

Relationship Between Mother's Level of Knowledge About Dental Health Maintenance and Dental Caries in Pre-School Age Children

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Abstract

Introduction: Dental caries in pre-school aged 3-6 years often occurs due to one of the main factors, namely the lack of knowledge of parents, especially mothers. The purpose of this study was to determine the relationship between the level of mother's knowledge about maintaining dental health and the incidence of dental caries in pre-school-age children. **Methods:** This research is a quantitative study with a cross sectional approach. Data collection techniques by observing dental caries and distributing questionnaires. The research sample is 123 respondents with total sampling technique. **Results:** most of the respondents were aged 25-34 years (50.4%), mother's education was tertiary as many as 68 respondents (55.3%), and the majority were housewives as many as 64 respondents (52.0%). The distribution of the description of the level of knowledge of the majority of mothers is sufficient, namely in 100 respondents (81.3%). Characteristics of the children showed that most of them were aged 5-6 years as many as 99 people (80.5%), and the majority were male as many as 72 children (58.5%). There were 108 children (87.8%) affected by dental caries. the majority of the mother's level of knowledge is sufficient, there are 104 children (100.0%) with dental caries. The results of the fisher exact test analysis found that there was a relationship between the level of knowledge of mothers about maintaining dental health and the incidence of dental caries in pre-school children (p value $0.000 < \alpha 0.05$). **Conclusion:** Mother's level of knowledge influences the incidence of dental caries in pre-school children.

Keywords: Preschool Children, Dental Caries, Mother's Knowledge, Maintenance of Dental Health.



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INTRODUCTION

Health is the main thing for humans, both physically and spiritually. One of the factors that affect dental and oral health is health behavior, such as paying attention to food diet, brushing teeth to clean food debris, filling teeth, and cleaning tartar. This health behavior is influenced by several things such as knowledge, attitudes, environmental influences, and availability of facilities (Dianmartha et al., 2018). Dental and oral health is the most important part of human life, because dental and oral health problems can affect overall body health (Hardika, 2018).

The mouth has many functions such as speech function, chewing function and self-confidence, so it is important to maintain oral health which will affect the health and well-being of the body in general. Disrupted oral health affects a person's performance in activities (Manbait et al., 2019). The main problem of children's dental and oral health is dental caries. Dental caries is a form of tooth decay that is most often experienced by early childhood, namely the age range of 3-6 years. Parents think that dental caries is a normal thing to experience in young children and there is no need to worry too much (Afrinis et al., 2020).

The World Health Organization (WHO, 2022) reports untreated dental caries in permanent teeth affecting as many as 2 billion people worldwide. The incidence of dental caries in primary teeth is 560 million cases. Dental caries can strike all age groups. The highest prevalence was in the United States with an 84% caries incidence rate and Asia with a 75.8%

dental caries rate. The results of the Riskesdas national prevalence of dental and oral health problems in Indonesia have increased in 2018, namely 57.6%. According to the 2018 Riskesdes report from the Ministry of Health, 93% of children who experience dental problems in the age range of 5-6 years experience cavities (Ministry of Health RI, 2018).

Dental caries is one of the oral health problems that can change public health. The incidence of dental caries is common in both children and adults (Winahyu et al., 2019). Dental caries or cavities are defined as hard tissue damage localized to a specific area on the tooth surface. Tissue damage is caused by the loss of hard tissue structures in the teeth (enamel and dentin) due to acid deposits produced by plaque bacteria that accumulate on the tooth surface. This process is a result of the metabolism of bacteria present in foods with high sugar content (Amalia et al., 2021).

Soesilawati (2020) mentions in the book Immunogenetics that dental caries is a multifactorial and infectious disease with various etiologies from host and environmental factors. Multiple factors that influence the risk of caries are environmental factors (diet and oral hygiene), host factors (saliva, tooth position, enamel characteristics, and tooth fissure depth), bacterial colony factors (*S. mutans* bacteria) and time (the process of dental caries). External factors or predispositions that are indirectly related to the occurrence of dental caries such as knowledge, attitudes, and behavior towards maintaining dental health (Rehena et al., 2020). Another factor is socio-economic. Healthy living behavior can be influenced by a person's socioeconomic status. Several factors affect socio-economic employment, education and income (Purwati et al., 2018).

The incidence of dental caries in preschool-age children often occurs due to one of the main factors, namely the lack of knowledge of parents, especially mothers (Fadlilah, 2019). Knowledge is the result of human sensing, or the result of one's knowledge of objects through the senses that are owned by themselves. Sensing produces knowledge that is strongly influenced by the intensity of attention and perception of the object being seen. (Miftakhun et al., 2016). Maintenance of community dental health, especially in preschool-age children is very important. Apart from functioning to eat and speak, dental health will also provide an overview of the growth and development of preschool-aged children. Caring for children's dental health from an early age is the best way to keep children's mouths and teeth healthy (Sholekhah, 2021).

