

THE RELATIONSHIP BETWEEN A MOTHER'S EDUCATION AND KNOWLEDGE ON CARIES AND PERIODONTAL STATUS FOR CHILDREN OF 3-6 YEARS IN SEMAMPIR DISTRICT'S UNPROSPEROUS COMMUNITY

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ABSTRACT

Background: Dental caries and periodontal disease are global problems and can occur at any age, including children. Dental and oral hygiene and children's diet are the main risk factors for periodontal and caries disease. In preschoolers, parents, especially mothers, dominate diet choices and oral hygiene behavior. The level of education, knowledge, and socioeconomic status will affect the mother's attitude towards the child's dental and oral health. **Purpose:** This study aims to determine the relationship between education and knowledge of mothers to caries and periodontal status of children aged 3-6 years. **Methods:** This study was an observational cross-sectional analytic study with simple random sampling conducted at Balai RW 3 Sidotopo, Semampir district, Surabaya in July to August 2018. There were 110 mothers and children as respondents. The level of education and knowledge of mothers were measured through questionnaires, while the caries and periodontal status of children were measured using the DMF-T and WHO examination. The obtained data were then analyzed by Spearman correlation test. **Results:** Statistical results showed that there was a significant relationship between income and caries status of children, but there was no relationship between education and mother's knowledge of child caries. Education, knowledge, and income are also not related to the child's periodontal status. **Conclusion:** There is no relationship between education and mother's knowledge on child caries, but there is a significant relationship between income and caries status of children. While, there is no relationship between education, knowledge, and income on the child's periodontal status.

Keywords: mother's education, mother's knowledge, child's caries status, child's periodontal status, socioeconomic

INTRODUCTION

Caries and periodontal disease are the most common chronic oral diseases, which is still a global problem(1). The incidence of dental caries in school-aged children reaches up to 60-90% worldwide. Meanwhile, according to the Ministry of Health of the Republic of Indonesia, 89% of Indonesian children under 12 years of age are suffering from caries. Several studies in Brazil showed that gingival bleeding was found in children starting at the age of 3 years(2). Oral hygiene and the consumption of foods high in sugar are the main risk factors for periodontal disease and caries(3). In preschoolers, diet choices and oral hygiene behavior are dominated by parents. The attitudes of parents are influenced by several factors, such as dental and oral health behaviors, as well as various other socio-demographic factors(4).

The level of education has a more reliable link to health behavior than other socioeconomic factors. Research shows that the level of knowledge about health will increase according to the length of time a person attends school(5). Socioeconomic status is inversely proportional to general health status. The lower the socioeconomic status it is, the higher the rate of occurrence of an illness. This matter related to lifestyle, self-awareness of health status, frequency of visiting health

practitioners, and dental and oral health status(6).

Parents with low-income rates tend not to pay attention to oral and dental health and do not carry out routine check-ups to the dentist which affects children's oral health. The city of Surabaya has a poverty line number in 2017, which is IDR 474,365 per capita per month with a reduced population of 154,710 people(7). According to *Badan Pusat StatistikJatim* in 2012, Semampir district is included in one of the three poorest districts in the city of Surabaya(8) Thus, this study aims to determine the relationship of education and knowledge of mothers to caries and periodontal status of children aged 3-6 years.

METHODS

The type of research used was observational cross-sectional analytic. The population in this study were mothers and children aged 3-6 years in Semampir district's poor community in July - August 2018. The study was conducted at Balai RW 3 Sidotopo, Semampir district, Surabaya. The study samples were children aged 3-6 years with their mothers. Without distinguishing gender, the study matches with the following sample criteria: cooperative children aged 3-6 years, mothers of children aged 3-6 years, and children with the good health condition.

The sampling technique used in this study is a simple random sampling technique. Samples are then taken from the selected area. Child caries status was measured through direct observation of the subject's oral cavity based on dentition status according to *Riskesdas* 2018 and the calculation of caries status will be measured through DMF-T calculations according to WHO using the dmft index while the periodontal status will be measured using the WHO index. Mother's knowledge about oral health will be measured through a questionnaire regarding the children's tooth brushing pattern and diet. Mother's education level is the last formal education that has been taken by the mother. It is divided into 4 groups: not graduating from elementary school or not attending school, completed elementary school / equivalent, completed middle School / equivalent, completed high school / equivalent, and completed degree of bachelor / master / doctorate, and diploma / undergraduate education. This research involves participants in the process using a questionnaire that was accordant with the ethical research principle based on the regulation of research ethic regulation. The present study was carried out following the research principles. This study implemented the basic principle ethics of respect, beneficence, non-maleficence, and justice.

