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Analysis of Health Service Utilization in Post-Screening Dental and Oral Examination Follow-Up for Elementary School Children

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Abstract

The utilization of health services after dental and oral health screening among elementary school children is an issue that requires serious attention, particularly in relation to efforts for the early prevention and control of dental diseases. This study aimed to analyze the factors influencing the utilization of health services for follow-up examinations after dental and oral health screening among elementary school children in Karo District. The study employed an analytic survey with a cross-sectional design. The sample size was determined using the Isaac and Michael table, resulting in 232 mothers whose children were diagnosed with dental caries, selected through multistage sampling. Data were collected using a validated and reliable questionnaire and analyzed with multiple logistic regression. The findings showed that the utilization of health services for follow-up examinations after dental and oral health screening among elementary school children in Karo District was 13.4%, far below the target (100%). The analysis indicated that predisposing, enabling, and need factors had a significant influence on the utilization of health services for follow-up examinations after screening, with a p-value < 0.005 and Exp (β) of 1.086. These factors were shown to significantly affect health service utilization. Efforts are needed to improve oral health education, empower families, and optimize the role of community health centers and schools in supporting the utilization of health services after screening.

Introduction

Oral health is an under-recognized aspect of health, despite its crucial role in supporting basic functions such as eating, speaking, and socializing, and contributing to quality of life (Butani et al., 2008) According to the World Health Organization (WHO) report on the status of oral health in 2022, approximately 3.5 billion people worldwide, or nearly half the global population, suffer from oral diseases. One of the most common oral diseases is dental caries. Dental caries is a health problem that can affect individuals of all ages, and the process begins as early as the appearance of primary teeth in childhood.

Globally, more than 2 billion cases of caries are found in permanent teeth and approximately 513 million cases in primary teeth, with prevalence rates of 29 percent and 43 percent, respectively (WHO, 2022). In developing countries, including Southeast Asia, the prevalence of dental caries among schoolchildren reaches over 60 percent and represents a significant public health challenge in many countries. Dental caries can have a devastating impact on

sufferers, not only causing pain and tooth loss, but also impacting children's academic achievement, self-confidence, and social and emotional development (Khan et al., 2024).

Based on data from the 2023 Indonesian Health Survey (SKI), the prevalence of caries in the Indonesian population (aged over 3 years) was 43.6 percent, with the prevalence of caries in children aged five to nine years reaching 49.9 percent and 37.2 percent in children aged ten to fourteen years (Ministry of Health, 2023). This indicates that dental caries in children remains a challenge that has not been adequately addressed in the public health sector, particularly in elementary school-aged children (Han et al., 2025; Shirahmadi et al., 2022).

One of the strategic steps taken by the Indonesian government to address caries early is the launch of the "Indonesia Sehat Bebas Caries" (Caries-Free Healthy Indonesia) program, targeted for achievement by 2030 (WHO, 2024). One of the government's efforts to address the problem of dental caries in elementary school-aged children is through the implementation of an integrated oral health service program within the School Health Unit (UKS). Based on Law of the Republic of Indonesia Number 17 of 2023 concerning Health, oral health services are implemented by the dental and oral health service unit and/or through the UKS as a form of preventive and promotive health intervention in the school environment.

Furthermore, based on Minister of Health Regulation No. 6 of 2024 concerning Technical Standards for the Fulfillment of Minimum Health Services, health services for elementary school-aged children include health screenings and follow-up of health screening results conducted at school through screening activities and periodic examinations. Follow-up after health screening in elementary school-aged children is a crucial stage in efforts to prevent and treat oral health problems. This follow-up examination includes establishing a more in-depth diagnosis, managing treatment according to the severity of caries, curative measures such as fillings or tooth extractions if necessary, and education on clean and healthy living behaviors related to maintaining oral health.

In its implementation, the target is to achieve 100 percent coverage of dental and oral health screening services for elementary school children annually, ensuring that all children detected with dental health problems receive follow-up care until completion. This demonstrates the government's commitment to reducing the prevalence of dental caries through integrated and continuous early detection, treatment, and education (Ministry of Health of the Republic of Indonesia, 2024).