The conditions for the growth of permanent teeth in children are determined by the growth conditions for their primary teeth. However, many parents think that primary teeth are only temporary so that damage to primary teeth is not a problem (Fadlilah, 2019). Maintaining healthy teeth such as choosing a toothbrush, type of toothpaste, right time to brush your teeth, frequency of brushing your teeth, brushing technique and having your teeth checked regularly can be a contributing factor to the occurrence of dental caries in preschool children (Sholekhah, 2021). In addition, the cause of dental and oral disease, namely plaque on the teeth, is caused by consuming a lot of sweet or cariogenic foods that are soft and easily attached, such as candy and chocolate. (Indrianingsih et al., 2018).

Untreated dental caries will have negative impacts on children such as difficulty chewing and sleep disturbances thereby reducing quality of life and productivity. It even has an impact on systemic inflammatory reactions from pulp infection which is a factor causing underweight and stunting in children (WHO, 2022). The impact of dental caries related to children's quality of life can be measured using the Child Perception Questionnaire (CPQ) instrument with the results obtained that there are problems with oral symptoms (aches and pains), changes in difficulty eating, difficulty sleeping, problems with growth and development and children's intelligence (Apra et al., 2020).

RESEARCH METHODS

The research design used is descriptive correlation using the cross sectional method (Notoatmodjo, 2018). The population in this study were mothers who had preschool-age children in Az-Zuhra Kindergarten, Bina Widya District, Pekanbaru City with a population of 123 children aged 3-6 years. The method in this study used a total sampling technique. The analysis used univariate analysis which described the characteristics of the mother and child respondents and bivariate analysis used the independent statistical fisher's exact test (level of knowledge of the mother) with the dependent variable the incidence of dental caries in preschool-aged children. Statistical test used fisher exact test. The data collection tools in this study were filling out questionnaires through the Google form and observation. Observations were made for mothers who had filled out research informed consent, filled out questionnaires via Google Form and agreed to have their children observed. The researcher conducted a direct examination and filled out the observation sheet with the calculation category if there were "Caries" = 1 if there were black spots and cavities on one or more teeth and "No caries" = 0 if there were only white spots and no cavities on all teeth.

RESEARCH RESULTS AND DISCUSSION

This research was conducted on 123 respondents in the Az-zuhra Kindergarten and obtained the following results:

Table 1. Frequency Distribution of Respondents Based on Mother's Characteristics

Characteristics of Respondents	Frequency (f)	Percentage (%)
Age (Year)		
a. 25-34	62	50,4
b. 35-44	61	49,6
Last Education		
a. Junior High School	7	5,7
b. Senior High School	48	39,0
c. College	68	55,3
Work		
a. Housewife	64	52,0
b. Self-Employed	10	8,1
c. Private Sector Employee	20	16,3
d. Honorary	20	16,3
e. Civil Servant	9	7,3
Total	123	100

Table 1 above shows that of the 123 respondents, most of the respondents were aged 25-34 years (50.4%), graduated from tertiary education as many as 68 respondents (55.3%), and the majority were housewives as many as 64 respondents (52, 0%).

Table 2. Frequency Distribution Based on Children's Characteristics

Characteristics of Child	Frequency (f)	Percentage (%)
Age (Year)		
a. 4-5	24	19,5
b. 5-6	99	80,5
Gender		
a. Female	51	41,5
b. Male	72	58,5
Total	123	100

Table 2 shows that 99 children (80.5%) are aged 5-6 years, and the majority are male, 72 people (58.5%).

Table 3. Mother's Knowledge Level

Knowledge Level	Frequency (f)	Percentage (%)
Good	19	15,4
Enough	100	81,3
Not enough	4	3,3
Total	123	100

Table 3 shows that the level of knowledge of the majority of mothers is sufficient, as many as 100 respondents (81.3%). 19 respondents (15.4%) have a good level of knowledge, and 4 respondents (3.3%) have less knowledge.

Table 4. Incidence of Child Dental Caries

Children's Dental Conditions	Frequency (f)	Percentage (%)
Caries	108	87,8
No Caries	15	12,2
Total	123	100

Table 4 out of 123 there were 108 children (87.8%) who were affected by dental caries and 15 children who were not caries (12.2%).

Table 5. Relationship between Mother's Knowledge Level and Child Dental Caries Incidence

Mother Knowledge Level	Dental Caries Incidence				Total		p value
	Caries		No Caries		F	%	
	f	%	f	%			
Good	4	21,1	15	78,9	19	100,0	0,000
Enough	104	100,0	0	0,0	100	100,0	
Total	108	87,8	15	12,2	123	100,0	

Table 5 shows the results of the correlation analysis between the level of maternal knowledge and the incidence of dental caries in preschool children aged 3-6 years. The results obtained were that at a good level of maternal knowledge, there were 4 children (21.1%) with dental caries and 15 children (78.9 %) did not have dental caries and the mother's level of knowledge was sufficient, there were 104 children (100.0%) with dental caries.

