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**THE CORRELATION BETWEEN BEHAVIOR AND SOCIO-ECONOMIC OF
PARENTS AND OHI-S IN CHILDREN**

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ABSTRACT

Background: Based on Basic Health Research in 2018, children aged 5-9 years in South Kalimantan experienced tooth decay, cavities, or pain of 56.17%. Parents have an important role in forming the behavior of school-age children. Children will imitate the behavior of their parents. **Purpose:** Analyzing the correlation between parents' behavior and socioeconomic status of parents and OHI-S in children. **Method:** This study used an analytical research method with a cross-sectional approach. The number of samples in this study was 43 samples. The sample was determined by purposive sampling. The data collection techniques were conducted directly on parents and students at the Elementary School of Pemurus Dalam 1 Banjarmasin who met the inclusion criteria. The research instrument used was a questionnaire to measure the behavior and socioeconomic of parents. OHI-S was assessed on the OHI-S index. **Result:** The data were analyzed using the Spearman test. The value significant was $p=0.034$ ($p<0.05$) for the behavior correlation of parents and OHI-S in children and the significant value was $p=0.383$ ($p>0.05$) for the socio-economic correlation of parents and OHI-S in children. **Conclusion:** There is a significant relationship between the behavior of parents on OHI-S in children and there is no significant relationship between the socioeconomic status of parents on OHI-S in children.

Keywords: behavioral, children, OHI-S, socioeconomic

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INTRODUCTION

The prevalence of dental and oral health from the Basic Health Research (Riskesdas) data in South Kalimantan Province in 2013 was found to be 36.1%. It increased in 2018 by 59.60%. Problems with dental and oral health in Banjarmasin were quite high at 52.67%.¹ Based on the Riskesdas in 2018, children aged 5-9 years in South Kalimantan experienced tooth decay, cavities, or pain by 56.17%.² The behavior in maintaining dental and oral health in residents aged 3 years in Banjarmasin, such as cleaning tartar (scaling), to the dentist was still relatively low at 0.24%. The behavior of brushing teeth properly in children aged 5-9 years was also still low at 2.9%.²

Dental and oral health can be realized through the knowledge and behavior of parents. Inculcation of dental and oral health behavior can be started from school age and starts from the family. Childhood is the beginning of the formation of behavior. Therefore, it is expected that parents can educate their children to behave properly in maintaining dental and oral health.³ H. L. Bloom in his theory states that there are 4 factors that affect the health of a person or society, which are environment, behavior, heredity, and health service. The behavior of parents in caring for dental and oral hygiene can be conducted by adjusting their diet, checking their

teeth regularly every 6 months, and cleaning their children's teeth properly (how, duration and frequency, and time).⁴ The behavior of a person or community in maintaining good oral and dental health can be influenced by various supporting factors. One of which is the socioeconomic status of parents.⁵

Socio-economic status is a combination of social status with economic conditions in society. Socio-economic status can affect the family's ability to meet daily needs, including health needs.⁵ It also affects the family's ability to fulfill their food needs and implement a healthy lifestyle. People who are at a low socioeconomic status level will find a difficulty to get health services because the cost of health services is quite expensive. Moreover, parents with high education usually have good attitudes toward a healthy body. They also apply a healthy lifestyle in maintaining the health of their children's teeth and mouth.⁶

Elementary School age children (7-9 years) who already have permanent teeth are not accustomed to brushing their teeth properly and correctly. According to a survey conducted by Dewanti in Yusmaninjar, children's dental and oral hygiene conditions were worse than adults. It was because children eat and drink more which causes cavities.⁷ In addition, the level of awareness in maintaining the health of children's teeth

and mouth ⁶ still relatively low. This was influenced by the low level of knowledge about dental and oral health.⁷