Oral and dental health can impact quality of life, particularly in school-age children. School age is a crucial period in establishing a solid foundation for the development of quality human beings, and health is a key factor determining the quality of human resources. If left untreated, dental caries can cause pain, interfere with nutrient absorption, affect children's physical growth, and lead to frequent absences from school due to toothache. This aligns with research by Nurwati (2019) and Susilawati et al. (2023), which shows that children with high levels of dental caries tend to have a poor quality of life (11.7%).

The main oral problem faced by children today is dental caries. Elementary school-aged children are a group that is vulnerable to dental and oral diseases because generally these children still have habits that do not support dental and oral health (Riolina et al., 2020; Seni et al., 2025; Seni et al., 2025; Amin et al., 2008).

According to SKI (2023) data from school health screening activities, dental caries is the most common health problem among elementary school-aged children compared to other health problems (obesity, wasting, stunting, anemia, hypertension, refractive errors, and hearing loss). The number of dental caries cases among elementary school-aged children reached 829,573.

In Indonesia, the highest number of dental caries cases was found in West Java (148,414 cases), East Java (124,362 cases), Central Java (112,057 cases), North Sumatra (45,584 cases), and

Banten (36,709 cases). North Sumatra province ranks fourth in Indonesia for the highest number of dental caries cases. In North Sumatra Province, based on data obtained from the North Sumatra Provincial Health Office, the district/city with the highest number of dental caries cases is Medan City, with 80,596 students. Next, Deli Serdang Regency (26,192 students), Batu Bara Regency (7,225 students), North Tapanuli Regency (6,544 students), and Pematang Siantar City (5,967 students).

Of the 33 districts/cities, Karo Regency ranked tenth in dental caries cases, with 4,989 students in 2023. Karo Regency is one of the regencies in North Sumatra Province with 4,989 and 4,346 cases of dental caries among elementary school children in 2023 and 2024, respectively. The highest number of cases of dental caries among elementary school children, based on health screening results in 2024, were found in Kabanjahe District (232 cases), followed by Berastagi District (212 cases), Tigapanah District (202 cases), Merek District (160 cases), and Barusjahe (140 cases) (Karo Regency Health Office, 2024).

Based on Karo Regency Health Office data, an examination conducted in August 2024 found that 60.32 percent of elementary school children had dental caries, with an average deft index score of 5 categorized as high caries. This means that the average child had five decayed baby teeth extracted due to caries. However, 4.5 percent of children underwent follow-up examinations at health services.

Based on an initial survey conducted at three schools: Tigapanah 040527 Elementary School, Kabanjahe 040451 Elementary School, and Merek Situnggaling 043936 Elementary School, researchers studied 30 elementary school children diagnosed with dental caries. Researchers conducted further investigations by asking the children whether they had undergone a follow-up examination at the community health center after the health screening at school. They then confirmed this information directly with their mothers (Bernhardt & Felter, 2004). The results showed that 33.33 percent had undergone a follow-up examination, while 66.67 percent had not.

The reason for seeking a follow-up examination at the community health center was that the children immediately informed their mothers after being informed by the health worker (Olusanya, B. O., & Akinyemi, 2009). Utilization of health services for follow-up examinations after dental health screening in elementary school children is influenced by parental characteristics, particularly the mother's education level and knowledge. Mothers with higher education and a better understanding of the importance of dental health care tend to be more active in bringing their children for follow-up examinations at the community health center. Conversely, limited education and lack of information can be barriers that reduce the utilization of these services.

This is in line with research conducted by Olusile et al. (2014) and Manski et al. (2016), which found that people with higher education (48.7%) were more likely to utilize dental and oral health services. Furthermore, utilization of health services for follow-up examinations after dental health screening is also influenced by the characteristics of the mother's abilities. A mother's ability is influenced by the child's availability of time and communication skills (Burleson et al. 1992; Curran, 2016). Availability of time to accompany children to health facilities is often a barrier, especially for parents who work or have other responsibilities.

