

The Significance of Oral Health Care in Preschool-Aged Children and the Parental Role

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ABSTRACT: Oral health in early childhood is an integral part of general health and well-being. Dental caries is recognized as the most prevalent chronic disease worldwide, especially among children from socially and economically disadvantaged families, where its prevalence can reach up to 70%. Early childhood caries not only causes pain, difficulties in chewing and speaking, and psychological problems but also negatively affects children's growth, development, and quality of life. The World Health Organization (WHO) has identified early childhood caries as a global health issue, with a prevalence ranging from 60% to 90%.

Objective: To analyze the importance of oral health care in preschool-aged children and to determine the role of parents in promoting and maintaining oral health.

Methods: The study employed scientific literature analysis, a quantitative research approach, and a questionnaire survey to assess parental attitudes, knowledge, and practices regarding oral health care in preschool children.

Results: Findings revealed that dental caries is the most common oral health problem among preschool children, alongside bruxism, malocclusion, and dental trauma. Parents' attitudes toward oral health were generally positive, with most parents acknowledging the importance of proper oral hygiene and using appropriate oral care products for children. However, differences were observed based on socio-economic and demographic factors: parents living in urban areas and those with higher incomes were more likely to ensure regular toothbrushing and visits to dental specialists.

Conclusions: Preschool children's oral health remains a significant global public health challenge with medical, social, and economic implications. Enhancing parental awareness and involvement in children's oral health care is essential to reducing the prevalence of early childhood caries and improving overall quality of life.

KEYWORDS: Children, Parents, Oral health, Oral hygiene, Dental caries, Preschool

I. INTRODUCTION

According to the World Health Organization (WHO), oral health encompasses the condition of the oral cavity, teeth, and facial structures, enabling an individual to eat, breathe, and speak properly. Oral health changes throughout life – from infancy to old age – and is closely linked to overall human health. Oral diseases are among the most common health problems worldwide, affecting people of all ages. It is estimated that 514 million children globally suffer from caries in primary teeth. Oral diseases include a wide range of conditions such as dental caries, periodontal diseases, malocclusion, fluorosis, delayed tooth eruption, pulpitis, oral mucosa inflammation, tooth loss, and oral or dental trauma. Among these, dental caries in primary and permanent teeth is the most prevalent condition among children. Untreated dental caries may impact children's health and quality of life, as well as their families and society (Lin et al., 2024). Poor oral health can also negatively influence children's nutritional status, often associated with certain parenting practices. Evidence shows that teaching oral hygiene practices from early childhood is an effective way to prevent inflammatory oral diseases, such as Early Childhood Caries (ECC). Children suffering from ECC may experience pain, loss of appetite, malnutrition, and impaired chewing (Abdulaziz, Suryanti & Setiawan, 2023). Despite significant advances in oral health, the global burden of oral diseases remains high. This is largely due to insufficient knowledge about oral hygiene, making dental caries and periodontal diseases among the most common conditions in school-aged children, with prevalence rates reaching up to 47.6% or more worldwide (Bamashmous et al., 2023). (Size 10 & Normal). This document is a template. An electronic copy can be downloaded from the conference website. For questions on paper guidelines, please contact the conference publications committee as indicated on the conference website. Information about final paper submission is available from the conference website.

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II. SUBJECT AND METHODS

Study Design

This study employed a cross-sectional, quantitative survey design to assess parents' knowledge, attitudes, and practices regarding the oral health of preschool-aged children, and to identify common oral health problems and their impact on quality of life.

Setting

The research was conducted online using an anonymous, self-administered questionnaire distributed to parents/guardians of preschool-aged children. Participation was voluntary.

Study Duration

Data collection took place from October 18 to October 30, 2024. (Other project milestones—instrument development, analysis, and reporting—followed the schedule specified in the research plan.)

Sample Size and Sampling

A total of 236 respondents (parents/guardians of preschool children) completed the survey and were included in the analysis. A non-probability convenience sampling approach was used (voluntary participation via online distribution).

Inclusion and Exclusion Criteria

Inclusion:

Adult parent/guardian of at least one preschool-aged child (0–7 years).

Completion of the anonymous online questionnaire during the data-collection window.

Exclusion:

Not a parent/guardian of a preschool-aged child.