Dental and oral health can be achieved with good oral and dental hygiene.⁸ Lack of public awareness in maintaining oral and dental hygiene can cause several dental and oral problems including cavities, bleeding gums, bad breath, plaque, and tartar buildup.⁹ The calculus or tartar is a collection of calcified plaque that forms and adheres tightly to the tooth surface because it does not care for dental hygiene. Debris is quickly dissolved by bacterial enzymes and cleaned 5-30 minutes from the oral cavity after eating. However, there is a possibility⁷ that some may still remain on the tooth surface.¹⁰ The level of dental and oral hygiene can be measured by an index.¹¹

An index is a number that shows the clinical condition obtained at the time of the examination. A person's level of oral hygiene can be assessed by Oral Hygiene Index Simplified (OHI-S). The criteria assessed to determine dental and oral hygiene are determined based on the level of food residue deposits (debris) and tartar (calculus) found on the tooth surface. The scoring criteria of OHI-S are good when the value is between 0-1.2. The value of fair is between 1.3-3.0. And the value of poor is between 3.1-6.0. OHI-S is performed by measuring six tooth surfaces. The teeth examined are the right and left molars and incisors in the upper and lower jaws. This examination is performed on the anterior and posterior parts of the tooth surface.¹¹

This study aims to analyze the correlation between behavior and socioeconomic status of parents and OHI-S in children at the Elementary School of Pemurus Dalam 1 Banjarmasin.

RESEARCH METHODS

This research was conducted after obtaining ethical approval from the Ethical Committee of the Dentistry Faculty, Lambung Mangkurat University with No. 066/KEPKG-FKGULM/EC/V/2022. This research used analytical research methods with a cross-sectional approach. The tools used were writing instruments, disposable dental instruments, nierbeken, hand sanitizer, APD level 3 (N95 mask, handsocon, face shield, head cap), questionnaire sheet, informed consent sheet, and the OHI-S inspection sheet. Moreover, the materials used were cotton rolls, tissue, and alcohol swab. The population was all students aged 7-9 years at the Elementary School of Pemurus Dalam 1 Banjarmasin. The sampling used purposive sampling. The total sample were 43 students with inclusion criteria being students of the Elementary School of Pemurus Dalam 1 Banjarmasin aged 7-9 years and respondents who were willing to fill the informed consent sheet.

The variables used were the behavior of the parents, the socioeconomic status of the parents, and the children's OHI-S. The data collection was conducted

directly on parents and students at Elementary School of Pemurus Dalam 1 Banjarmasin who had met the inclusion criteria. The data collection used primary data, which was based on the results. The parental behavior data were obtained from questionnaires and the children's OHI-S data were obtained by examining the children's oral cavity. The results were written in the OHI-S index assessment sheet. The data analysis used the spearman correlation test using the SPSS application (Statistical Package for the Social Science).

RESULTS

This research was conducted at the Elementary School of Pemurus Dalam 1 Banjarmasin in May 2022. The number of samples was 43 people. This research obtained the following results:

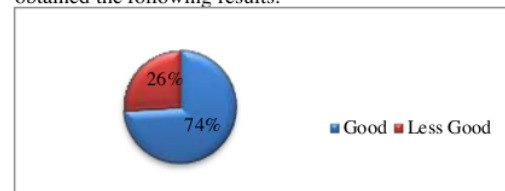


Figure 1. Pie Chart of Frequency Distribution Based on Parental Behavior

Based on the questionnaire, the results of the behavior of parents at the Elementary School of Pemurus Dalam 1 Banjarmasin are shown in Figure 1. Most parents had good behavior of 32 people (74%).

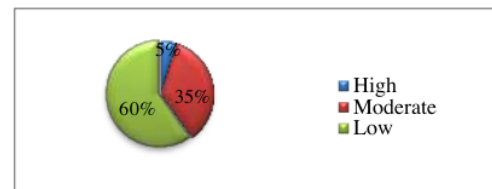


Figure 2. Pie Chart of Frequency Distribution Based on Parents' Socio-Economy

Based on the questionnaire, it was found that the socio-economic results of parents at the Elementary School of Pemurus Dalam 1 Banjarmasin are shown in Figure 2. Most parents had a low socioeconomic status of 26 people (60%).