In research by Oktarianita et al. (2021), it was found that working people tended to be unable to utilize health services because they worked from morning to evening (27%), while community health centers were already closed when they returned home. Furthermore, a communication gap between mothers and health workers, where information about screening results and referrals is only conveyed verbally without clear written explanations, can lead to confusion or misunderstandings (Statham et al., 2003; Rowe et al., 2002; Davis et al., 2006).

This communication barrier has the potential to reduce mothers' understanding of the importance of follow-up examinations, resulting in low utilization of available dental health care services. This aligns with research conducted by Mayeka et al. (2021), which found that poor information delivery leads to underutilization of health services (73.33%).

The role of mothers is crucial in utilizing health services for follow-up examinations after dental and oral health screenings in elementary school children. As primary caregivers, mothers play a crucial role in decision-making regarding their children's health care, including ensuring their children receive follow-up care after screening results indicate problems. Mothers' knowledge, attitudes, and concern for their children's dental health directly influence the actions taken after screening.

Mothers also play a role in monitoring their children's complaints, arranging time to take them to health facilities, and acting as information liaisons between the school, the children, and health workers. Therefore, the success of a follow-up examination program is largely determined by the extent to which mothers can play an active role as decision-makers, companions, and facilitators in utilizing available health services (Yoharani et al., 2021). Based on the above background, the researcher is interested in conducting research on "Determinants of Health Service Utilization for Follow-up Examination Post-Oral Health Screening of Elementary School Children in Karo Regency."

Methods

The current study was a quantitative one, and the method used was an analytic survey designed in a cross-sectional manner. This was chosen as the design because it would allow a concomitant analysis of various variables linked to the use of health services to follow up dental and oral checks following school screening. This method provided an opportunity to identify the relationship between the characteristics of mothers by recording data at one time, thus, enabling the identification of conditions, perceived needs, and future use of health services among elementary school children.

The study was carried out in elementary schools located at Karo Regency of North Sumatra Province. The study sites were five districts of Kabanjahe, Berastagi, Tigapanah, Merek and Barusjahe. These districts have been selected as an expression of differences in geographical features, accessibility to health facilities and distribution of dental caries among school aged children. The analysis period covered the year 2025 and had a preliminary assessment and beginnings with data collection, analysis, and interpretation, thus making sure that every step of the research process was done in a structured approach and with the required preparation.

The sample size used was mothers of first-grade elementary school children aged six to eight years who were diagnosed with dental caries according to the outcomes of a school dental and oral health screening in Karo Regency in 2024. The respondents were chosen as mothers since they are key decision-makers in matters related to health among the children more so in the aspect of seeking follow up care following a health screening. A sample of 232 respondents was gotten out of this population. The sample size was calculated based on the table of Isaac and Michael and with the consideration of an estimated population of 1,650 to 2,800 people. This was considered the right method to be used to give sufficient statistical power and to make it reasonable in the field.

Multistage sampling technique was used in sampling. The selection of research locations was done in the first stage through the selection of districts in Karo Regency. The second stage was the identification of elementary schools in each of the selected districts. Inclusion criteria were used to select the eligible respondents on the final stage of the research which were mothers with their children diagnosed with dental caries at the school level as well as willing to take

part in the study. The systematic method of choosing the participants allowed a representative and organized sample to be used and reduced selection bias.

Use of health services to make follow up dental and oral examination after school based screening was the dependent variable in this study. The independent variables were categorised on the basis of a behavioural health service utilisation framework that includes predisposing factors, enabling factors and need factors. Factors that predisposed other factors involved the level of maternal education and maternal information on dental and oral health. The facilitating factors included availability of time and communication between children and mothers. The need factor was measured by the evaluation of the mothers regarding the need of their children in dental care. This theoretical division helped to gain a deeper insight into the interplay of individual, situational, and perceived need factors in influencing the use of health services.

A structured questionnaire was used to collect the data and this questionnaire had been tested in terms of validity and reliability before it was deployed in the field. The respondents were given the questionnaire face-to-face, and facilitation was given when the respondent needed any clarification on the questionnaire to reply correctly. This method would help in minimizing misunderstanding of questions and help in managing the educational background of the respondents. Data collected were sociodemographic data, information regarding the knowledge and perceptions towards dental health, time availability, family communication practices and post-school dental screening actions.