Duplicate entries or questionnaires with substantial missing data.

Data Collection Procedures

The instrument comprised 39 items:

8 demographic/context questions (sex, age, education, residence, household income, number and age of children, relationship to child), 8 items on parental knowledge of children's oral health, 10 items on the most common oral diseases/problems in preschool children, 13 items adapted from ECOHIS (Early Childhood Oral Health Impact Scale), grouped into child impact (symptoms; function; self-image/social interaction) and family impact (parental distress; family functioning).

Measures

Primary outcomes included indicators of parental knowledge and practices in oral hygiene, reported prevalence of child oral health problems (e.g., caries, bruxism, malocclusion, trauma), and ECOHIS-based impact domains for child and family.

III. RESULTS AND DISCUSSION

A. Some concepts

Early childhood caries (ECC) is a significant chronic disease in childhood and a growing public health burden worldwide. ECC increases the risk of developing new caries lesions in both primary and permanent teeth, thus affecting lifelong oral health. Its onset is closely related to major shifts in the oral microbiome, influenced by dietary habits, oral hygiene practices, and fluoride use (Zou et al., 2022).

The World Health Organization (WHO) has identified ECC as a highly prevalent global public health problem (Zou et al., 2022). ECC affects millions of children under the age of six (Faria, Viana, Raggio, Hosey & Costa, 2020) and is associated with inappropriate infant feeding habits, such as prolonged breastfeeding or bottle feeding (Slabšinskienė et al., 2010). Researchers indicate that in the United States, up to 40% of preschool-aged children suffer from ECC (Yazdani, Mohebbi, Fazli & Peighoun, 2020). Untreated ECC remains a major medical, social, and economic burden on public health systems globally.

Children affected by ECC often experience pain, functional limitations (chewing, speaking, sleeping), psychosocial issues, and impaired quality of life (Faria et al., 2020; Hakeem et al., 2024). Furthermore, the eruption of permanent molars between the ages of 6–9 makes children especially vulnerable to caries, since these teeth are weak, poorly mineralized, and have complex fissures (Chen et al., 2023). Key risk factors for ECC include poor oral hygiene, cariogenic diet, *Streptococcus mutans* infection, enamel hypoplasia, and irregular dental visits. If untreated, caries may lead to pulpitis, infections, systemic symptoms, and diminished life quality (Kazeminia et al., 2020; Kaskova et al., 2024).

Other oral conditions observed in preschool children include gingival and mucosal diseases (Hijazi et al., 2020), recurrent aphthous stomatitis (Tecco et al., 2018), and traumatic dental injuries (Borges et al., 2017). Oral mucosal inflammations negatively affect health-related quality of life and may be caused by infections, nutritional deficiencies, stress, or systemic diseases (Andruškevičienė et al., 2017; Kamińska et al., 2022). Preventive strategies such as proper oral hygiene, the use of fluoride-containing products, and regular dental check-ups remain essential (Zou et al., 2022).

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IV. DEMOGRAPHIC CHARACTERISTICS

An anonymous questionnaire survey was conducted to evaluate parents' attitudes toward preschool children's oral health, the most common oral health problems, and their impact on quality of life. A total of 236 parents or guardians of preschool-aged children participated in the study. The questionnaire consisted of 39 items, and the results are presented in the tables and figures below. The demographic profile of respondents is presented in Table 1. The mean age of participants was 35.63 ± 6.71 years (range: 21–70 years). The majority of respondents were female (97.9%; $n = 231$), with most being mothers (94.5%; $n = 223$), followed by fathers (2.1%; $n = 5$) and grandparents (3.4%; $n = 8$). In terms of educational attainment, most participants had higher education (73.0%), followed by vocational (12.9%), secondary (10.7%), and primary (3.4%) education levels. The majority of families resided in urban areas (86.4%). Regarding household income, most respondents reported a medium income level (74.4%), while 21.4% indicated high income and 4.3% reported low income. As for family composition, nearly half of the families (48.1%) had one child, 41.3% had two children, 8.5% had three, and 2.1% had four children.