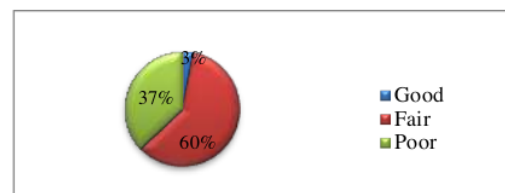


Figure 3. Pie Chart of Frequency Distribution Based on OHI-S Index in Children

Based on the direct examination of the OHI-S index in children at Elementary School of Pemurus Dalam 1 Banjarmasin, is shown in Figure 3. Most children had a moderate OHI-S index of 26 people (60%).

Table 1. The correlation test results between parents' behavior and OHI-S in children

No	Parental Behavior	OHI-S in Children			Total (%)	Value Sig.	Value r
		Good	Fair	Poor			
1	Good	1 (2%)	22 (51%)	9 (21%)	32 (74%)	0.034	0.325
2	Less Good	0 (0%)	4 (9%)	7 (17%)	11 (26%)		
Total		1 (2%)	26 (60%)	16 (38%)	43 (100%)		

Most of the behavior of parents was in the good category with the OHI-S of children in the moderate category of 22 (51%). The data analysis results of the spearman test obtained a significant value of $\rho=0.034$ ($\rho<0.05$). It indicated that there was a correlation between the behavior of parents and OHI-S in children. The results of the correlation direction were +0.325. The sign (+) indicated that the better the behavior of the parents, the better the OHI-S index of children at the Elementary School of Pemurus Dalam 1 Banjarmasin. Moreover, the correlation strength was 0.325 (sufficient correlation strength).

Table 2. The correlation test results between parents' socioeconomic and OHI-S in children

No	Socio-Economic Parents	OHI-S in Children			Total (%)	Value Sig.	Value r
		Good	Fair	Poor			
1	High	0 (0%)	0 (0%)	2 (5%)	2 (5%)	0.383	0.137
2	Moderate	0 (0%)	13 (30%)	2 (5%)	15 (35%)		
3	Low	1 (2%)	13 (30%)	12 (28%)	26 (60%)		
Total		1 (2%)	26 (60%)	16 (38%)	43 (100%)		

Most of the socioeconomic status of the parents was in the low category with the children's OHI-S being in the medium category of 13 (30%). The data analysis results of the spearman test obtained a significant value of $\rho=0.383$ ($\rho>0.05$). It indicated that there was no correlation between the socioeconomic status of parents and OHI-S in children.

DISCUSSIONS

Behavior

According to Lawrence Green's theory, the formation of individual behavior is influenced by three factors, predisposing factors, enabling factors, and reinforcing factors. Predisposing factors include knowledge, attitudes, education level, and socioeconomic. Enabling factors include the availability of health facilities and infrastructure, service access, and service quality. Reinforcing factors include the attitudes and behavior of community leaders and health workers. The results of the research conducted at Elementary School of Pemurus Dalam 1 Banjarmasin with 43 respondents showed that most of the parents' behavior was in the good category of 32 (74%). Good behavior shows that parents are able to take good dental care. The actions performed by parents also provide good examples, such as brushing teeth after eating sweet foods, cleaning the tongue when brushing teeth, and having regular check-ups with the dentist every 6 months.¹²

The children learn from their parents to meet their own basic needs. If parents give examples of good behavior, the children will follow the behavior of their parents. Good behavior is related to their level of knowledge in maintaining dental and oral health. Good knowledge leads to attitudes toward maintaining better oral and dental health.¹³ Research that has been conducted by Husna suggested that most of the roles of parents were in the quite active category. The more active the role of parents, the better the behavior of children. According to Sutomo, parents should not only play a role but they should act or give direct examples to their children.¹⁴

The actions will affect the dental health status of children. Parents can set an example and invite children to brush their teeth together before going to bed. According to Sutomo, individual awareness of dental hygiene affects a person's dental health.¹⁴

