

Research Article

The Relationship between Parental Behavior and Premature Loss of Primary Teeth at SD No. 3 Bena

Gusti Ayu Dinda Arya Kirana, Mia Ayustina Prasetya, Louise Cinthia Hutomo, Luh Wayan Ayu Rahaswanti

Faculty of Medicine, Universitas Udayana, Badung, Indonesia.

Received date: April 26, 2025

Accepted date: January 28, 2026

Published date: April 30, 2026

KEYWORDS

Behavior, parents, premature loss of primary teeth.



DOI: 10.46862/interdental.v22i1.11505

ABSTRACT

Introduction: Untreated caries are the main cause of premature loss of primary teeth. Children generally prefer cariogenic foods, but this is not balanced by oral health maintenance behavior. This is because children do not understand the importance of maintaining their oral health. This is where parental behavior is needed to provide guidance and supervision to children in maintaining the health of their oral cavity. Based on this, the author is interested in examining the relationship between parental behavior and premature loss of primary teeth in students aged 6-8 years at SD No. 3 Bena.

Material and Methods: This study used an analytical observational method with a cross-sectional approach. The sample in this study was a dyad (parents and students) totaling 103 respondents.

Result and Discussions: The study show that parental behavior is in the "sufficient" category, and there are quite many children experiencing premature loss of deciduous teeth. in children at SD No. 3 Bena. There was a significant relationship between parental behavior regarding children's dental health and the incidence of premature loss of primary teeth in children, with a p-value of 0,000 (p-value < 0,05).

Conclusion: There is a relationship between parental behavior regarding children's dental health and premature loss of primary teeth among 6-8-year-old students at SD No. 3 Bena.

Corresponding Author:

Gusti Ayu Dinda Arya Kirana
Faculty of Medicine, Universitas Udayana
Badung, Indonesia
Email: dindaaryakrna@gmail.com

How to cite this article: Kirana GADA, Prasetya MA, Hutomo LC, Rahaswanti LWA. The Relationship between Parental Behavior and Premature Loss of Primary Teeth at SD No. 3 Bena. *Interdental Jurnal Kedokteran Gigi*. 2022;22(1):40-47. doi: 10.46862/interdental.v22i1.11505

Copyright: ©2026 [Gusti Ayu Dinda Arya Kirana](#) This is an open access article distributed under the terms of the Creative Commons Attribution-ShareAlike 4.0 International License. Authors hold the copyright without restrictions and retain publishing rights without restrictions.

INTRODUCTION

Primary teeth play an important role in speech, as well as in maintaining space for the eruption of their permanent successors, commonly referred to as a natural space maintainer. Untreated damage to primary teeth may lead to their loss before the normal exfoliation time, known as premature loss of primary teeth. Untreated dental caries is the main etiology of premature loss of primary teeth.¹

Dental caries occurs due to an imbalance in which pathological factors outweigh protective factors. School-aged children generally prefer cariogenic foods; however, this is not accompanied by adequate oral health maintenance behaviors. This is because children have not yet fully understood the importance of maintaining proper oral health. Therefore, parental behavior plays a crucial role in providing guidance and supervision to children in maintaining their oral health.²

Data from the School Dental Health Program (UKGS) in September 2023 indicated that the level of dental damage among first-grade elementary school students in South Kuta was relatively high, including at SD No. 3 Benoa, where it reached 60.24%, with 30% of children experiencing retained root fragments. During the elementary school period, dental and oral health problems are frequently observed.³ According to data from the South Kuta Public Health Center from January to September 2023, only 259 parents brought their children aged 6–8 years for dental examinations. This number is considerably low compared to the total number of children aged 6–8 years registered in the South Kuta Public Health Center working area, which is 7,654 children.

This study aims to analyze the relationship between parental behavior regarding children's oral

health and the premature loss of primary teeth among students aged 6–8 years at SD No. 3 Benoa.

MATERIAL AND METHODS

This study employed an analytical observational research design with a cross-sectional approach. The minimum sample size for this study was calculated using the Slovin formula, resulting in a required sample of 95 children. The sampling method used in this study was total sampling. The sample consisted of elementary school students aged 6–8 years at SD No. 3 Benoa, South Kuta, who lived with their parents and consented to participate in the study. A total of 103 participants were included in this study.