Discussion

Table 1 shows that out of 123 respondents, the majority were aged 25-34 years with 62 respondents (50.4%), this figure was almost equal to the age of the mother in the 35-44 range, namely 61 respondents (49.6%). In Santoso's research, et al (2020) with the characteristics of the mother's age, the majority, namely 86%, are in the productive age group, namely 20-35 years. This means that at a productive age, mothers are more enthusiastic about maintaining the health of their children's teeth and mouth, because at that age a person is still able to work optimally. According to Nursalam (2015), the more mature the level of maturity and strength a person will be, the more mature in thinking and working in terms of trust, a more mature society will have more trust than people who are not yet mature enough.

The majority of mothers' education is tertiary education as many as 68 respondents (55.3%). Mother's education level is very important in maintaining children's dental health. Bakar's research (2018) regarding the description of parents' knowledge of primary caries prevention in pre-school aged 3-5 years at Kemala Bhayangkari Kindergarten, it is said that

education is very influential in a person's mindset. Highly educated people will tend to be able to solve a problem (Bakar, 2018). In this study, the majority of respondents were housewives, 64 respondents (52.0%).

Yuliasri and Vatmawati (2019) mention that a person will get the opportunity to gain experience and gain knowledge by working. Fadlilah's research results (2019) stated that most of the respondents were housewives. Mothers have more opportunities to pay attention to the health of their children's teeth and mouth. This will affect dental and oral health in children in providing equipment to support dental and oral health, good food intake and regular doctor checks to prevent dental caries and to carry out early treatment if dental caries has occurred so that it is not sustainable (Fadlilah, 2019).

The research findings found that the majority were aged 5-6 years as many as 99 children (80.5%). This is supported by the opinion of Nurfauzia (2017) which states that children with pre-school age 3-6 years will experience a very high risk of caries. Especially if you are going to enter the age of changing from baby teeth to permanent teeth. In milk teeth, the enamel does not contain as many minerals as permanent teeth, so preschoolers are susceptible to caries. At preschool age (3-6 years) the growth of preschool children's teeth reaches 20 pieces, where milk teeth fall out at the end of preschool age and permanent teeth will not grow before the child is 6 years old. The lower incisors will grow at the age of 5-6 years. The muscles and skeletal system will continue to grow as they age. The heads and brains of preschoolers have reached 90% of the size of an adult human (Nurhayati, 2015).

The majority were male with 72 children (58.5%) and female with 51 children (41.5%). Ratnaningsih's research (2017) states that boys experience more dental caries than girls, even though the teeth growth of boys and girls have the same opportunity to suffer from dental caries. However, if boys experience greater caries because they tend to have a higher level of activity which will trigger hunger and increase appetite, and boys seem not selective in choosing food. Boys also like to consume cariogenic foods which trigger dental caries.

The level of knowledge of the majority of mothers is sufficient as many as 100 respondents (81.3%) while the level of good knowledge is as many as 19 respondents (15.4%). Sukarsih et al., (2018) stated that knowledge is the main factor influencing health behavior and a person's behavior in maintaining health. Putri (2021) states that knowledge is an important factor in determining one's health. The higher a person's knowledge, the easier it is for someone to receive information. Someone who has a good level of knowledge can receive information or know how to maintain good dental hygiene so as to prevent dental caries.

Of the 123 children, there were 108 children (87.8%) with dental caries. And 15 children (12.2%) were not caries. This is supported by research by Aprilia et al., (2019) which stated that the results of his study with 25 pre-school children aged 3-6 years showed that most of them had caries of 88%. The prevalence of cavities in early childhood is very high, namely 93%, meaning that only 7% of Indonesian children are free from dental caries. This number is still far from the target of the World Health Organization (WHO) which wants 93% of children aged 5-6 years to be free of dental caries. The average dental caries in children aged 5-6 years is 8 teeth or more (Ministry of Health RI, 2018).

The results of bivariate analysis in the study found that there was a relationship between the level of mother's knowledge about maintaining dental health and the incidence of dental caries in pre-school-aged children. This is supported by Ulfah's research (2020) with a sample of 60 children aged 5-6 years. Data was collected by examining dental caries in children and distributing a list of questions (questionnaire) to the child's parents. In his research, it was concluded that there was a relationship between parental knowledge and children's dental caries. The same research results were also found in the study of Chen et al., (2017) which also

stated that a higher prevalence of dental caries was found in children whose parents had a low level of knowledge compared to children whose parents had a higher level of knowledge. high knowledge. The role of the mother in the family is as a health leader and caregiver. Based on this role, a mother must know various things about dental and oral health. Knowledge is influenced by several things such as age, education and work. Age is very influential on the level of one's knowledge. The more mature the individual's age level, the more mature he will think (Sukarsih, 2018).

CONCLUSION

The results of the Chi-Square alternative test using the fisher's exact test with a correlation analysis between the level of knowledge of the mother and the incidence of dental caries in preschool children 3-6 years, obtained the results of a statistical test with a p value of 0.000, which means the p value $< \alpha$ 0.05. So it can be concluded that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted which means that there is a relationship between the level of mother's knowledge about dental health care and the incidence of dental caries in pre-school-aged children. The results of this study are expected to be a source of information, especially for mothers to be able to increase knowledge about dental caries, and are expected to serve as the basis for information to conduct further research on mother's knowledge about dental health care for pre-school children.

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