The process of data analysis was conducted in a number of steps to cover a comprehensive analysis of the research objectives. The first analysis conducted was univariate analysis which aimed at describing the disposition of respondent characteristics and study variables. The chi-square test was then used as a bivariate test to determine the relations between the independent variables and the utilisation of the health services. Variables that proved to have significant associations were then entered into a multivariate analysis using multiple logistic regression. The purpose of this last analysis was to establish the collective impact of the factors under study and discover the most significant predictors of follow-up health service use. Any statistical analysis was done with a level of significance of 0.05.

Results and Discussion

Table 1. Distribution of Respondent Characteristics

Characteristics	Respondents (n)	%
Age		
20-30 years	37	15.9
31-40 years	152	65.5
41-50 years	42	18.1
51-60 years	1	0.4
Occupation		
Civil Servant / Military / Police	9	3.9
Farmer	158	68.1
Private Employee	8	3.4
Entrepreneur	34	14.7
Housewife	23	9.9
Education		
No formal education	9	3.9
Primary School (SD)	21	9.1
Junior High School (SMP)	60	25.9
High School (SMA)	119	51.3
Higher Education	23	9.9

Total	232	100

Based on Table 1, the distribution of respondent characteristics shows that the majority of respondents are in the 31-40 year age group, namely 152 people (65.5%), work as farmers, namely 158 people (68.1%), and only graduated from high school, namely 119 people (51.3%).

Table 2. Cross Tabulation

Variable	Utilizing (n)	%	Not Utilizing (n)	%	Total (n)	%	Pearson Chi-Square
Education							
No Formal Education	1	0.43	8	3.45	9	3.88	< 0.001
Primary School (SD)	4	1.72	17	7.32	21	9.05	
Junior High School (SMP)	3	1.30	57	24.57	60	25.86	
High School (SMA)	9	3.88	110	47.41	119	51.30	
Higher Education	14	6.03	9	3.88	23	9.91	
Knowledge							0.006
High	25	10.78	109	46.98	134	57.76	
Low	6	2.59	92	39.65	98	42.24	
Time Availability							< 0.001
Available	21	9.05	45	19.40	66	28.44	
Not Available	10	4.31	156	67.24	166	71.55	
Mother-Child Communication							< 0.001
Good	21	9.05	50	21.55	71	30.60	
Not Good	10	4.31	151	65.09	161	69.40	
Assessment of Child's Dental Health Care Needs by Mother							< 0.001
Good	28	12.07	117	50.43	145	62.50	
Not Good	3	1.29	84	36.21	87	37.5	

Based on Table 2, the relationship between education and the utilization of health services for follow-up examinations after dental and oral health screening for elementary school children in Karo Regency can be seen in the table. One respondent with an incomplete education utilized health services and eight did not utilize health services. Four respondents with an elementary school education utilized health services and 17 did not utilize health services. Three respondents with a junior high school education utilized health services and 57 did not utilize health services. Nine respondents with a high school education utilized health services and 110 did not utilize health services. 14 respondents with a college education utilized health services and 9 did not utilize health services.

Data analysis using the chi-square test yielded a Pearson chi-square value of <0.001, smaller ($p<0.05$), indicating that education is related to the utilization of health services for follow-up examinations after dental and oral health screening for elementary school children in Karo Regency. Based on Table 2, the relationship between knowledge and utilization of health services for follow-up examinations after dental and oral health screening of elementary school children in Karo Regency can be seen in the table. The table shows that 25 respondents (10.78%) who had high knowledge utilized health services, while 109 respondents (46.98%) did not utilize health services. Six respondents (2.59%) who had low knowledge utilized health services, while 92 respondents (39.65%) did not utilize health services. Data analysis using the

chi-square test yielded a p-value of 0.006, which is smaller (p<0.05), indicating that knowledge is related to utilization of health services for follow-up examinations after dental and oral health screening of elementary school children in Karo Regency.