Table 1. Demographic characteristics of the study participants ($n = 236$)

Factor	Category	n	%
Sex	Female	231	97,9
	Male	5	2,1
Education	Primary	8	3,4
	Secondary	25	10,7
	Vocational	30	12,9
	Higher	170	73
Relationship to child	Mother	223	94,5
	Father	5	2,1
	Grandmother/Grandfather	8	3,4
Number of children in family	1	113	48,1
	2	97	41,3
	3	20	8,5
	4	5	2,1
Place of residence	Urban	203	86,4
	Rural	32	13,6
Household income	Low	10	4,3
	Medium	174	74,4
	High	50	21,4
Child's age	1 year	11	4,7
	2 years	36	15,3
	3 years	45	19,1
	4 years	47	19,9
	5 years	41	17,4
	6 years	41	17,4
	7 years	15	6,4

As shown in Table 2, parents raising more than one child in the family more frequently reported using an electric toothbrush for their children's oral hygiene (63.9%) compared with parents raising only one child (49.6%) ($\chi^2 = 4.948$; $df = 1$; $p = 0.035$). Similarly, dental floss was more commonly used among parents with two or more children (59.0%) than among those with one child (40.7%) ($\chi^2 = 7.866$; $df = 1$; $p = 0.006$). A comparable trend was observed for toothpaste containing fluoride, which was used by 82.8% of parents raising two or more children and by 70.8% of parents raising one child ($\chi^2 = 4.765$; $df = 1$; $p = 0.031$). Furthermore, the study revealed that parents living in rural areas more frequently reported using dental floss (68.8%) compared with those living in urban areas (47.3%) ($\chi^2 = 5.092$; $df = 1$; $p = 0.035$). In addition, parents of children aged 4–7 years were more likely to use mouthwash (18.1%) than those of children aged 1–3 years (6.5%) ($\chi^2 = 6.371$; $df = 1$; $p = 0.011$).

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Table 2. Use of oral care products for preschool children, %

Products	Number of children in the family		χ^2 ; df; p
	One child	Two or more children	
Toothbrush	76,1	75,4	0,015; 1; 0,901
Single-tuft toothbrush	44,2	47,5	0,256; 1; 0,694
Electric toothbrush	49,6	63,9	4,948; 1; 0,035*
Tongue scraper	23,9	31,1	1,543; 1; 0,244
Dental floss	40,7	59	7,866; 1; 0,006*
Interdental brushes	8,8	17,2	3,583; 1; 0,081
Toothpaste without fluoride	30,1	24,6	0,895; 1; 0,380
Toothpaste with fluoride	70,8	82,8	4,765; 1; 0,031*
Mouthwash	11,5	15,6	0,826; 1; 0,447
Other	9,7	10,7	0,54; 1; 0,833

* $p < 0.05$; χ^2 – Chi-square test value; df – degrees of freedom; p – statistical significance.

To identify the most common oral health-related problems and diseases among preschool children, parents were presented with 10 questions offering three response options: “Yes,” “No,” and “Don’t know.” The study results (see Table 3) revealed that the most frequently reported problems were dental caries (34.2%), teeth grinding (bruxism) (28.2%), malocclusion problems (18.3%), and dental trauma (17.4%). In addition, 5.2% of parents reported dental pulp inflammation, 8.6% – oral mucosal inflammation, 9.1% – baby bottle caries, 3.5% – dental fluorosis, 7.3% – dental hypomineralization, and 6.0% – delayed tooth eruption. Notably, 15.7% of parents indicated that they did not know whether their child had malocclusion problems, suggesting limited parental awareness in this area. Parents raising more than one child more frequently reported malocclusion problems (24.6%) compared with those raising only one child (11.6%) ($\chi^2 = 7.008$; df = 2; $p = 0.030$).

Similarly, these parents more often reported that their children had experienced dental caries (44.6%) than parents of only children (22.0%) ($\chi^2 = 13.151$; df = 2; $p = 0.001$).

Furthermore, parents with low household income were more likely to report malocclusion problems (30.0%) compared with those with medium (17.3%) or high income (20.0%) ($\chi^2 = 23.224$; df = 4; $p < 0.001$). Finally, parents of 4–7-year-old children more frequently reported dental caries (40.7%) than parents of children aged 1–3 years (24.2%) ($\chi^2 = 9.595$; df = 2; $p = 0.008$).

