

Relation of mother's knowledge about dental and oral health care with kindergarten student's dental caries status (*Hubungan pengetahuan ibu tentang pemeliharaan kesehatan gigi dan mulut dengan status karies gigi murid taman kanak-kanak*)

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ABSTRAK

Karies gigi merupakan salah satu bentuk kerusakan gigi yang paling sering dialami anak usia prasekolah, yang dapat mengganggu proses tumbuh kembangnya. Instruksi pemeliharaan kesehatan gigi dan mulut di rumah telah banyak dibuat oleh para ahli. Program tersebut menekankan pada pencegahan terjadinya karies. Peran serta orang tua sangat diperlukan untuk membimbing, memberi pengertian, mengingatkan, dan menyediakan fasilitas kepada anak agar anak dapat memelihara kebersihan gigi dan mulutnya. Tujuan penelitian observasional analitik dengan rancangan cross sectional study ini adalah untuk mengetahui hubungan pengetahuan ibu tentang pemeliharaan kesehatan gigi dan mulut dengan status karies gigi murid TK Kusudarsini di Makassar. Subjek penelitian terdiri dari murid-murid yang hadir dan mengembalikan kuesioner penelitian, sehingga diperoleh 33 anak. Uji korelasi pearson digunakan untuk melihat korelasi antara variabel pengetahuan ibu tentang pemeliharaan kesehatan gigi dan mulut dengan status karies gigi anak. Hubungan korelasi antara nilai pengetahuan ibu dan nilai df-t, didapatkan nilai sebesar $r = -0,263$ dan $p = 0,133$ yang berarti tidak terdapat hubungan yang signifikan secara statistik antara pengetahuan ibu dengan status karies gigi anak. Disimpulkan bahwa tidak ada hubungan yang bermakna antara pengetahuan ibu tentang kesehatan gigi dan mulut dengan status karies anak-anaknya. Makin baik pengetahuan dari ibu, makin rendah nilai df-t.

Kata kunci: pengetahuan, kesehatan mulut, karies gigi

ABSTRACT

Dental caries is one of the most frequent tooth decays experienced by pre-school children which can interfere with their growth process. Maintenance instructions for oral health at home have been made by experts. The program emphasizes the prevention of caries. Parental participation is necessary in guiding, giving understanding, reminding, and providing the facilities to children so they can maintain the cleanliness of their teeth and mouth. The purpose of this observational analytic cross sectional study was to determine the relation of mothers' knowledge of dental and oral health care and dental caries status of students at *Kusudarsini* Kindergarten in Makassar. Research subjects consisted of 33 kindergarten students who attended and participated in the study and returned questionnaire study. Pearson correlation test was used to see the correlation. Correlation between the mother's knowledge and the value of df-t, showed $r = -0.263$ and $p = 0.133$, which means there is no statistically significant relationship between knowledge of mothers with dental caries status of children. This study concluded that there is no significant relationship between mothers' knowledge of dental and oral health with their children's caries status. The better the mother's knowledge, the lower df-t value.

Keywords: knowledge, oral health, dental caries

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INTRODUCTION

Health is important in everyday life to get the generation of a strong nation. Besides, health also aims to increase awareness, willingness and ability of healthy life in order to have optimal public health.¹

Mouth is the first gate in the digestive system. Food and beverages will be processed in the mouth with the help of teeth, tongue and saliva. Maintenance of oral hygiene is one way to improve health. The mouth is more than just for the food and beverage entrance and not many people realize the significant role of the mouth to the health and well-being of a person. Therefore, oral health plays an important role in supporting one's health.²

Research on dental caries in children aged 1-3 years in Iran, stated that caries prevalence was

higher in children whose parents are low educated, whereas in children who have high educated parents, caries prevalence tends to be lower. These results are also influenced by the knowledge level and parenteral health maintenance on their children's dental and oral health.³

A research shows that many mothers do not know how to prevent caries in their children. In 1998 Hood, et al identified that 26.7% of mothers of ≤ 5 -year-old children who bring their children to dental school for dental extractions under general anesthesia, does not know how to prevent their children's dental caries.⁴