The sampling procedure involved distributing informed consent forms in paper format, followed by the dissemination of a questionnaire—previously tested for validity and reliability—via Google Forms shared through a WhatsApp group for research purposes. Subsequently, the children underwent clinical examinations to assess the premature loss of primary teeth. Data from 103 respondents were collected from January to February 2024.

The data on parental health behavior, premature loss of primary teeth, and sample demographics were analyzed using univariate analysis and presented in the form of frequency distribution tables. The chi-square test was used to determine the relationship between parental behavior and the premature loss of primary teeth.

RESULTS AND DISCUSSIONS

A total of 103 parents and students aged 6–8 years at SD No. 3 Benoa were included as research subjects. The demographic characteristics of the respondents were collected through the research

questionnaire. Table 1 presents the demographic characteristics of the respondents, including the child's gender and age, as well as the parents' age, gender, and educational level.

The distribution of children's gender showed that the majority were male (52.43%), while females accounted for 47.67%. Based on age, most children were 7 years old (69.9%), followed by those aged 6 years (20.39%), with the smallest proportion being children aged 8 years (9.71%).

The demographic distribution of parents based on age indicated that all respondents were within the productive age group (15–64 years). Based on gender, the majority of respondents were female (55.34%), while males accounted for 44.66%. In terms of educational level, most parents had completed senior high school (56.31%), followed by those with a bachelor's degree (35.92%), while the smallest proportion consisted of parents with no formal education (0.97%).

Table 1. Demographic profile of respondents

Children's Characteristics	N	%
Gender		
Male	54	52.43
Female	49	47.67
Total	103	100
Age		
6 years	21	20.39
7 years	72	69.90
8 years	10	9.71
Total	103	100
Parents' Characteristics		
Age		
Productive (15-64 years)	103	100
Total	103	100
Gender		
Male	46	44.66
Female	57	55.34
Total	103	100
Education Level		
No Formal Education	1	0.97
Elementary School	4	3.88
Junior High School	3	2.91
Senior High School	58	56.31
Bachelor's Degree	37	35.92
Total	103	100

Table 2. Description of parental behavior regarding children's oral health

No	Statement Item	Response	
		Yes (%)	No (%)
1	I have accustomed my child to brushing their teeth at least twice a day	100	0
2	I have accustomed my child to brushing their teeth using fluoride toothpaste	97.1	2.9
3	I supervise my child while brushing their teeth	83.5	16.5
4	I regularly replace my child's toothbrush every 3 months	88.3	11.7
5	I allow my child to consume sweet foods (such as chocolate, biscuits, candy, etc.) between main meals	38.8	61.2
6	I allow my child to consume sweet beverages (such as soft drinks, packaged drinks, packaged fruit juice, etc.) between main meals	33.0	67.0
7	I encourage my child to consume cow's milk or low-sugar dairy products (such as yogurt, cheese)	76.7	23.3
8	I encourage my child to consume cow's milk or low-sugar dairy products (such as yogurt, cheese)	33.0	67.0
9	I routinely take my child for dental check-ups at least every 6 months	43.7	56.3
10	I have undertaken preventive dental care such as fluoride varnish treatment at the dentist	24.3	75.7
11	I take my child to the dentist when a tooth is fractured or lost due to trauma	76.7	23.3
12	I have health insurance for my child (such as BPJS or private insurance)	84.5	15.5
13	I allow my child's decayed teeth to remain untreated	29.1	70.9
14	I take my child to the dentist for treatment of decayed primary teeth (fillings) to preserve the primary teeth	59.2	40.8
15	I continue dental treatment for my child even if it requires multiple visits to the dentist, despite being time-consuming	41.7	58.3
16	I take my child to the dentist for pit and fissure sealant treatment (coating the grooves on the chewing surface of molars)	11.7	88.3

Based on the results of data analysis on parental behavior in maintaining children's oral health, as presented in Table 2, it can be observed that the highest proportion of respondents selected "Yes" for statement number 1, namely "having accustomed their child to brushing their teeth at least twice a day," accounting for 100%. The highest proportion of "No" responses was observed for statement 16, regarding "taking the

child to the dentist for pit and fissure sealant treatment (coating the grooves on the chewing surface of molars),” at 88.3%. Furthermore, the scores for each question were categorized into three groups, as presented in Table 3.

