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Analysis of factors related to visits to dental and oral health services for elementary school children in the working area of the BLUD UPTD Mekar Health Center, Kendari City

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Abstract

Background: According to the WHO (2022), the prevalence of dental and oral health problems, particularly dental caries, remains a major health problem. Elementary school-aged children are the most vulnerable group, possibly due to the influence of parental knowledge on children's dental and oral health. This lack of parental knowledge about the importance of maintaining children's dental and oral health results in low visits to pediatric dental and oral health services at community health centers.

Objective: To determine the relationship between parental knowledge and visits to dental and oral health services for elementary school children in the BLUD UPTD Mekar Health Center work area, Kendari City.

Methode: The study was conducted using a cross-sectional analytical method and sample selection using stratified random sampling. The total sample size was 305 mothers with elementary school children in the BLUD UPTD Mekar Health Center working area in Kendari City. Data were collected using questionnaires distributed to three elementary schools: SDN 86 Kendari, SDN 88 Kendari, and Madrasah Ibtidayyah Kendari.

Result: The results of the study showed that some respondents had less parental knowledge and the number of visits to dental and oral health services was less, and the results of the chi-square test were P value 0.116 or a relationship was found between parental knowledge and the number of dental and oral health services for elementary school children in the BLUD UPTD Mekar Health Center work area, Kendari City.

Conclusion: It can be concluded that in the BLUD UPTD Mekar Health Center working area of Kendari City, there is still a lack of parental understanding of children's dental and oral health, resulting in a low number of visits to the dental and oral health services for elementary school children at the Health Center.

Keywords: Elementary School Children; Dental and Oral Health; Parental Knowledge

1. Introduction

Oral health is a crucial aspect of general health and plays a crucial role in maintaining overall well-being and quality of life. Disorders affecting the oral cavity can impair chewing and speech function, and can also contribute to systemic health disorders through chronic inflammation and infection, as highlighted by Peres et al. (2020). Despite increasing global awareness, oral diseases remain highly prevalent across all age groups, largely due to a lack of knowledge and inconsistent oral hygiene practices, as noted in contemporary public health research conducted by Femala (2025). Among the most significant oral health problems is dental caries, which often coexists with periodontal disease and is a

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leading cause of morbidity in dentistry. Dental caries is a multifactorial, biofilm-mediated condition triggered by frequent sugar exposure, resulting in demineralization of tooth structure. This problem is particularly prominent among school-aged children between six and twelve years of age, a period during which the transition from primary to permanent teeth increases susceptibility to oral diseases, as observed by Fithri (2025).

Global epidemiological data provided by WHO (2022) indicates that oral diseases, particularly dental caries, affect approximately three and a half billion people, confirming their status as a substantial public health burden. School-age children are particularly vulnerable due to poor dietary practices, low awareness of oral hygiene, and limited access to dental services. Developing countries such as India experience low dental health check-up visits among schoolchildren, influenced by variables such as gender, parental education, parental awareness, and access to health services. An international study by Raj et al. (2023) found that girls are less likely to be taken for dental check-ups than boys, low parental education is correlated with a lack of awareness of the importance of dental care, and limited access is a major barrier to visits to dental health services. This study used the Andersen Behavioral Model framework, which divides risk factors into predisposing factors (gender, education), enabling factors (access, cost), and needs (health complaints). The results emphasize the need for interventions targeting education and increasing access to increase children's dental check-ups (Raj et al., 2023).

In Indonesia, the Indonesian Health Survey (2023) reported a prevalence of oral health problems of 56.9 percent, only a slight decrease from the 57.6 percent recorded in the 2018 Basic Health Survey. Despite this marginal improvement, public utilization of dental health services, particularly in primary health care facilities, remains very low. At the provincial level, Southeast Sulawesi experienced a significant increase in oral health problems, increasing from 28.6 percent in 2013 to 51.9 percent in 2018. The highest prevalence was among children aged five to nine years at 61.13 percent, followed by children aged ten to fourteen years at 47.65 percent. However, service utilization data from community health centers often do not align with provincial trends, indicating a gap between disease prevalence and service engagement, as documented by Jahadiyah (2021). This gap is also evident in Kendari City, where several community health centers report consistently low rates of dental visits among elementary school children. In particular, the BLUD UPTD Puskesmas Mekar recorded a dental visit rate of only 0.9 percent among school-aged children in 2024, far below the national target of sixty percent, as reported by the Southeast Sulawesi Provincial Health Office (2024).