Maintenance instructions for oral health in the home has been compiled by experts. The program emphasizes the prevention of caries. Many parents do not pay attention to the cleanliness of the milk teeth

because they think that milk teeth are only temporary and will be replaced by permanent teeth so that they.⁴

Parenteral participation is necessary in guiding, giving the understanding, reminding, and providing facilities to children so that children can maintain the cleanliness of the teeth and mouth. In addition parents also have significant role in preventing accumulation of plaque and caries in children. Knowledge of parents is very important in the formation of the underlying behaviors that support or do not support the oral hygiene of children. Such knowledge can be obtained naturally or are planned that through the educational process. Parents with low education about oral health is a predisposing factor of behavior that does not support oral children's health.⁵

Pre-school children defined by Biechler and Snowman are those between the ages of three to six years who usually follow the pre-school education programs. Pre-school children in Indonesia generally join Daycare program, Play Group, and Kindergarten Program. Basically pre-school education programs in Indonesia are divided into three parts, namely formal, non-formal, and informal.⁶

According Notoatmodjo, knowledge is the result of human knowing that simply answers the question "what". Knowledge is the result of the idea, and it occurs after sensing towards a particular object. Cognitive is a very important domain in shaping a person's actions. According to Bloom and Skinner, knowledge is the ability to resay what he knew in the form of the answers proof either oral or written. The written evidence is a reaction from a stimulation in the form of the question either oral or written.⁷

One of the most tooth decays in children is dental caries which is a multi factorial disease that involves the chronic teeth vulnerability, cariogenic microfloras, and oral environments. The process of demineralization of dental hard tissue which is then followed by the destruction of organic elements can lead to bacterial invasion, the death of the pulp and periapical infection spread, causing a feeling of pain.⁸ Caries occurs not because of one single incident just like other infectious diseases, but due to series of processes that occur during a period of time. In 1960 Keyes and Jordan stated that caries is a multi factorial disease, that is the presence of multiple factors that cause cavities. The three main factors that play a role are the host, agent agent, or microorganism, substrate or diet, and the additional factor of time.⁹

Education is the second important factor after the socioeconomic factor that influences attitudes toward knowledge, and behavior of a person to live healthily. Someone who has a higher level education is expected to have a good knowledge and attitude

about health and to share with low-education people who require more information.⁹

One factor that can prevent caries in children is parental knowledge about dental treatment which is the basis for the formation of the child's behavior to perform dental work properly. Parents need to know, teach and train children from an early age to take care of their own teeth because at this age they have reached their motoric maturity followed by the intellectual development has been able to learn. Parents who have insufficient knowledge of their children's dental care sometimes do not care and do not support their children's dental health.⁸

Parents often overlook the growth and the maintenance of primary teeth. Most of them think that primary teeth are not important because they will be replaced by permanent teeth. The early tooth decay will reduce the functionality of the teeth and affect the growth of permanent teeth.²

Parents' awareness to bring their children to consult is still considered low. This is evident from the many cases of children who see their dentist only if a problem has occurred, for example, when a child's swollen cheek due to broken teeth.¹⁰

According to Iannelli, the most appropriate time to bring the child to dentist based on recommendation of the American Academy of Pediatric Dentistry, is when the child has a first tooth or no later than one-year-old age.¹⁰ Maintenance instructions for oral health at home has been compiled by experts. The program emphasizes the prevention of caries. Because many parents think that primary teeth are only temporary and will be replaced by permanent teeth, they are not concerned to dental hygiene.² According to psychologists the age of the child consists of several levels, namely infants, children, pre-school, school, and teens. Some approaches to implementing a behavior and habits can be applied to each of these groups. The knowledge of dental professionals about children's behavioral development is essential in maintaining dental health program implementation.²

Kusudarsini Kindergarten included in the area of Puskesmas Sudiang. The kindergarten has a total of 42 students, which is divided into three groups; has five teachers and one headmaster. The parents, especially the mothers of the children are mostly civil servants who are busy so they do not spend much time with their children. The kindergarten staff said that the Puskesmas rarely provides counseling and intervention of dental health.