Table 3. Categories of parental behavior regarding children’s oral health

		N	%
Category	Poor	25	24.3
	Moderate	44	42.7
	Good	34	33.0
	Total	103	100.0

Based on the results presented in Table 3, 103 respondents were categorized as having “moderate” behavior (42.7%), followed by those in the “good” category (33%). At the same time, the smallest proportion fell into the “poor” category (24.3%). A previous study conducted in South Denpasar City in 2022 reported that 64.85% of parents demonstrated good behavior, 33.17% moderate behavior, and 1.98% poor behavior.⁴ In contrast, a study conducted in Banjar Regency, South Kalimantan, in 2020 found that only 26.7% of parents exhibited good behavior, while 73.3% demonstrated less favorable behavior.³

The differences observed in the findings above may be attributed to variations in parental demographic characteristics. According to Lawrence Green’s Theory, educational level, age, and gender are predisposing factors that may influence behavior.⁴ Educational levels can affect an individual’s health behavior, as higher levels of education are associated with greater knowledge, which in turn fosters health-promoting behaviors. Age is also a predisposing factor, as increasing age is associated with physical and mental development that may influence health behavior. Gender may influence health behavior due to biological, social, and cultural factors.⁵

In this study, parental behavior in seeking fluoride varnish treatment was relatively low, at only 24.3%, despite the important role of fluoride varnish in preventing dental caries in children. The application of fluoride varnish in large groups of children, administered twice a year over two years across varying dietary habits and lifestyles, has been shown to reduce the incidence of dental caries by up to 28.3%.⁶ Fluoride varnish has also been proven effective in preventing occlusal caries in children with moderate to high caries risk.⁷

Table 4. Demographic characteristics of respondents by parental behavior regarding children’s oral health

Demographic Characteristics	Parental Behavior					
	Poor		Moderate		Good	
	n	%	N	%	N	%
Age						
Productive	25	24.3	44	42.7*	34	33.0
Gender						
Male	13	33.0	16	15.5	17	16.5
Female	12	11.7	28	27.2*	17	16.5
Education Level						
No Formal Education	0	0	1	0.97	0	0
Elementary School	1	0.97	2	1.9	1	0.97
Junior High School	1	0.97	0	0	2	1.9
Senior High School	13	12.6	28	27.2*	17	16.5
Bachelor’s Degree	10	9.7	13	12.6	14	13.6

*Highest value

The results of data analysis presented in Table 4 indicate that, based on age characteristics, most respondents fell into the “moderate” behavior category, accounting for 42.7%. Based on gender, most male parents demonstrated “good” behavior (16.5%), while female parents were predominantly in the “moderate” category (27.2%). Female parents in the “moderate” behavior category represented the dominant response when parental behavior was analyzed by gender.

Based on educational level, parents with no formal education were categorized as having “moderate” behavior. Furthermore, most parents with an elementary school education were also in

the “moderate” category, while the majority of parents with a junior high school education demonstrated “good” behavior (1.9%). Parents with a senior high school education were more frequently categorized as having “moderate” behavior (27.2%), whereas those with a bachelor’s degree were more likely to be categorized as having “good” behavior (13.6%). Parents with a senior high school education in the “moderate” category constituted the dominant response when parental behavior was analyzed based on educational level.

Table 5. Premature loss of primary teeth

	N	%
Did not experience premature loss	61	59.2
Experience premature loss	42	40.8
Total	103	100.0

The results of data analysis presented in Table 5 indicate that, among 103 children, the majority did not experience premature loss of primary teeth (59.2%), while the remaining 40.8% experienced premature loss.