The mother was given an informed consent sheet as a form of approval for being the research object and a questionnaire to be filled out followed by an examination to the oral cavity of children. The observations are recorded on the examination sheet. The data obtained will then be processed using the SPSS program with data analysis using the Spearman test to determine the correlation of the relationship between mother's education and knowledge to caries and periodontal status of children.

RESULTS

The caries prevalence of children aged 3-6 years in the unprosperous community in Semampir district has a very high DMF-T value of 8,4 with a percentage of 88% of 110 children who have been examined. No periodontal pocket was found in this examination, while bleeding on probing was found in 7 children or 6% of 110 children examined. Based on table 1, it can be seen that the children's dmft value is very high from each mother's education level (DMF-T > 6.5). The statistical test of the relationship between the mother's level of education to the caries status of children aged 3-6 years in Semampir district shown that we obtain the p-value = 0.379 (p-value > 0.05), which means that there is no relationship between a mother's education level to a child's caries status.

Table 2 shows that the child's DMF-T value is very high from low to very high mother's knowledge category (DMF-T > 6.5). Based on the statistical test of the relationship between the mother's knowledge to caries status, we obtain the p-value of 0.396 (p-value > 0.05), which means

that there is no relationship between a mother's knowledge to a child's caries status.

Table 1. Correlation between Mother's Education Level and Children's Caries Status

Mother's Education	Total	Children's dmft	Information	Significance
Not graduating elementary or not attending school	19	9,7	Very High	Correlation Coef. = -0,085 P-value = 0,379
Complete Elementary School	27	8,2	Very High	
Complete Middle School	22	7,5	Very High	
Complete High School	39	7,9	Very High	
Diploma / S1/ S2/ S3	3	14	Very High	

Table 2. Correlation between Mother's Knowledge and Children's Caries Status

Mother's Knowledge	Total	Children's dmft	Information	Significance
Very Low	0	-	-	Correlation Coef. = 0,082 P-value = 0,396
Low	3	7,3	Very High	
Moderate	5	7	Very High	
High	59	7,8	Very High	
Very High	43	9,3	Very High	

Table 3. Correlation between Parent's Incomes and Children's Caries Status

Income per month	Total	Children's dmft	Information	Significance
< Rp 1.000.000	24	11	Very High	Correlation Coef. = -0,439 P-value = 0,000
Rp 1.000.000 - Rp 1.999.999	45	9,2	Very High	
Rp 2.000.000 - Rp 2.999.999	25	8,1	Very High	
Rp 3.000.000 - Rp 3.999.999	14	2,5	Low	
≥ Rp 4.000.000	2	3,5	Moderate	

Table 4. Correlation between Mother's Education Levels and Periodontal Status of Children

Mother's Education	Total	Bleeding	Pocket	Significance
Not graduating elementary or not attending school	0	-	-	Correlation Coef. = 0,107 P-value = 0,268
Elementary School	2	7	0	
Complete Middle School	1	2	0	
Complete High School	4	11	0	
Diploma / S1/ S2/ S3	0	-	-	

Table 5. Correlation between Mother's Knowledge and Periodontal Status of Children

Mother's Knowledge	Total	Bleeding	Pocket	Significance
Very Low	-	-	-	Correlation Coef. = 0,048 P-value = 0,621
Low	-	-	-	
Moderate	-	-	-	
High	4	9	0	
Very High	3	11	0	

Table 6. Correlation between Parent's Incomes and Children's Periodontal Status

Income per month	Total	Bleeding	Pocket	Significance
< Rp 1.000.000	2	5	0	Correlation Coef. = -0,071 P-value = 0,460
Rp 1.000.000 - Rp 1.999.999	3	9	0	
Rp 2.000.000 - Rp 2.999.999	2	6	0	
Rp 3.000.000 - Rp 3.999.999	0	-	-	
≥ Rp 4.000.000	0	-	-	

Based on table 3, the prevalence of child's caries from the three lowest income categories has a very high value (DMF-T > 6.5). For the income category of IDR 3,000,000 - IDR 3,999,999 has a child's DMF-T value of 2.5. It is included in the low category (1.6-2.6). Whereas in the highest income category that is ≥ IDR 4,000,000 has a value of child's DMF-T 3.5. This value is included in the moderate category (2.7 – 4.4). The statistical test of the relationship between the parents level of income to caries status, shows that the p-value of 0.000 (p-value < 0.05), which means that there is a significant relationship between the parents' level of income to the child's caries status.