Based on table 2, the relationship between time availability and utilization of health services for follow-up examinations after dental and oral health screening of elementary school children in Karo Regency can be seen from the table that respondents who have time availability to utilize health services are 21 people (9.05%) and do not utilize health services are 45 people (19.40%). Respondents who have no time availability to utilize health services are 10 people (4.31%) and do not utilize health services are 156 people (67.24%). Based on data analysis using the chi-square test, a p-value of <0.001 is obtained, which is smaller (p<0.05) which indicates that time availability has a relationship with the utilization of health services for follow-up examinations after dental and oral health screening of elementary school children in Karo Regency.

Based on Table 2, the relationship between child-mother communication and the utilization of health services for follow-up examinations after dental and oral health screenings for elementary school children in Karo Regency can be seen from the table. The table shows that 21 respondents (9.05%) had good communication with their mothers and utilized health services, while 50 (21.55%) did not utilize health services. 10 respondents (4.31%) had poor communication with their mothers and utilized health services, while 151 respondents (65.09%) did not utilize health services. Based on data analysis using the chi-square test, a p-value of <0.001 was obtained, smaller (p<0.05), indicating that child-mother communication is related to the utilization of health services for follow-up examinations after dental and oral health screenings for elementary school children in Karo Regency.

Based on table 2, the relationship between the assessment of children's dental health care needs by mothers and the utilization of health services for follow-up examinations after dental and oral health screening of elementary school children in Karo Regency can be seen from the table that respondents who have a good assessment of children's dental health care needs by mothers in utilizing health services amounted to 28 people (12.07%) and did not utilize health services amounted to 117 people (50.43%). Respondents who have a poor assessment of children's dental health care needs by mothers in utilizing health services amounted to 3 people (1.29%) and did not utilize health services amounted to 84 people (36.21%). Based on data analysis using the chi-square test, a p-value of <0.001 was obtained, which is smaller (p<0.05) which indicates that the assessment of children's dental health care needs by mothers has a relationship with the utilization of health services for follow-up examinations after dental and oral health screening of elementary school children in Karo Regency.

Table 3. Results of Multivariate Analysis of Multiple Logistic Regression

Step	Variable	B	Exp (β)	95% C.I. for Exp (β)	P value	Lower	Upper
Step 1a	Education	-0.509	0.601	0.246	4.281	0.039	
	Knowledge	-0.272	0.762	0.460	0.348	0.555	
	Time Availability	1.302	3.677	0.494	6.939	0.008	
	Mother-Child Communication	0.909	2.483	0.494	3.390	0.066	
	Assessment of Child's Dental Health Needs by Mother	0.881	2.413	0.684	1.658	0.198	

	Constant	-0.372	0.689	1.508	0.061	0.805	
Step 2a	Education	-0.499	0.607	0.245	4.153	0.042	
	Time Availability	1.256	3.513	0.484	6.744	0.009	
	Mother-Child Communication	0.918	2.503	0.492	3.485	0.062	
	Assessment of Child's Dental Health Needs by Mother	0.876	2.400	0.684	1.638	0.201	
	Constant	-0.712	0.491	1.396	0.260	0.610	
Step 3a	Education	-0.544	0.581	0.246	4.867	0.027	
	Time Availability	1.371	3.939	0.485	7.984	0.005	
	Mother-Child Communication	1.085	2.959	0.487	4.960	0.026	
	Constant	0.083	1.086	1.265	0.004	0.948	

The results of the multivariate data analysis were then input into a multiple logistic regression model to determine the probability of utilizing health services for follow-up examinations after dental and oral health screening for elementary school children based on the associated variables. Based on the model results, it was found that respondents with education, time availability, and communication with their mothers were 88 percent more likely to utilize health services for follow-up examinations after dental and oral health screening for elementary school children. This contributed to the influence of other variables not examined in this study, accounting for 12 percent.