The aim of this study was to determine the relationship between mothers' knowledge of oral health care by dental caries status in *Kusudarsini* Kindergarten students.

MATERIALS AND METHOD

This observational analytic study which has a cross sectional study, was conducted at *Kusudarsini* Kindergarten located in Biringkanaya District in Makassar on 29 October 2013. The population was 42 parents (mothers) and pupils of the Kindergarten. The inclusion criteria are all pupils who were present and were willing to be examined, and the exclusion criterion was the students who did not return the questionnaire which had been filled-in by their mother. The study began with the socialization of oral health. Next, the states of students' teeth were examined. Then, the blank questionnaires were given to the pupils who would ask their mothers to fill in. Thirty-three kindergarten students who returned the filled-in questionnaire became the participants of this study.

Knowledge of the parents, in this case the mother, is the parents' understanding of the cause of dental caries, sweet foods can cause caries, vegetables and fruits are beneficial for dental health of children, the right time to brush your teeth twice a day that is after breakfast and before sleeping at night, know how to brush teeth properly, rinse with plain water after eating reduces the risk of caries, teeth that have holes may be maintained by patching them, and dental health of children should be controlled by dentists at least every 6 month.

Caries is the disease of calcified dental tissue which is caused by the work of microorganisms on carbohydrates and followed by decalcification of the inorganic component and the breakdown of organic component of the tooth.

Status of caries is a condition that describes a person's caries experience which is calculated with DMF-T or def-t index. Dental caries status was assessed using def-t index and classification according to WHO, is to count the number of primary teeth undergo d, e, and f, where D= decayed/damaged is the number of carious teeth that can still be patched, E = exfoliate/indication for revocation is the number of primary teeth that have been lost or must be revoked because of caries, and F = filled/patchwork is the number of primary teeth were patched on the surface that there is no dental caries.¹¹

This study did not use the exfoliate component of def-t because of difficulty in obtaining information from students about the cause of their primary teeth loss.

The WHO average index of df-t used the formula as the mean of df-t is the sum of d and f, is divided by the number of samples. WHO gives a category in the calculation of a degree of def-t interval as 1) very low: 0.0-1.1, 2) low: 1.2-2.6, 3) moderate: 2.7-4.4, 4) high: 4.5-6.5, and 5) extremely high: more than 6.6.¹²

Assessment of the mothers' knowledge using a questionnaire containing 8 questions with answers in Likert scale (score 2 = know, score 1 = less know, and score 0 = do not know) and classifies as less if the total score of 0-5, enough if the total score of 6-11, and good if the total score of 12-16.⁹

This questionnaire has previously been used by Dwi and Silvana,⁹ in a research on the relationship between education, knowledge and behavior of the mothers and the caries status of their babies at play group and BKIA located in Medan Selayang districts, Medan.

Primary data are presented in tabular form, and processed with SPSS 16. Data was analyzed by using Pearson's correlation test to examine the relationship between the two variables.

RESULTS

Table 1 shows the characteristics distribution of the all participants. The overall obtained 15 (45.5%) children of male respondents and 18 (54.5%) of the children of female respondents. Children with the age group 5 (78.8%).

Table 1 Characteristic of the participants of the research about relationship between mothers' knowledge of oral health care by status of dental caries in *Kusudarsini* Kindergarten students

| Characteristic | Frequency (n) | Percentage (%) |
|----------------|---------------|----------------|
| Sex | | |
| Male | 15 | 45.5 |
| Female | 18 | 54.5 |
| Age (years) | | |
| 4 | 3 | 9.1 |
| 5 | 26 | 78.8 |
| 6 | 4 | 12.1 |