Table 3. Oral health-related problems and diseases among preschool children, % (n)

Problems / Conditions	Yes % (n)	No % (n)	Don’t know % (n)
Malocclusion problems	18,3 (43)	66 (155)	15,7 (37)
Dental caries	34,2 (79)	61,5 (142)	4,3 (10)
Dental pulp inflammation	5,2 (12)	93,1 (217)	1,7 (4)
Oral mucosal inflammation	8,6 (20)	87,9 (204)	3,4 (8)
Dental trauma	17,4 (41)	81,3 (191)	1,3 (3)
Baby bottle caries	9,1 (21)	86,6 (201)	4,3 (10)
Dental fluorosis	3,5 (8)	87,3 (200)	9,2 (21)
Dental hypomineralization	7,3 (17)	83,3 (194)	9,4 (22)
Teeth grinding (bruxism)	28,2 (66)	64,5 (151)	7,3 (17)
Delayed tooth eruption	6 (14)	90,1 (210)	3,9 (9)

The study results (see Table 4) revealed that parents who took their children to a dentist or dental hygienist 1–2 times per year or more often more frequently reported dental trauma in their children (21.1%) compared with those who visited less frequently (9.2%) ($\chi^2 = 4.496$; df = 1; $p = 0.036$). Similarly, dental hypomineralization was more often identified among children who visited dental care professionals more regularly (10.7%) than among those who did so less often (1.6%) ($\chi^2 = 4.816$; df = 1; $p = 0.027$). These findings suggest that more frequent visits to oral care specialists contribute to earlier detection of dental problems, whereas parents who take their children for dental check-ups less frequently may fail to notice or recognize oral health issues developing in their children.

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Table 4. Oral health-related problems and diseases among preschool children, %

Problems / Conditions	Visits to a dentist or dental hygienist		χ^2 ; df; p
	1–2 times per year or more often (%)	Less frequently (%)	
Malocclusion problems	21,8	21,8	0,000; 1; 0,998
Dental caries	38,2	28,6	1,828; 1; 0,213
Dental pulp inflammation	6,7	1,6	2,359; 1; 0,187
Oral mucosal inflammation	8,1	11,3	0,567; 1; 0,442
Dental trauma	21,1	9,2	4,496; 1; 0,036*
Baby bottle caries	10,1	7,9	0,251; 1; 0,801
Dental fluorosis	4,7	1,8	0,943; 1; 0,450
Dental hypomineralization	10,7	1,6	4,816; 1; 0,027*
Teeth grinding (bruxism)	30,9	29,7	0,032; 1; 0,857
Delayed tooth eruption	7	4,6	0,431; 1; 0,762

* Indicates statistical significance at $p < 0.05$; χ^2 – Chi-square test value; df – degrees of freedom; p – level of statistical significance.

To assess the impact of dental diseases on the quality of life of preschool children, questions based on the standardized Early Childhood Oral Health Impact Scale (ECOHIS) were used. Respondents were asked to rate each statement on a 5-point Likert scale, ranging from “Never (1)” to “Very often (5)”. The data presented in Table 5 demonstrate that the highest mean scores were observed in items reflecting the emotional and financial impact on parents. Parents or other family members most frequently reported feeling guilty about their child’s dental problems or treatment ($M = 1.67$), followed by feeling upset ($M = 1.60$) and reporting that dental treatment or pain had a financial impact on the family ($M = 1.55$). In addition, a moderate mean value was observed for the item indicating that children experienced pain in the mouth, teeth, or jaw area ($M = 1.38$). Conversely, the lowest mean scores were found in items describing the social and functional impact on children. Parents rarely reported that their children avoided talking to other children because of dental problems or pain ($M = 1.08$), had sleep problems due to dental problems or treatment ($M = 1.10$), avoided smiling or laughing when other children were present ($M = 1.10$), or had difficulties pronouncing words due to dental problems or treatment ($M = 1.14$). Overall, the results suggest that while oral health problems among preschool children generally have a low direct impact on children’s daily functioning, they still produce notable emotional and financial consequences for families, highlighting the importance of early prevention and parental education on children’s oral health.