The prevalence of premature loss of primary teeth at SD No. 3 Benoa can be considered relatively high. Of the 103 children, 40.8% experienced premature loss of primary teeth, while 59.2% did not. A similar study conducted at RSGM UNEJ found that 47.6% of children aged 6–9 years experienced premature loss of primary teeth.⁸ Another study at SD IT Insan Utama reported that 29.16% of children aged 9–10 years experienced premature loss of primary teeth.⁹ A previous study in Cimahi City found that 36.4% of children aged 7–11 years experienced premature loss of primary teeth.¹⁰ Differences in the prevalence of

premature loss of primary teeth may be attributed to variations in the age of the study subjects.

Premature loss of primary teeth based on tooth type showed that the most frequently affected teeth were the first primary molars (m1) at 43.6%, followed by the second primary molars (m2) at 41.5%, while the least affected were the canines at 14.9%. These findings are consistent with a study conducted in Cimahi City, which reported that the highest incidence of premature loss occurred in the first primary molars (41.8%), followed by the second primary molars (39.1%), and the lowest in canines (19.1%).¹⁰ Previous research has also reported similar findings, indicating that the first primary molars are the most commonly affected by premature loss.⁹

The higher incidence of premature loss in first and second primary molars compared to canines is influenced by tooth morphology. Posterior teeth have more pits and fissures on the occlusal surface than anterior teeth, which facilitates food impaction and bacterial accumulation.^{9,11} The increased colonization of *Streptococcus mutans* is also influenced by the timing of tooth eruption in the oral cavity. Therefore, *Streptococcus mutans* is more prevalent in posterior primary teeth, as these teeth erupt between the ages of 16 and 29 months, with the first primary molars erupting earlier than the second molars. The morphology of posterior teeth, particularly the presence of fissures on the occlusal surface, further contributes to the colonization of *Streptococcus mutans*, leading to dental caries.^{12,13} This explains why the first primary molars are the teeth most frequently affected by premature loss.

Table 6. The relationship between parental behavior and premature loss of primary teeth in children

			Parental Behavior Regarding Children's Oral Health			Total	p-value
			Poor	Moderate	Good		
Premature Loss of Primary Teeth	Did not experience premature loss	N	2	28	31	61	0,000
		%	3.3	45.9	50.8		
	Experienced premature loss	N	23	16	3	42	
		%	54.8	38.1	7.1		

The results of data analysis examining the relationship between parental behavior and premature loss of primary teeth indicate that, among 61 children who did not experience premature loss of primary teeth, the majority had parents with "good" oral health behavior (50.8%). In contrast, among the 42 children who experienced premature loss of primary teeth, the majority had parents with "poor" oral health behavior (54.8%). These findings demonstrate a significant relationship between parental behavior regarding children's oral health and the occurrence of premature loss of primary teeth in children.

Studies specifically examining the relationship between parental behavior and premature loss of primary teeth are still limited. However, when associated with dental caries, research conducted in Banjar Regency reported similar findings, indicating a relationship between parental behavior and the incidence of caries, where 73.4% of children whose parents exhibited poor oral health behavior experienced caries.¹³ A previous study in Denpasar also found a relationship between maternal behavior in caring for children's teeth and the incidence of dental caries in children.¹⁴

Inadequate oral hygiene has been identified as a risk factor contributing to the early loss of primary teeth.¹⁵ Children aged 6–8 years, or school-aged children, begin to take greater responsibility for maintaining their oral hygiene; however, parental involvement remains essential. While

children can perform basic oral hygiene practices such as tooth brushing, parental supervision is still necessary to assist in cleaning areas that are difficult to reach.¹¹ In SD No. 3 Bena, parental behavior in supervising children during tooth brushing was relatively good, with 83.5% of parents supervising their children while brushing their teeth.

Dietary patterns, particularly the consumption of food and beverages, also influence the occurrence of premature loss of primary teeth. Early exposure to sugar in children's diets is associated with a higher prevalence of dental caries. The earlier sugar is introduced, the greater the risk of caries development.¹⁶ Parents need to limit the consumption of cariogenic foods and beverages. However, 38.8% and 33% of parents at SD No. 3 Bena still allowed their children to consume sweet foods and beverages, respectively. A study conducted in Nepal among children aged six months to under 12 years demonstrated a significant relationship between the frequency of consuming sugary foods and beverages and the occurrence of severe dental caries.¹⁷