Limited utilization of dental services in this area may be due to factors such as low parental awareness of the importance of oral health, negative perceptions of dental care, and a lack of facilities and resources in primary care settings. Behavioral factors such as frequent consumption of sugary foods, poor brushing habits, and limited understanding of the benefits of regular dental checkups also contribute significantly to this condition, as explained by Fadhila et al. (2023). In the broader context of health behavior, the precede-proceed model proposed by Green provides a useful framework for examining the determinants of health actions. This model identifies three main categories that influence behavior: predisposing factors such as knowledge, attitudes, and personal characteristics including age, gender, education, and occupation; enabling factors such as resources, accessibility, cost, and environmental support; and need factors such as subjective health status and symptom experience, as demonstrated by Pakpahan et al. (2020). According to Jannah et al. (2020), children with adequate knowledge and strong support from parents and schools are more likely to seek routine dental care when service accessibility and quality are satisfactory.

Findings from previous studies reinforce the relevance of this theoretical framework. Hariyani et al. (2022) observed that adequate knowledge and positive attitudes toward oral health were associated with more frequent dental visits. Pratamawari et al. (2021) reported that family support and socioeconomic status play important roles in shaping children's oral health behaviors, while school-based health programs have been shown to be effective in promoting oral hygiene practices, as highlighted by Nurchafifah et al. (2022). Furthermore, Khairinisa et al. (2023) identified fear of dental care and financial constraints as significant barriers to dental service utilization. However, many existing studies are descriptive in nature and do not thoroughly explore the quantitative relationships between these factors, particularly in urban primary healthcare settings such as the BLUD UPTD Puskesmas Mekar.

Considering these conditions, the BLUD UPTD Puskesmas Mekar was chosen as the research location due to the low rate of dental visits among elementary school children, the availability of complete children's dental health records, supportive relationships with nearby schools, and logistical accessibility conducive to field research activities. This study aims to generate a more comprehensive and evidence-based understanding of the factors associated with dental service utilization among elementary school children in this area and to provide a foundation for the development of more effective community-based dental health interventions.

2. Methods

This research is a quantitative analytical study with a cross-sectional design conducted in November 2025 on 305 mothers of elementary school children in the BLUD UPTD Puskesmas Mekar working area (SD Negeri 86 Kendari, SD Negeri 88 Kendari, and MI Kendari), who were randomly selected in a proportional stratified manner from a total population of 1,197 students based on the Slovin formula calculation (5% margin of error). Data collection was carried out using a questionnaire that had been tested for validity (Pearson Product Moment) and reliability (Cronbach's Alpha $\geqslant$ 0.60), based on the Andersen Health Service Utilization Behavior Model which includes predisposing, supporting, and need factors, with variables of knowledge, support, parental income, and accessibility to children's dental and oral health service visits. Data analysis was carried out in stages through univariate analysis, bivariate analysis using the Chi-square test ($\alpha = 0.05$), and continued with multivariable multinomial logistic regression to determine the strongest predictors while still controlling for confounding variables and ensuring the fulfillment of statistical assumptions.

3. Results

The BLUD UPTD Mekar Health Center serves an area of 2.83 km^2 in the Kadia and Pondambea Districts with a population of 19,626, supported by an annual health profile that includes health, socioeconomic, environmental, and health resource conditions. This work area is supported by various health facilities, including sub-health centers, village health posts, integrated health posts, clinics, and pharmacies, and provides outpatient services and essential health services such as maternal and child health, elderly health, and priority disease management, thereby increasing community access to quality health services.

3.1. Respondent Characteristics

Table 1 Distribution of Respondent Characteristics in the BLUD UPTD Mekar Health Center work area, Kendari City.

variables	Category	amount	Percentage
age	20-30	45	14.8
	31-40	97	31.8
	41-50	145	47.5
	51-60	18	5.9
Total		305	100
Level of education	SD	3	1.0
	SMP	8	2.6
	SMA	41	13.4
	D3	174	57.0
	Bachelor degree	63	20.7
	Strata 2	16	5.3
Total		305	100
work	Farmer	12	2.8
	Trader	19	11.7
	civil servant	93	49.7
	soldiers / police	163	30.3
	Teacher	18	5.5
Total		305	100

Source: Primary Data, 2025

Respondent characteristics describe the basic profile of mothers with school-age children in the BLUD UPTD Mekar Community Health Center service area, including age, education, and occupation. These attributes provide important context for understanding factors that may influence families' use of dental and oral health services.

The detailed distribution of these characteristics is presented in the above table.