The Influence of Predisposing Characteristics on the Use of Health Services for Follow-up Examination After Dental and Oral Health Screening for Elementary School Children

Education

This study found that knowledge significantly influenced the utilization of health services for follow-up examinations after dental and oral health screening among elementary school children in Karo Regency, with a p-value of <0.001 ($p<0.05$). This means that the higher the mother's education level, the greater the likelihood of her child utilizing dental health services. Education plays a crucial role in improving a mother's ability to receive, understand, and interpret health information, thus influencing her decision-making regarding taking her child for follow-up examinations.

Various domestic and international studies have shown that maternal education plays a significant role in the utilization of dental health services among elementary school-aged children. In Indonesia, Amalia et al. (2012); Maharani et al. (2019); Hariyani et al. (2023) found that children of highly educated parents had lower caries rates and more frequent use of dental health services. Similar results were reported by Akpabio et al. (2008) in Batu City, and Shetty et al. (2016), who confirmed that maternal education influences mothers' knowledge and role in maintaining children's dental health.

International research also supports these findings. Chen et al. (2020) in Wuhan found that maternal education was closely associated with children's oral hygiene practices, while Baldani et al. (2011) in Brazil showed that maternal education was a strong predictor of dental health service utilization, even after controlling for income and location. Overall, maternal education improves knowledge, awareness, and behavior regarding maintaining children's dental health,

thus becoming a major predisposing factor for the sustainability of healthy behaviors in elementary school-aged children.

Education is a crucial factor determining the extent to which mothers can understand health information, identify treatment needs, and make informed decisions about taking their children for follow-up examinations. Therefore, increasing access to dental health information and education must be tailored to the community's education level, especially for mothers with secondary or lower education, so they can effectively receive and understand health messages. Furthermore, these results provide input for health workers and policymakers that health intervention programs should emphasize educational efforts that are communicative, simple, and easily understood by all levels of society, without limiting them to a specific educational level.

Knowledge

The results of this study found that knowledge influenced the utilization of health services for follow-up examinations after dental and oral health screening among elementary school children in Karo Regency, with a p-value of 0.006 ($p<0.05$). Knowledge plays a crucial role in shaping a person's awareness, attitudes, and behavior in making health-related decisions. The result of this awareness is bringing children for further examinations after screening.

These results align with research conducted by Azikin et al. (2020), which showed a relationship between knowledge and utilization of dental and oral health services, with a p-value of 0.000. Research conducted by Ningsih, et al. (2024) showed a relationship between knowledge and utilization of dental and oral health services, with a p-value of 0.011. Research conducted by Badran et al. (2023) showed a relationship between knowledge and utilization of dental and oral health services, with a p-value of 0.02.

The results of this study revealed a gap between knowledge and practice, with the majority of respondents possessing a high level of knowledge but still not utilizing post-screening health services. This situation implies that knowledge alone is insufficient to promote optimal health behaviors. Therefore, health workers need to not only provide education but also create motivation, increase access to services, and provide ongoing support so that the knowledge gained is truly translated into real-life behavior.

Practically, the results of this study can serve as a basis for community health centers and schools in designing more interactive, simple, and easy-to-understand dental health promotion programs, for example through direct outreach, visual media, and school- and family-based activities. In this way, community knowledge can be more easily applied to concrete actions, thereby sustainably increasing the utilization of children's dental and oral health services.

The Influence of Ability Characteristics on the Utilization of Health Services for Follow-up Examination After Dental and Oral Health Screening of Elementary School Children

Availability of Time

The results of this study found that time availability influenced the utilization of health services for follow-up examinations after dental and oral health screening among elementary school children in Karo Regency, with a p-value of <0.001 ($p<0.05$). This finding aligns with research conducted by Ojok et al. (2024), which showed that time availability influenced the utilization of dental health services, with a p-value of 0.044. Research conducted by Ningsih et al. (2024) also found that time availability influenced the utilization of dental health services, with a p-value of 0.0000.

The role of mothers is crucial in determining the decision to take their children to dental health services, as mothers are generally more involved in child care and support than fathers. However, mothers' limited time, whether due to work or household activities, often hinders the

utilization of dental health services. According to the WHO (2020), parental involvement, especially mothers, is a key factor in ensuring children's access to dental health services. This implies the need for a service strategy from the community health center, which includes a dedicated schedule for child checkups on a single day, involving mothers, and implementing these activities at school.