Table 5. Mean scores of responses to the Early Childhood Oral Health Impact Scale (ECOHIS) (5-point Likert scale)

No.	Statements	Mean(M)	Interpretation
1	You or another family member felt guilty about your child’s dental problems or treatment	1.67	Most frequent impact
2	You or another family member felt upset because of your child’s dental problems or treatment	1.60	Emotional impact
3	Dental treatment or pain had a financial impact on your family	1.55	Financial impact
4	Your child feels pain in the mouth, teeth, or jaw area	1.38	Physical discomfort
5	Your child has been irritable or upset because of dental problems or treatment	1.32	Emotional impact
6	You or another family member missed work because of your child’s dental problems or treatment	1.32	Family impact
7	Your child has difficulty drinking hot or cold beverages due to dental problems or treatment	1.21	Functional limitation
8	Your child missed kindergarten because of dental problems or treatment	1.18	Functional limitation
9	Your child finds it difficult to eat certain foods due to dental problems or treatment	1.15	Functional limitation
10	Your child has difficulty pronouncing words due to dental problems or treatment	1.14	Functional limitation
11	Your child avoided smiling or laughing when other children were around because of dental problems or pain	1.10	Social limitation
12	Your child had sleep problems due to dental problems or treatment	1.10	Physical discomfort
13	Your child avoided talking to other children because of dental problems or pain	1.08	Social limitation

The results of the study (Table 6) indicated that 9.3% of parents reported their children experienced pain in the mouth, teeth, or jaw area, while 6.7% stated that their children had difficulty drinking hot or cold beverages due to dental problems or treatment. Additionally, 4.0% of parents reported that their children found it difficult to eat certain foods, and 4.1% indicated that their children experienced difficulty pronouncing words as a result of dental issues. A smaller proportion of parents reported that their children missed kindergarten (5.2%) or had sleep problems (3.1%) due to dental conditions. Furthermore, 10.8% of parents stated that their children had been irritable or upset because of dental problems or treatment, 3.5% that their children avoided smiling or laughing,

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and 3.1% that they avoided talking to other children due to oral discomfort or pain. The findings also demonstrated that dental problems in children had an emotional and practical impact on families. Approximately 19.4% of parents reported feeling upset, 22.8% felt guilty, 10.8% had to miss work, and 19.7% indicated that dental treatment or pain had a financial impact on the family.

Table 6. Impact of dental diseases on the quality of life of preschool children, % (n)

Statements	Never / hardly ever % (n)	Sometimes / often / very often % (n)
Your child feels pain in the mouth, teeth, or jaw area	90,7 (204)	9,3 (21)
Your child has difficulty drinking hot or cold beverages due to dental problems or treatment	93,3 (209)	6,7 (15)
Your child finds it difficult to eat certain foods due to dental problems or treatment Jūsų vaikas sunku valgyti kai kurį maistą dėl dantų problemų ar gydymo	96 (216)	4 (9)
Your child has difficulty pronouncing words due to dental problems or treatment	95,9 (208)	4,1 (9)
Your child missed kindergarten because of dental problems or treatment	94,8 (220)	5,2 (12)
Your child has sleep problems due to dental problems or treatment	96,9 (222)	3,1 (7)
Your child has been irritable or upset because of dental problems or treatment	89,2 (207)	10,8 (25)
Your child avoided smiling or laughing around other children because of dental problems or pain	96,5 (222)	3,5 (8)
Your child avoided talking to other children because of dental problems or pain	96,9 (220)	3,1 (7)
You or another family member felt upset because of your child's dental problems or treatment	80,6 (187)	19,4 (45)
You or another family member felt guilty about your child's dental problems or treatment	77,2 (176)	22,8 (52)
You or another family member missed work because of your child's dental problems or treatment	89,2 (206)	10,8 (25)
Dental treatment or pain had a financial impact on your family	80,3 (183)	19,7 (45)

To assess the associations between the impact of dental diseases on the quality of life of preschool children and sociodemographic factors of parents and children, a Spearman correlation analysis was conducted. As shown in Table 7, a higher number of children in the family was positively correlated with children experiencing pain in the mouth, teeth, or jaw area ($r = 0.139$; $p = 0.038$), tooth sensitivity ($r = 0.183$; $p = 0.006$), and missing kindergarten due to dental problems ($r = 0.138$; $p = 0.037$). Higher parental education ($r = 0.133$; $p = 0.046$) and higher household income ($r = 0.150$; $p = 0.024$) were significantly associated with sleep problems in children resulting from dental issues. With increasing child age, more frequent reports were observed of tooth sensitivity ($r = 0.207$; $p = 0.002$), missing kindergarten ($r = 0.148$; $p = 0.024$), and irritability ($r = 0.162$; $p = 0.013$). Furthermore, older child age was significantly correlated with stronger parental emotional and practical responses: parents more often felt upset ($r = 0.169$; $p = 0.010$), missed work ($r = 0.187$; $p = 0.004$), and experienced financial impact due to their child's dental pain or treatment ($r = 0.224$; $p = 0.001$).

