



The Effect of Parental Support in Brushing Teeth on The Plaque Index Score in Preschool Children

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ARTICLE INFORMATION	ABSTRACT
<i>Article History:</i> <i>Received: November 19, 2025</i> <i>Revised: November 26, 2025</i> <i>Published: November 30, 2025</i> Keywords: Support Parents Brushing Teeth Plaque Preschool	Preschool children are a vulnerable group prone to dental health problems, particularly due to plaque accumulation. One of the essential preventive measures to reduce plaque is regular toothbrushing supported by adequate parental involvement. This study aimed to analyze the influence of parental support on plaque index scores among preschool children. An explanatory research design with a cross-sectional approach was applied. The sample consisted of 36 preschool children selected through total sampling. Research instruments included a parental support questionnaire and a plaque index observation sheet using the PHP-M method. Data were analyzed using the Spearman correlation test. The results showed that 50% of parents demonstrated a moderate level of support, and 97.2% of children had plaque index scores categorized as good. The Spearman correlation test indicated no significant relationship between parental support and children's plaque index scores ($p = 0.331$; $r = 0.167$). In conclusion, most preschool children demonstrated good levels of oral cleanliness, although parental support did not show a significant effect on plaque index scores. Other influencing factors such as school-based education, peer interaction, and children's personal awareness may contribute to plaque control. Strengthening parental involvement and improving knowledge of proper toothbrushing habits remain essential to support oral health behavior in early childhood.

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INTRODUCTION

The Indonesian Health Survey (SKI) in 2023 reported that the prevalence of dental caries reached 82.8%, indicating that oral health issues remain a major challenge in Indonesia, particularly among preschool-aged children (Badan Kebijakan Pengembangan Kesehatan, 2024). This age group is highly vulnerable to plaque accumulation and dental caries due to limited motor skills required for proper toothbrushing, resulting in suboptimal plaque removal. Plaque is a soft layer composed of microorganisms and food debris that adheres firmly to the

tooth surface and, if not removed regularly, can lead to caries (Rowińska et al., 2021; Tandelilin, & Saini, 2023).

During the preschool stage, parental involvement plays a crucial role in guiding children to maintain proper oral hygiene (Alamoudi et al., 2023; Kaskova et al., 2024). Parents especially mothers contribute significantly to the formation of good toothbrushing habits through supervision, modeling, and consistent motivation (Deinzer et al., 2021). Previous studies also emphasize the importance of parental support in influencing children's oral health behaviors. Without adequate guidance, children tend to neglect oral hygiene practices, thereby increasing the risk of plaque buildup.

Interviews with the staff of RA Fatih Al-Baariq revealed that the school has never conducted any oral health education activities for its students. The absence of such programs highlights a gap in information and attention toward children's oral health within the school environment. This situation may worsen oral hygiene conditions among children due to the lack of institutional support in shaping healthy behaviors from an early age.

Furthermore, many existing studies have focused primarily on evaluating the effectiveness of school-based oral health education programs or direct interventions targeting children. However, research that specifically examines the contribution of parental support to preschool children's oral hygiene status remains limited. In fact, parents are the closest figures in a child's daily life and play a central role in establishing sustainable oral hygiene routines. This indicates a research gap, namely the limited number of studies analyzing the relationship between parental support and children's oral hygiene based on clinical parameters such as plaque index scores.

Addressing this gap, the present study offers novelty by analyzing the association between parental support and plaque index scores among preschool children in a school setting that has not implemented oral health education programs. Therefore, the objective of this study is to analyze the influence of parental support on plaque index scores among preschool children at RA Fatih Al-Baariq, Sungai Ambawang District, Kubu Raya Regency, West Kalimantan.

METHOD

This study employed an explanatory research design with a cross-sectional approach. Data collection for parental support and plaque index scores was conducted simultaneously through direct observation. The study was carried out in May 2025 at RA Fatih Al-Baariq, located in Sungai Ambawang District, Kubu Raya Regency, West Kalimantan. The population consisted of all preschool children enrolled at RA Fatih Al-Baariq, and a total sampling technique was used, resulting in 36 children as research subjects.

The research instruments included a parental support questionnaire and a plaque index assessment sheet (PHP-M). The parental support questionnaire consisted of 12 items measured using a Likert scale. Plaque index measurements were conducted using the PHP-M method with the aid of a disclosing solution to identify and score plaque accumulation.

The collected data were analyzed using SPSS. Univariate analysis was performed to describe the frequency distribution of parental support levels and plaque index scores. Bivariate analysis was conducted to examine the relationship between parental support and plaque index scores using the Spearman correlation test, as the data were not normally distributed.