Behavior is influenced by predisposing factors such as beliefs. Parents tend to believe that visiting a dentist is only necessary when the child experiences pain.⁴ This is supported by Table 6, which shows that 59.2% of parents took their children to the dentist when the primary teeth were decayed, whereas only 11.7% and 24.3% of parents brought their children for pit and fissure

sealant and fluoride varnish treatments, respectively. In general, individuals seek dental care only when their oral health has already been compromised.¹⁵ According to BPJS Kesehatan Regulation No. 1 of 2014, Article 52 Paragraph 1, the services covered are primarily curative treatments, such as fillings using composite or GIC materials, while preventive treatments, such as pit and fissure sealants and fluoride varnish, are not covered. This may contribute to the higher proportion of parents seeking dental care when their children have cavities compared to those seeking preventive care. In addition, children experiencing dental caries often complain of pain, which can reduce appetite and prompt parents to seek healthcare services.¹⁸

A total of 40.8% of parents at SD No. 3 Bena did not take their children to the dentist for treatment of carious primary teeth, and 58.3% did not continue dental treatment if it required multiple visits. Parental behavior in utilizing healthcare services is associated with the risk of caries in children, as children remain dependent on their parents. Parents need to pay close attention to their children's oral health, especially during the transition from primary to permanent dentition.¹⁹ Dental treatment requiring multiple visits may be time-consuming and relatively costly for parents. Some parents at SD No. 3 Bena do not have health insurance, which may influence their decision to delay or avoid dental treatment that requires multiple visits. Additionally, many parents still assume that primary teeth do not require treatment because they will eventually be replaced by permanent teeth. Such parental behavior may lead to premature loss of primary teeth in children.²⁰

The implications of this study indicate that parental behavior plays a significant role in the

premature loss of primary teeth. Interventions targeting healthy parental behaviors, such as improving oral hygiene practices and limiting the consumption of cariogenic foods, are necessary.

CONCLUSION

Based on the results and discussion, it can be concluded that there is a relationship between parental behavior regarding children's oral health and the premature loss of primary teeth among students aged 6–8 years at SD No. 3 Bena. The majority of parents demonstrated "moderate" behavior regarding children's oral health, and a considerable proportion of children aged 6–8 years at SD No. 3 Bena experienced premature loss of primary teeth.

REFERENCES

1. Monte-Santo AS, Viana SVC, Moreira KMS, Imparato JCP, Mendes FM, Bonini GAVC. Prevalence of early loss of primary molar and its impact in school children's quality of life. *Int J Paediatr Dent*. 2018; 28(6): 595–601. Doi: 10.1111/ipd.12416
2. Manbait MR, Fankari F, Manu AA, Krisyudhanti E. Peran orang tua dalam pemeliharaan kesehatan gigi dan mulut. *Dental Therapist Journal* 2019; 1(2): 74–79. Doi: 10.31965/dtj.v1i2.452
3. Wiranti PA, Listiyawati, Sawitri E. Differences in knowledge and attitudes before and after oral and dental health education in elementary school students at SDN 013 Palaran Samarinda City. *Interdental Jurnal Kedokteran Gigi (IJKG)* 2025; 21(2): 197–203. Doi: 10.46862/interdental.v21i2.9409
4. Lumbanbatu AMR, Mertajaya IM, Mahendra D. *Buku Ajar Promosi Kesehatan*. Jakarta: Universitas Kristen Indonesia; 2019. p. 43-59. Available from: <http://repository.uki.ac.id/id/eprint/2759>
5. Adriantoni N, Susi, Elvira N, Adnan S, Erawati S. Perilaku orang tua sebagai faktor risiko karies pada balita. *Prima Journal of Oral and Dental Sciences* 2023; 6(1): 26–30. Doi: 10.34012/primajods.v6i1.4174
6. Wang Z, Rong W, Xu T. Effect of fluoride varnish in preventing dental caries of first permanent molars: a 24-month cluster randomized controlled trial. *International journal of environmental research and public health* 2022; 19(24): 16656. Doi: 10.3390/ijerph192416656
7. Baik A, Alamoudi N, El-Housseiny A, Altuwirqi A. Fluoride Varnishes for preventing occlusal dental caries: A review. *Dent J (Basel)* 2021; 9(6): 64-79. Doi: 10.3390/dj9060064