Socio-Economic

The results of the research conducted at the Elementary School of Pemurus Dalam 1 Banjarmasin showed that most of the students with the socioeconomic level of their parents were in a low category. There were several factors that affect a person's socioeconomic status, which were education, employment, and income.¹⁵ Based on the results of the questionnaire, the most recent education of the parents of the students was that they graduated from SMA/SMK/SMU/MA/MAK. The education level of parents affects caring for dental and oral health. Someone who is highly educated has better knowledge to influence attitudes and behavior in healthy living. Someone who has a low level of education also has low knowledge in caring for dental and oral health. Notoatmodjo's theory states that when a person is at a higher level of knowledge, the attention to dental health will be higher. In contrast, when someone has less

knowledge, the attention to dental care is also low. Dental and oral health services are very important. Parents must check their children's teeth at the dentist every 6 months.¹⁵

1 In addition, income and work also affect a person in maintaining dental and oral health. The most dominant income of parents were less than Rp. 1,500,000. Parents with **2**adequate income will provide better health services for their children. Meanwhile, people with less economic income will find a difficulty to meet their basic needs. Therefore, it will be difficult to provide health services for their families. Increased family income will improve economic status. It makes it easier to get education and health services according to needs. The family's economic situation determines the purchasing power of parents, such as buying toothbrushes, fluoride toothpaste, and the ability to come to the dentist.¹⁶ Most of the parents' occupations were **2**entrepreneurs. Work is a bridge to get money to meet the needs of life and to get the desired health services. So, the better a person's type of work, the more fulfilled the needs of life and dental and oral health needs for the family.¹⁷

OHI-S Index

OHI-S is an index used to measure a person's level of dental hygiene. Oral hygiene is a condition of the absence of plaque and calculus on the teeth that extends to the entire surface of the teeth. The OHI-S assessment was conducted by examining debris and calculus performed on six tooth surfaces.¹⁸

The results of research conducted at the Elementary School of Pemurus Dalam 1 Banjarmasin with 43 respondents showed that most of the children with OHI-S were in the moderate category of 26 (60%). Maintaining oral hygiene is a factor of one's awareness and behavior in maintaining oral and dental hygiene.¹⁹ This research was in accordance with Kurniawati's research, which showed that the OHI-S in most students were in the moderate category of 40 (67%). OHI-S is caused because even **1** though the mother knows everything regarding the cleanliness of the children's teeth and mouth and has taken care of the children's teeth, the mother cannot supervise the children when they are at school and play outside. The children at school like food that can damage their teeth. Besides that, after eating, they become lazy to clean their mouths.¹⁹ Based on Mawuntu's research, students' oral hygiene based on OHI-S status was mostly in the moderate category of 39 (60%) caused by age. At this age, children are still less concerned with dental and oral **2** health and still need guidance from more mature people in maintaining dental and oral hygiene.²⁰

The Correlation between Parental Behavior and OHI-S in Children **6**

According to Blum's theory, a person's dental and oral health status can be influenced by four important

factors, which are heredity, environment (physical and socio-cultural), behavior, and health service. Of the four factors, behavior plays an important role in influencing the health status of teeth and mouth. In addition to directly affecting dental and oral health status, behavior can also affect environmental factors and health services.²¹

The results of this study were statistically using the SPSS data process application. Through the Spearman test, it was obtained a significance value of 0.034 indicating that there was a behavioral relationship **12** OHI-S in children. According to Motto, one of the factors that influence the level of dental and oral hygiene is behavior. The formation of behavior comes from the daily environment and parent **7**.²²

Behavior is an important thing that can affect the **1** dental and oral health of individuals or communities. The level of dental and oral hygiene of children is related to the behavior of parents in maintaining oral hygiene.²² This **5** is supported by Margaret's research which showed that the role of parents in maintaining children's dental hygiene can affect the health status of children's teeth and mouth, especially for children who have not been able to act independently in maintaining dental and oral hygiene. The presence of parents is very important to guide and supervise children in maintaining oral health.²³