Table 2 The category distribution of mother's knowledge based on the children's sex and age

| Sex and Age | n | Mothers' knowledge | | | Total |
|-------------|----|--------------------|----------|--------|------------|
| | | Good | Moderate | Less | |
| Sex | | | | | |
| Male | 15 | 14 (42.5%) | 1 (3.0%) | 0 (0%) | 15 (45.5%) |
| Female | 18 | 16 (48.4%) | 2 (6.1%) | 0 (0%) | 18 (54.5%) |
| Age (years) | | | | | |
| 4 | 3 | 2 (6.1%) | 1 (3.0%) | 0 (0%) | 3 (9.1%) |
| 5 | 26 | 24 (72.7%) | 2 (6.1%) | 0 (0%) | 26 (78.8%) |
| 6 | 4 | 3 (9.1%) | 1 (3.0%) | 0 (0%) | 4 (12.1%) |

Table 3 Distribution of the average value of d, f, and df-t by sex, age, and mothers' knowledge

| Category | n | d value | f value | df-t value |
|--------------------|----|-------------|-------------|-------------|
| | | Mean ± SD | Mean ± SD | Mean ± SD |
| Sex | | | | |
| Boys | 15 | 6.31 ± 4.61 | 0.00 ± 0.00 | 6.31 ± 4.61 |
| Girls | 18 | 5.50 ± 3.74 | 0.00 ± 0.00 | 5.50 ± 3.74 |
| Age (years) | | | | |
| 4 | 3 | 2.00 ± 2.00 | 0.00 ± 0.00 | 2.00 ± 2.00 |
| 5 | 26 | 6.23 ± 3.72 | 0.00 ± 0.00 | 6.23 ± 3.72 |
| 6 | 4 | 7.25 ± 6.94 | 0.00 ± 0.00 | 7.25 ± 6.94 |
| Mothers' knowledge | | | | |
| Good | 30 | 5.83 ± 4.15 | 0.00 ± 0.00 | 5.83 ± 4.15 |
| Moderate | 3 | 6.25 ± 4.57 | 0.00 ± 0.00 | 6.25 ± 4.57 |

Table 4 The correlation between mothers' knowledge and child's caries status

| Mothers' knowledge | n (%) | Score of of mothers's knowledge | df-t value | p-value | Correlation coefficient (r) |
|--------------------|-----------|---------------------------------|-------------|---------|-----------------------------|
| | | Mean ± SD | Mean ± SD | | |
| Good | 30 (88.2) | 14.70 ± 1.022 | 5.83 ± 4.15 | 0.563 | -0.103 |
| Moderate | 4 (11.8) | 9.75 ± 1.893 | 6.25 ± 4.57 | | |
| Total | 34 (100) | 14.12 ± 1.966 | 5.88 ± 4.13 | | |

*Pearson correlation test: $p < 0.05$; significant

Table 2 shows distribution of mothers' knowledge based on the child's gender and age of the child. By gender, boys who had good mother's knowledge category are 42.5%, while those who had moderate knowledge are 3.0%. Girls who had good mother's knowledge are 48.4%, while those with moderate knowledge are 6.1%. By age, children with 'good mother's knowledge' are found the most at 5 year olds (72.7%), while children children with moderate mothers' knowledge are also found the most at 5 years olds (6.1%).

Table 3 shows that the boys' score of still active and untreated caries (d) which is 6.31 with its SD 4.61 is higher than the girls' score. It is also found that the highest average score of children's still active and untreated caries is at 6 years old (7.25) with its SD 6.94, while the lowest average score is at 4 years old (2.00) with its SD 2.0. Based on mothers' knowledge, the average score of untreated caries is with moderate knowledge (6.25) with its SD 4.57.

In table 4, it is showed the correlation between the mothers' knowledge of oral health care and dental caries status of children as measured by the value of df-t, obtained values of $r = -0.103$ and $p = 0.563$; which means there is no statistically significant relationship between mothers' knowledge of oral health care and dental caries status of children in which any increase in the value of mothers' knowledge is followed by a decrease in the df-t value of 10.3%.