Based on Table 1. Distribution of respondents by age shows that of the 305 respondents, the largest age group is 41-50 years old, namely 145 respondents or (47.5%), followed by 31-40 years old as many as 97 respondents or (31.8%), then 20-30 years old as many as 45 respondents or (14.8%), and 51-60 years old as many as 18 respondents or (5.9%). Distribution of respondents based on the 305 respondents, the highest level of education is associate degree (D3) as many as 174 respondents or (57.0%), followed by bachelor's degree (S1) as many as 63 respondents or (20.7%), then high school (SMA) as many as 41 respondents or (13.4%), bachelor's degree (S2) as many as 16 respondents or (5.2%) and elementary school (SD) as many as 3 respondents or (1.0%). Of the 305 respondents, the most common employment status was TNI/POLRI, namely 163 respondents or (30.3%), followed by Civil Servants, namely 93 respondents or (49.7%), then traders, namely 19 respondents or (11.7%), Teachers, namely 18 respondents or (5.5%), and Farmers, namely 12 respondents or (2.8%).

3.2. Univariate Analysis

Univariate analysis summarized the distribution of the study's key variables: primary school children's dental care visits and parental knowledge. This overview provides an initial understanding of patterns within the study population and highlights the proportion of respondents in each category before further statistical testing. The complete distribution for each variable is presented in the following combined table.

Table 2 Distribution of Respondents Based on Visits to Dental and Oral Health Services, Parental Knowledge in the Working Area of BLUD UPTD Mekar Health Center, Kendari City

variables	Category	amount	percentage
Dental and oral health service visits	≤6 months	103	33.8
	>6 months	202	66.2
Total		305	100
Parental knowledge	Enough	94	30.8
	Not enough	211	69.2
Total		305	100

Based on table 2, it shows that of the 305 respondents, according to the most visits to dental and oral health services, the most were > 6 months, namely 202 respondents or (66.2%), while ⩽ 6 months were 103 respondents or (33.8%). Furthermore, the 305 respondents according to parental knowledge, the most were parents with insufficient knowledge, namely 211 respondents or (69.2%), while parents with sufficient knowledge were 94 respondents or (30.8%).

3.3. Bivariate Analysis

Bivariate analysis evaluated the relationship between each independent variable, including parental knowledge, parental support, income, and service accessibility, and dental health service visits among elementary school children. This analysis identified factors that demonstrated statistically significant relationships before proceeding to multivariate testing. The complete results of these relationships are presented in the combined table below.

Table 3 The Relationship between Parental Knowledge and School Children's Dental and Oral Health Service Visits (n = 305)

Parental Knowledge	**Dental and Oral Health Service Visit**				**Total**		**X^2_{hit} X^2_{tab}**	**Φ**
	Enough		not enough					
	n	%	n	%	n	%		
Enough	24	25,5	70	74.5	94	100	**4,123 3,841**	**0.116**
not enough	79	37.4	132	62.6	211	100		
Total	**103**	**33.8**	**202**	**66.2**	**305**	100		

Based on the table, it shows that of the 305 respondents studied, 94 respondents had sufficient parental knowledge and 211 respondents had insufficient parental knowledge. Furthermore, of the 94 respondents who had sufficient parental knowledge, 24 respondents (25.5%) had sufficient dental and oral health service visits and 70 respondents (74.5%) had insufficient knowledge. Then, of the 211 respondents who had insufficient parental knowledge, 79 respondents (37.4%) had sufficient dental and oral health service visits and 132 respondents (62.6%) had insufficient knowledge.

4. Discussion

4.1. Relationship between Parental Knowledge and Children's Dental and Oral Health Service Visits

Based on the bivariate analysis, the results of the chi square statistical test at a 95% confidence level (α = 0.05) show that the value X^2_{count} = 4,123 > value X^2_{table} = 3,841, This means there is a relationship between parental knowledge and visits to dental and oral health services. The results of the correlation test showed a phi value of 0.116, which means there is a moderate relationship between parental knowledge and visits to dental and oral health services for elementary school children in the BLUD UPTD Mekar Health Center Working Area in Kendari City.

The results of this study align with previous research showing a significant relationship between parental support and knowledge and children's oral hygiene status. This knowledge includes information on proper dental care and the frequency of regular visits to the dentist (Primawati, 2024). Furthermore, research by Ningsih (2024), suggests that dental caries is caused by parents' lack of knowledge on how to choose a good toothbrush, when to replace it, how to brush properly, when to brush properly, and when to have their children's teeth checked regularly, all of which can contribute to caries.

However, Yuliana Nur Idzati (2021), reported different results, concluding that inadequate parental knowledge was not significantly associated with tooth persistence in children. Other factors, such as lack of information and parental interest in seeking dental health knowledge, were also found, but did not significantly impact children's dental visits or care (p-value > 0.05).