Table 7. Associations between the impact of dental diseases on the quality of life of preschool children and sociodemographic factors of parents and children

Statements		Parents' age	Parents' education	Number of children in the family	Family income	Child's age
Your child feels pain in the mouth, teeth, or jaw area	r	0,052	0,037	0,139*	-0,094	0,117
	p	0,441	0,582	0,038	0,163	0,080
Your child has difficulty drinking hot or cold beverages due to dental problems or treatment	r	0,162*	-0,016	0,183**	-0,098	0,207**
	p	0,015	0,816	0,006	0,144	0,002
Your child finds it difficult to eat certain foods due to dental problems or treatment	r	-0,058	0,045	0,089	-0,090	0,102
	p	0,387	0,501	0,185	0,179	0,128
Your child has difficulty pronouncing words due to dental problems or treatment	r	-0,117	0,013	0,030	0,014	0,054
	p	0,085	0,853	0,666	0,842	0,428
Your child missed kindergarten because of dental problems or treatment	r	-0,029	-0,039	0,138*	-0,091	0,148*
	p	0,659	0,561	0,037	0,169	0,024
Your child has sleep problems due to dental problems or treatment	r	-0,066	0,133*	-0,061	0,150*	-0,107
	p	0,322	0,046	0,359	0,024	0,106
Your child has been irritable or upset because of dental problems or treatment	r	-0,012	0,053	-0,043	-0,022	0,162*
	p	0,856	0,423	0,513	0,744	0,013
Your child avoided smiling or laughing around other children because of dental problems or pain	r	-0,025	0,011	0,042	-0,050	-0,002
	p	0,702	0,865	0,531	0,454	0,972
	r	-0,053	0,018	0,027	-0,078	-0,040

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Your child avoided talking to other children because of dental problems or pain	p	0,430	0,786	0,684	0,245	0,550
You or another family member felt upset because of your child's dental problems or treatment	r	0,039	0,125	0,093	-0,032	0,169**
	p	0,557	0,060	0,161	0,634	0,010
You or another family member felt guilty about your child's dental problems or treatment	r	-0,069	0,053	0,123	-0,116	0,092
	p	0,297	0,430	0,065	0,082	0,164
You or another family member missed work because of your child's dental problems or treatment	r	0,002	0,006	0,124	-0,061	0,187**
	p	0,971	0,923	0,060	0,361	0,004
Dental treatment or pain had a financial impact on your family	r	0,059	0,003	0,097	-0,105	0,224**
	p	0,371	0,965	0,146	0,114	0,001

* **r** – Spearman's rank correlation coefficient; **p** – level of statistical significance; ***p** < 0.05, ****p** < 0.01.

CONCLUSIONS

1. Dental caries in preschool children remains a significant public health concern with medical, social, and economic implications. Early prevention, parental education and consistent oral hygiene are essential to reduce early childhood caries and its consequences.
2. Parental attitudes toward children's oral health were generally positive, and most reported appropriate hygiene practices. Nevertheless, sociodemographic disparities persist—parents living in urban areas and those with higher income were more likely to ensure regular toothbrushing and dental visits.
3. The most frequently reported oral health problems were dental caries, bruxism, malocclusion, and dental trauma. Among children who visited dental professionals more regularly, these problems were more often identified, likely reflecting greater detection and earlier diagnosis rather than higher true prevalence.
4. ECOHIS findings indicate a low direct impact on children's daily functioning (low mean scores on the Likert scale), but a notable emotional and practical burden on families, with parents commonly reporting guilt, distress, and financial impact.
5. Implications for practice: strengthen parental education (use of fluoride products, diet modification, habit management), promote regular preventive check-ups, and implement targeted interventions for groups where sociodemographic inequalities were observed.

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