The behavior of parents has a very big role in **1** maintaining **3** the cleanliness and health of children's teeth and mouth. Children's dental health is influenced by the awareness and habits of parents in caring for dental hygiene, such as regulating diet, regular dental check-ups, cleaning teeth, and providing facilities for children to maintain dental health. Parents who have good dental and oral health behavior will also improve their children's dental and oral health.²³ Based on Andriani's research, it showed that **1** there was a relationship between mother's behavior in maintaining dental and oral hygiene **1** with the status of children's dental and oral hygiene. Mothers who pay less attention **1** and do not accompany and remind their children to brush their teeth, especially at night, indirectly familiarizes **1** their children to be lazy to maintain the cleanliness of their teeth and mouth. Also, mothers pay less attention to the types of food that their children eat, so their children eat sweet foods and stick to their teeth which cause tooth decay.²⁴

The Correlation between Parents' Socio-Economic and OHI-S

Social status is a condition of society that is always undergoing changes through a social process. The social process occurs because of social interaction. Social interaction is defined as a reciprocal relationship involving the relationship between individuals and groups of people. Economic status is a status that determines a person's position in the social structure, which is determining relationships with other people.

Several factors that affect a person's socioeconomic status are education, employment, and income.²⁵ The results of this study were statistically using the SPSS data process application. Through the Spearman test, it was obtained a significance value of 0.383, which means that there was no socio-economic relationship to OHI-S in children. The results of this study were in line with research conducted by Tjahja which found that there³ as no relationship between education and work with dental and oral⁹ hygiene status that supported dental and oral health. The results of this study were in¹² accordance with Remita's research which concluded that the level of education was not related to the dental⁴ hygiene of children in Ngagel Rejo village, Surabaya.²⁶ The level of education represented the level of a person's ability to obtain and understand information about health. The higher the education level of a person, it was assumed that the better the level of understanding of the health information obtained. The problem was that the respondent's parents had not received information about maintaining dental⁴ hygiene. During the research process, the respondent's parents stated that they rarely received information about how to maintain oral and dental hygiene. The lack of dental and oral hygiene maintenance was also caused by parents who were too busy with work. This made parents to have limited time to pay attention to their children's oral hygiene optimally and also did not control their children's teeth at the Health Center.²⁷

The children's OHI-S index can be in the moderate category, which was influenced by many factors, including the socioeconomic status of the parents. The factor that can affect students' OHI-S index was parental care. Elementary School students who were school-age children tend to need direction and guidance from their parents to raise awareness about dental and oral hygiene.²⁷ This was supported by the results of Busman's research which stated that there was a relationship between the incidence of plaque and parental care for children's oral hygiene with a significant value of $\rho=0.001$ ($\rho<0.05$).²⁷

Besides the parental concern, there were other factors that can affect students' OHI-S index.⁹ which was the child's habit of consuming sweet foods. School-age children, especially Elementary School children, are a group that is vulnerable to dental and oral diseases because they still have bad personal behavior or habits, such as liking sweet food and snacking carelessly. Therefore, it has an impact on dental health and hygiene.²⁸ School children eat a lot of sweet foods at school and many of them are not aware of the importance of brushing their teeth after eating and at night before going to bed. The food stuck between the teeth will become a place for bacteria that cause tooth decay.²⁸

According¹⁴ Malik's theory, maintaining oral and dental hygiene can be started by paying attention to diet, limiting foods that contain sugar and sticky foods,

cleaning plaque and food residue left by brushing teeth, and using dental floss.²⁹ This¹¹ as supported by the results of Savitri's study which concluded that there was a significant relationship between the frequency of intake of swe⁵ened drinks and foods with plaque accumulation with a significant value of $\rho=0.011$ ($\rho<0.05$). The correlation coefficient of 0.364 was (+). Therefore, if the frequency of sweet inta¹⁰ increased, plaque accumulation would also increase.³⁰ Based on the results of the study, it can be concluded that there was a correlation between the behavior of parents and OHI-S in children and there was no correlation between the socioeconomic status of parents and OHI-S in children.

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