Communication Between Children and Mothers

The results of this study found that communication between children and mothers influenced the utilization of health services for follow-up examinations after dental and oral health screenings among elementary school children in Karo Regency, with a p-value of <0.001 ($p<0.05$). This is consistent with research conducted by George et al. (2019), which found that effective communication between mothers and children can increase maternal involvement in the utilization of children's dental health services.

Effective communication between children and mothers plays a crucial role in increasing children's awareness and understanding of the importance of maintaining dental and oral health. Mothers, as the primary figures in the family, play a central role in providing information, motivation, and support to children to optimally utilize dental health services. Open communication is not only a means of obtaining health information but also strengthens maternal involvement in decision-making regarding the use of children's dental health services. Communication between children and mothers can be strengthened as a strategy to increase the utilization of dental health services by providing children with dental health information to parents through the creation of simple communication tools (dental health report cards containing information about the child's dental health and recommendations for treatment needs).

The Influence of Need Characteristics on the Utilization of Health Services for Follow-up Examination After Dental and Oral Health Screening of Elementary School Children

Assessment of Children's Dental Health Care Needs by Mothers.

The results of this study found that mothers' assessments of children's dental health care needs influenced the utilization of health services for follow-up examinations after dental and oral health screenings for elementary school children in Karo Regency, with a p-value of <0.001 ($p<0.05$). This is consistent with research conducted by Cruz et al. (2004), which found a relationship between mothers' assessments of children's dental health care needs and the utilization of health services for follow-up examinations after dental and oral health screenings. Research conducted by Olatosi et al. (2020) also found a relationship between mothers' assessments of children's dental health care needs and the utilization of dental and oral health services.

The results of the study revealed that respondents who had observed symptoms of toothache in their children (66.8%), children who had complained of toothache/discomfort when eating (66.4%), respondents who understood that regular dental care can prevent more serious dental problems (53.4%), and respondents who recognized that children's dental care is not only important for oral health but also affects children's overall health (69.4%). Respondents responded quickly when their children showed signs of dental problems (69.4%), and paid special attention to their children's oral hygiene at home, such as teaching them proper tooth brushing (72%).

Mothers' assessment of their children's dental care needs not only plays a role in early detection of dental health problems but is also a key driver of health service utilization. This implies that dental health interventions should focus not only on general education but also on strengthening mothers' abilities to assess their children's dental health needs. This can be done through case-based counseling, visual educational media about the signs of tooth decay, and maternal

involvement in school health programs. This way, mothers can respond more quickly to their children's symptoms, prioritize dental care, and consistently utilize available dental health services.

Conclusion

The achievement of utilization of health services for follow-up examinations after dental health screening of elementary school children in Karo Regency was 13.4%, still far below the target (100%). Factors that influence the utilization of health services for follow-up examinations after dental health screening of elementary school children in Karo Regency are education, availability of time and communication between the child and the mother (P value = 0.027, P value = 0.005 and P value = 0.026). There is an influence of predisposing characteristics, namely education and knowledge of the mother on the utilization of health services for follow-up examinations after dental and oral health screening of elementary school children in Karo Regency (P value = <0.001 and P value = 0.006). There is an influence of ability characteristics, namely availability of time and communication between the child and the mother on the utilization of health services for follow-up examinations after dental and oral health screening of elementary school children in Karo Regency (P value = <0.001 and P value = <0.001). There is an influence of the characteristics of the needs, namely the assessment of children's dental health care needs by mothers on the use of health services for follow-up examinations after dental and oral health screening of elementary school children in Karo Regency (P value = <0.001). Based on this study, the researcher would like to suggest several things, namely: Health workers are advised to actively foster communication with mothers, especially regarding the importance of follow-up examinations after children's dental and oral health screening. This approach can be done by providing dental health reports given to children to be conveyed to mothers regarding treatment recommendations needed by the child. Health workers are advised to follow up on children who have been screened, either through school visits to ensure the child receives the necessary follow-up care.

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