Based on table 4, it is known that the frequency of child's periodontal disease in the mother's education level of the primary school graduate category is two children with a total score of bleeding on probing 7. Then, it continues to graduating junior high school as much as one child with a total score of bleeding on probing 2 and graduating high school four children with a total score of bleeding on probing 11. For the category of not graduating elementary or not attending schools and diplomas / bachelor / master / doctorate, there is no bleeding on probing in children. Based on statistical tests, the p-value was 0.268 (p-value > 0.05), which means there was no relationship between maternal education level and child's periodontal status.

Table 5 shows that there is no bleeding on probing in children of mothers with very low, low, and moderate knowledge categories. On the other hand, there were four children who experienced bleeding on probing from mothers in the high category and three children from the very high category. Based on statistical tests, we obtained the p-value of 0.621 (p-value > 0.05), which means there is no relationship between the levels of knowledge of mothers to the periodontal status of children.

From the table 6, it is known that there are two children with bleeding on probing from the < IDR 1,000,000 category, three children from the IDR 1,000,000 - Rp 1,999,999 category, and two children from IDR 2,000,000 - IDR 2,999,999 category. Based on statistical tests obtained, the p-value of 0.460 (p-value > 0.05), which means there is no relationship between the level of income of parents to the child's periodontal status.

DISCUSSION

Distribution of caries status in children aged 3-6 years in unprosperous community in Semampir district showed 88% of children had dental caries and obtained a DMFT-T of 8.4 which is included in the very high category according to WHO. Based on the analysis results of the data obtained it can be concluded that there is no relationship between the level of education of the mother on the caries status of children aged 3-6 years in underprivileged communities in Semampir Sub-district. In another research conducted, it is shown that there is no relationship between the mother's level of education towards the habit of children brushing their teeth(9). The study also concluded that there was no direct influence between a mother's education level on children's dental and oral health behavior. However, the relationship was indirect and was mediated by the mother's oral and dental health behavior.

Based on the results of the study, the relationship between the mother's level of knowledge towards the caries status of children aged 3-6 years in the unprosperous community in Semampir district, it can be concluded that there was no correlation between the mother's levels of knowledge on child caries status. It is in line with previous research which shows that mother's knowledge of good health or dental and oral care of children is not necessarily followed by behavior that is under their knowledge(10). Good knowledge without being followed by behaviors to treat dental and oral health such as the habit of giving sweet food as a reward, irregular visits to the dentist, and lack of supervision on how to brush a child's teeth are among the causes of high caries rates(11).

In the study of the relationship of economic status to the caries status of children, the results show that there is a significant relationship between the levels of income of parents to child caries status. This matter is in accordance with the other research which shows that there is a relationship that is inversely proportional to socioeconomic status to general health status(6). Children from parents who have low income will find it challenging to provide health services for their families(12). Children from low-income families tend to have a diet that is low in nutrition and rich in sugar and fat, which can affect the development of caries(13).

Based on the study on the relationship of education, knowledge, and economic status to the periodontal status of children aged 3-6 years in the unprosperous community in Semampir district, it was found that there was no relationship between education, knowledge, and economic status on the child's periodontal status. The results of the distribution of periodontal status in this study showed that seven children experienced bleeding on probing or only 6% of the total samples studied. It is in accordance with the previous research, which concluded that there was no significant relationship between the prevalence of gingivitis in children with parents' socioeconomic level(14). Periodontal disease is generally caused by pathogenic microorganisms in the oral biofilm or plaques that accumulate around the teeth due to low dental and oral hygiene.

Periodontal disease will develop if the number of gram-negative bacteria and subgingival plaques increases. Poor oral hygiene is the most important etiological factor of gingival bleeding. Improving how to brush the teeth is the best prevention that can be done. The same results were also found in a study regarding the relationship between children's dental and oral health status to the socioeconomic status, knowledge, and behavior of parents(15). This study shows that there is no relationship between parents' knowledge of the frequency of children brushing their teeth, discussions between children and parents about brushing teeth, and the frequency of dental visits. The prevalence of gingivitis will increase with the age of the child. The increase associated with the age of the child is caused by the occurrence of exfoliation and the process of tooth eruption, which causes increased plaque accumulation(13). Plaques on the proximal surface will increase according to age because there are anatomical differences between primary teeth and changes in periodontal tissue morphology(16).

CONCLUSION

The level of education and knowledge of mothers does not affect the caries status of children aged 3-6 years. However, another affection factor is the income level in unprosperous community in Semampir district. The level of mother's education, knowledge, and income of parents do not affect the periodontal status of children aged 3-6 years in unprosperous community in Semampir.

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