DISCUSSION

This study analyzed the relationship between mothers' knowledge about the maintenance of oral health and dental caries status of students in the

Kusudarsini Kindergarten at Biringkanaya District of Makassar. Mother's level of knowledge, based on the questionnaires and caries status is assessed by df-t index.

Based on the mothers' knowledge, more than 30 (88.2%) children has mothers with good dental health. Mothers' knowledge includes the knowledge of caries picture, caries causing foods, the benefits of vegetables and fruits in preventing caries, the perfect time to brush teeth, how to brush teeth properly, the benefits of gargling after eating to prevent caries, treatment caries with fillings, as well the children's scheduled to see his/her dentist.

Based on the average value of df-t, this study found that the average df-t of the subject of this study was 5.88 with a SD of 4.132 which means that on average children have teeth that need to be patched, or revoked and the revocation or indication by 5 teeth.

Table 2 shows more girls are found with good knowledge mothers than boys are. But the number of boys are more or less the same with the number of girls.

Table 3 shows that boys have a lower average value of df-t (7.12) than the girls (8.11). This is in line with the results of the study by Susi, et al¹³ and also Priyantha et al,¹⁴ which state that the prevalence of caries in primary teeth was higher in girls than boys. This is caused by girls' first tooth erupted earlier than boys teeth. This follows the results of the study by Singh, et al. which state that the girls' average value of def-t is higher than the boys'.¹⁵

The higher of DMF-T value in girls may be explained by several factors. The girls' teeth eruption was earlier in girls than boys is because girls are longer exposed to cariogenic materials in the oral

environment. Besides, the relationship between the pregnancy women and hormonal influences also affect their oral cavity. There are differences in the biochemical composition of saliva and salivary flow rate in girls and boys.¹⁶

By age group, children aged 5 years had an average value of df-t higher at 8.23. The increasing average value of df-t follows the age. This is in line with Susi, et al which state that caries prevalence increases with age. So, the most recently erupted teeth are more susceptible to caries.¹³

Based on the knowledge of the mother, it can be seen that the children whose mothers with good knowledge have a lower average of df-t which is equal to 7.40 compared to the average value of df-t of children whose mothers had moderate knowledge at 9.50 which consistent with the results of the research of Suresh, et al which state that the oral and dental health of children is related to mothers' oral health knowledge. The oral health-related habits (such as the oral hygiene and diet) are formed during infancy and were maintained during early childhood. Parents, especially mothers, have important the lead role for their children.¹⁷ This is also consistent with the results of Saied-Moallemi et al which state that the better the knowledge of the mother, the lower the average df-t values of their children.¹⁸ This study also shows that children on average have caries which none of them are treated with filling. According to Lindawati, until today many parents think that cavities or caries in primary teeth do not need to be treated, except the permanent teeth affected by caries which should be treated as primary teeth will be replaced by new ones.¹⁹

Table 4 shows that the coefficient correlation exists between the average value of the knowledge of mothers with average index value of df-t at -0.103. So, although there is a relation between mother's knowledge about their children dental health and caries status, the relation was not significant. Table 4 also shows that every time mothers' knowledge increases, there is a declining df-t value of 10.3%. This indicates that the two variables have a correlation. This is consistent with the Perera, et al which state that child whose mother had low level of knowledge and education had a high prevalence of caries, and the children whose mothers had the highest educational level of knowledge had the lowest prevalence value.¹⁴ Castilho et al stated that mother's experience of having caries and knowledge of dental health affects the oral health of their children. This confirms the important role of parents, especially mothers, to develop values and positive behaviors towards their children's dental and oral health.²⁰

This study concluded that there is no significant relationship between mothers' knowledge of dental and oral health with their children's caries status. The obtained, the negative correlation coefficient indicates that mothers' knowledge of oral health is inversely related to children's caries status. The better the mother's knowledge, the lower df-t value. It was suggested that the parents should understand the knowledge and attitudes of their children's dental and oral health and should get their children to see dentists. Further research should explore other factors that may affect the presence or absence of dental caries in pre-school children.

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