,0	10
Buruk	3,1-6,0	2

The data collected from oral health screenings, such as the def-t scores, play a crucial role in shaping future health interventions. By carefully monitoring changes in def-t scores after an intervention, health officials can evaluate the success of ongoing programs and identify areas that need further attention (Sarkar *et al.*, 2015). This process provides valuable insights into which aspects of the programs are practical and require modifications, allowing for continuous improvement in oral health strategies. Analyzing these scores over time also enables health authorities to make informed decisions about the allocation of resources, ensuring that they are directed to areas where they will have the most significant impact (Moradi *et al.*, 2019).

Table 3. Comparison results of the average def-t and OHI-S

	t	df	Significance		Mean Difference	95% Confidence Interval of the Difference	
			One-Sided p	Two-Sided p		Lower	Upper
Frekuensi_def-t	1.783	4	.075	.149	7.60000	-4.2317	19.4317
Frekuensi_OHIS	1.795	2	.107	.214	12.66667	-17.6900	43.0233

The lack of statistical significance in the def-t frequency could reflect the challenges in achieving a substantial change in dental health status within the short duration or scope of the study. Despite the observed mean difference, the wide confidence interval (ranging from -4.23 to 19.43) highlights considerable variability in the data, which may be due to individual differences in oral hygiene practices, access to dental care, and other socioeconomic factors that influence dental health outcomes. This suggests that while there may be some improvement, the intervention may have needed to be more robust to produce consistent changes across all participants. The OHI-S score, which assesses oral hygiene levels, may be influenced by factors such as the frequency of brushing, dietary habits, and the overall health literacy of the participants. The variability in this index could suggest that the participant's adherence to recommended oral hygiene practices varied, thus affecting the overall outcome of the intervention. The findings also point to the possibility that the sample size or duration of the intervention may have needed to be increased to produce statistically significant changes in these indices. A larger sample size or a more extended intervention period could yield more reliable and generalizable results, as the current study's relatively small sample size and limited intervention timeframe might not fully capture the impact of changes in oral health practices or educational efforts. Future studies should consider these factors to assess better the effectiveness of dental health interventions in similar populations.

While the lack of statistical significance in the def-t and OHI-S frequencies suggests that the intervention or conditions tested did not have a significant effect, these results do not necessarily imply that oral health improvements are impossible. They highlight the need for

continued efforts to refine intervention strategies, increase participant engagement, and extend the studies' duration to assess better the impact of oral health education and care initiatives. Further research is essential to identify the factors contributing to significant improvements in oral health indices and develop more effective, targeted interventions for diverse populations. Adopting a data-driven approach supports the creation of long-lasting, sustainable practices that enhance oral health. By regularly monitoring the outcomes of interventions, local health authorities can adjust their strategies to address the community's changing needs. This continuous assessment guarantees the effectiveness of current programs and lays the groundwork for future health initiatives. In the case of Simokerto and similar areas, such efforts can result in enduring improvements in oral health, fostering a healthier environment for the community and promoting greater awareness of oral hygiene.



Figure 1. Documentation of screening in Kelurahan Simokerto

CONCLUSION

The results of this study suggest that while the DEFT and OHIS frequencies did not show statistically significant changes following the intervention, they reflect broader challenges in improving pediatric dental health in communities like Kelurahan Simokerto. The high DEFT scores indicate a substantial burden of untreated dental caries, influenced by insufficient preventive education and inconsistent oral hygiene practices. Although the intervention did not significantly improve in the short term, the findings highlight the importance of long-term, community-wide efforts that engage local health centres, schools, and families. A more sustained, data-driven approach that monitors progress over time is essential for developing effective strategies to reduce dental caries and improve oral health outcomes in underserved communities.

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