RESULTS AND DISCUSSION

Table 1. Frequency Distribution of Respondents by Sex and Age at RA Fatih Al-Baariq.

Respondent Characteristics	N	%
Sex		
Male	20	55.6
Female	16	44.4
Age (Years)		
5	19	52.8
6	17	47.2

Based on Table 1, most respondents were male, totalling 20 children (55.6%), while female respondents totalled 16 children (44.4%). In terms of age, the majority were 5 years old (19 children or 52.8%), followed by 6-year-olds (17 children or 47.2%).

Table 2. Distribution of Parental Support in Toothbrushing Among Preschool Children.

Parental Support Category	N	%
Very Good	1	2.8
Good	17	47.2
Fair	18	50.0

Table 2 shows that parental support in children's toothbrushing was mostly in the fair category (18 parents or 50.0%), followed by the good category (17 parents or 47.2%), and the very good category (1 parent or 2.8%).

Table 3. Distribution of Preschool Children's Plaque Index Scores.

Plaque Index Score	N	%
Good	35	97.2
Moderate	1	2.8
Poor	0	0

Based on Table 3, almost all children had plaque index scores in the good category (35 children or 97.2%), with only 1 child (2.8%) classified in the moderate category and none in the poor category.

Table 4. Spearman Correlation Test Results.

Variable	r-value	p-value
Parental Support – Plaque Index Score	0.167	0.331

The Spearman correlation test (Table 4) showed a correlation coefficient of $r = 0.167$ with a p-value of 0.331, indicating no significant relationship between parental support in toothbrushing and children's plaque index scores.

DISCUSSION

The findings indicate that although the majority of children demonstrated good plaque index scores (97.2%), parental support was not significantly related to children's oral cleanliness. The low correlation value suggests that the level of parental support observed in this study has not yet produced a strong influence on children's plaque control.

The distribution of parental support (Table 2) shows that most parents were in the fair category (50.0%) and good category (47.2%), while only a small proportion (2.8%) demonstrated very good support. Parents in the very good category typically provide direct guidance, model correct brushing behavior, supervise regularly, and offer motivation. In contrast, parents in the fair category tend to only remind their children to brush without consistent supervision or active involvement. These differences in the quality of support may affect children's oral hygiene outcomes, despite the absence of a statistically significant relationship.

This finding is consistent with Sari et al. (2017), who reported that family support for children's oral hygiene often consists only of verbal reminders without direct involvement, which reduces the effectiveness of habit formation. A lack of concrete actions such as providing praise, supervising brushing routines, or replacing toothbrushes regularly may hinder the development of optimal oral hygiene habits.

Other factors may also contribute to the predominantly good plaque index scores among children, including school-based oral health activities, peer influence, and children's emerging personal awareness (Ghazanfari et al., 2021; Wei et al., 2021; Akeru et al., 2022; Elkhodary et al., 2023; Elsadek et al., 2023; Shirahmadi et al., 2024). Preschool children are in a phase of developing independence, meaning that their oral hygiene is shaped not only by parental involvement but also by their learning environment and daily routines. For example, organized

toothbrushing activities at school can reinforce good oral hygiene even when parental support at home is only moderate.

Several previous studies also emphasize the important role of parental involvement in maintaining children's oral hygiene. Children with high parental support tend to have lower plaque index scores (Prasiska, Marisa, & Rahmawati, 2021; Kurniawati, & Hartarto, 2022; Nurkamiden, 2022; Nurdin, 2023; Wowor, Mariati, & Kalalo, 2024). The parental involvement in toothbrushing activities can reduce plaque buildup (Aliakbari et al., 2021; Deinzer et al., 2021). Family-based interventions improve children's oral health behavior (Fransiari et al., 2025; Imran et al., 2025; Mardiah et al., 2025; Reca et al., 2025; Rahayu, & Reca, 2025).

Overall, the findings underscore the importance of active and consistent parental engagement in guiding and supervising children during toothbrushing. Continuous oral health education for parents both at home and through school-based programs is essential to improve their knowledge and skills. Collaboration among parents, teachers, and dental health professionals is vital for establishing early oral hygiene habits, preventing dental caries, and promoting optimal oral health in preschool children.

CONCLUSION

Parental support for toothbrushing among preschool children at RA Fatih Al-Baariq was generally in the moderate category, while children's oral cleanliness, based on plaque index scores, was predominantly categorized as good. The analysis showed no significant relationship between parental support and children's plaque index scores. This indicates that parental support alone may not directly influence children's oral hygiene, likely due to the contribution of other factors such as school-based oral health education, peer influences, and the children's own awareness and habits.

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