8. Baihaqi INI, Dwiatmoko S, Setyorini D. Incidence picture of early loss of primary first molar teeth in 6-9 year old children in dental hospital of Jember University. *Jurnal Kesehatan Gigi* 2021; 8(2): 161-165. Doi: 10.31983/jkg.v8i2.7071
9. Farani W, Dewi A. prevalensi premature loss gigi desidi pada anak usia 9-10 tahun. *Insisiva Dental Journal : Majalah Kedokteran Gigi Insisiva*. 2018; 7(2): 43-47. Doi: 10.18196/di.7295
10. Herawati H, Sukma N, Utami RD. relationships between deciduous teeth premature loss and malocclusion incidence in elementary school in Cimahi. *Journal Of Medicine & Health* 2015; 1(2): 156-169. Doi: 10.28932/jmh.v1i2.510
11. Dean JA, Jones J, Vinson LW. *McDonald and Avery's Dentistry for the Child and Adolescent*. 11th ed. St. Louis (MO): Mosby/Elsevier. 2022. p. 90-403.
12. Bottner A, He RY, Sarbu A, Nainar SMH, Dufour D, Gong SG, et al. *Streptococcus mutans* isolated from children with severe-early childhood caries form higher levels of persisters. *Arch Oral Biol*. 2020; 110: 1-7. Doi: 10.1016/j.archoralbio.2019.104601
13. Ulfah R, Utami NK. Hubungan pengetahuan dan perilaku orang tua dalam memelihara kesehatan gigi dengan karies gigi pada anak taman kanak-kanak. *An-Nadaa: Jurnal Kesehatan Masyarakat*. 2020; 7(2): 146-150. Available from: <https://ojs.uniska-bjm.ac.id/index.php/ANN/article/view/3927>
14. Jyoti NPCP, Giri PRK, Handoko SA, Kurniati DPY, Rahaswanti LWA. hubungan tingkat pengetahuan dan perilaku ibu dalam merawat gigi anak terhadap kejadian karies anak di TK Titi Dharma Denpasar. *Bali Dental Journal*. 2019; 3(2): 96-102. Doi: 10.51559/bdj.v3i2.34
15. López-Gómez SA, Villalobos-Rodelo JJ, Ávila-Burgos L, Casanova-Rosado JF, Vallejos-Sánchez AA, Lucas-Rincón SE, et al. Relationship between premature loss of primary teeth with oral hygiene, consumption of soft drinks, dental care and previous caries experience. *Sci Rep*. 2016; 6(1): 1-7. Doi: 10.1038/srep21147
16. Echeverria MS, Schuch HS, Cenci MS, Motta JV dos S, Bertoldi AD, Britto Correa M, et al. Early sugar introduction associated with early childhood caries occurrence. *Caries Res*. 2023; 57(2): 152-158. Doi: 10.1159/000529210
17. Zahid N, Khadka N, Ganguly M, Varimezova T, Turton B, Spero L, et al. Associations between child snack and beverage consumption, severe dental caries, and malnutrition in Nepal. *Int J Environ Res Public Health*. 2020; 17(21): 1-13. Doi: 10.3390/ijerph17217911
18. Riwanti D, Purwaningsih E, Sarwo I. Pengetahuan ibu tentang karies gigi anak usia dini Paud Rembulan. *Jurnal Ilmiah Keperawatan Gigi (JIKG)*. 2021; 2(1): 115-121. Doi: 10.37160/jikg.v2i1.614
19. Kaban LKDBr, Hanan N, Isnwardana R, Munir M, Fitriany E. Early loss of primary molars and changes in body mass index in students aged 7-9 years. *Interdental Jurnal Kedokteran Gigi (IJKG)*. 2025; 21(2): 184-189. Doi: 10.46862/interdental.v21i2.9909
20. Fuks AB, Peretz B, Teeth YP. *Pediatric endodontics: current concepts in pulp therapy for primary and young permanent teeth*. Ed. Israel: Springer; 2016. p. 117-140. Doi: 10.1007/978-3-319-27553-6