Based on an examination using a questionnaire guide in the BLUD UPTD Mekar Community Health Center work area, poor knowledge about children's dental and oral health is more often experienced by parents who do not understand important things such as brushing teeth twice a day, the best time to brush teeth (after breakfast and before bed), the role of fluoride toothpaste, the importance of caring for baby teeth, the frequency of dental checkups with a dentist (ideally every 6 months), perceptions about the effect of candy on dental health, and the habit of drinking water after meals. This lack of knowledge has an impact on low parental awareness in bringing their children for regular visits to dental and oral health services. This is in accordance with the theory of health behavior which emphasizes that low levels of parental knowledge lead to a lack of preventive measures, thus risking increasing dental health problems in children. Therefore, increasing targeted education that is appropriate to the characteristics of the community is very important to increase awareness and habits of maintaining children's dental health, while improving the quality of children's oral health in the work area.

According to Rosenstock, Strecher, & Becker, (1988) The Health Belief Model Theory supports that the knowledge and perception of risk that parents have motivates them to take preventive measures such as regular visits to the dentist (Qisthi, 2025). The Health Belief Model (HBM) explains that a person's health behavior is influenced by several main perceptions, namely susceptibility to a disease, the seriousness of the impact of the disease, the benefits of preventive measures, perceived barriers, and action cues that motivate behavioral change, parents who have a risk perception of

their child's vulnerability to dental problems, and understand the benefits of regular care and dental check-ups, tend to be more motivated to maintain and take their children to dental health services regularly.

HBM-based interventions have been shown to be effective in improving children's dental health knowledge and behavior, particularly at school age. Education structured by emphasizing perceived vulnerabilities and benefits can increase parental self-efficacy, leading to more active adoption of twice-daily brushing habits, using fluoride toothpaste, regular dental checkups, and avoiding misconceptions such as the notion that primary teeth do not require care (Kurniawati et al., 2023). Thus, HBM provides a strong theoretical framework for developing effective and sustainable dental health education programs within the family environment.

An effective solution to improve parental knowledge and behavior regarding dental and oral health visits for elementary school children is to implement an educational intervention based on the Health Belief Model (HBM). This intervention emphasizes increasing parental awareness of children's perceived susceptibility to dental problems, the seriousness of dental disease, the benefits of regular care, and reducing psychological and practical barriers to taking children to the dentist. Recent studies have shown that integrating HBM theory with gamification methods in digital education can significantly increase children's and parents' motivation and engagement in maintaining dental health. Gamification provides an interactive and fun educational approach, thereby increasing the effectiveness of sustainable behavior change (Abigayl et al., 2025).

Parents can acquire knowledge in various ways. One way is through education about dental and oral health. Dental and oral health education aims to increase public knowledge and thus achieve better dental health. This education aims to change individual and community behavior for the better. This education emphasizes cognitive aspects, so it is hoped that this will increase public knowledge about dental and oral health. Dental Health Education (DHE), including education on how to brush teeth properly, is crucial for increasing public knowledge about maintaining dental and oral health. DHE is expected to raise public awareness of the importance of maintaining dental and oral hygiene, as well as change attitudes and behaviors regarding maintaining dental and oral health (Ermawati et al., 2025).

Furthermore, structured and repeated direct dental health education is also considered highly effective. Through this education, parents receive clear information about the importance of brushing twice daily, using fluoride toothpaste, and the frequency of dental checkups every six months. This program must also be tailored to the characteristics of the community so that it is easy to understand and implement at home. With increased knowledge followed by changes in attitudes and practices, regular visits to pediatric dental services significantly increase, thereby minimizing the risk of caries and other oral health problems (Prayoga et al., 2024).

5. Conclusion

Based on the results of the research and discussion "The Relationship Between Parental Knowledge and Visits to Dental and Oral Health Services for Elementary School Children in the Working Area of the BLUD UPTD Mekar Health Center, Kendari City" it was found: Parental knowledge is related to visits to dental and oral health services for elementary school children in the Working Area of the BLUD UPTD Mekar Health Center, Kendari City with a p-value of 0.116. This study recommends that policymakers increase access and affordability of dental services, parents strengthen their involvement and support for routine dental care, and health service providers improve community outreach and school-based oral health programs. Strengthening collaboration across these groups is crucial to increase service utilization, reduce disparities, and provide a stronger foundation for future research using the same robust model.

Compliance with ethical standards

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Disclosure of conflict of interest

There is no conflict of interest in this research.

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