Dental Caries Based on Age Under Five Years Old Children

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Abstract: Children under 5 years old has the most risk in having dental caries and its percentage reaches 40-70%. It happens because they do not show positive attitude towards their own dental hygiene. The objective of this study is to analyze the correlation between the children's dental caries and their age. Analytic observational research and cross-sectional approach was done in January 2018. This study involved under five years old children in Glingseran Village, Bondowoso Indonesia. The purposive sampling was done and 56 sample were examined (33 boys and 23 girls). The variable was dental caries and the children ages. The measurement is dental diagnosis code which consists of , PI (pulp irritation), PH (pulp hiperemia), PG (pulp gangrene) and RG (radix gangrene). The data was drawn in frequency distribution table and figure, and Spearman correlation was done for analyzing the relationship between dental caries and the children ages. It was found there is correlation between dental caries to the under five years old children (p>0,05). In other words, the higher age of children, the more dental caries they will have. In conclusion, there is a correlation between dental caries to the under five years old children.

1 BACKGROUND

It is reported that there are 90% of rampant caries prevalence. Moreover, the most untreated caries are belong to children. Some sources reported that there is 29% rampant caries prevalence of the five years old children in Denmark, 39% in Norwegia, 40% for England 43% Greece, and 55% in Scotland (Leroy, 2011). On the other hand, ECC prevalence in England, Finland, USA, Indonesia, Western China, Hong Kong, and Taiwan are reported 4%, 6%, 20.2%, 48%, 20.2%, 31.5% and 56% (Tang *et al.*, 2012).

The highest prevalence of Oral and Dental problem is dental caries. It has the high percentage that shows 40%-75% which are belonging to the children within 3-5 years old. Seven out of ten children under 5 years old have caries on their baby teeth. In addition, the most common dental caries on their baby teeth is rampant caries. This kind of caries mostly found to the children within the age of 1-5 years. (Maharani dan Rahardjo, 2012). Furthermore, Data Riskesdas (2013) states that the percentage of people who has oral and dental problem is increasing from 2007 until 2013 and the percentage is showing 23,2% to 25,9%. Dental caries to the children under five years old also shows improvement, which reaches 10,4% (Riskesdas 2013).

Rampant caries prevalence has the highest position in all around the World. Indonesia is reported having the oral and dental problem for the baby teeth dealing with the untreated rampant caries. It becomes such a serious problem regarding to the children's oral and dental health. The fact found that there were many children under five years old who have rampant caries. Thus, this study is intended to know the condition of the dental and oral health of children under five years old. Thus, it will help to achieve the goal in putting the effort of concerning the dental and oral health for children under five years old (Winda dkk, 2015).

Children under five years old belong to the most highly risk for having dental and oral health problem. It happens because they have bad habit that is causing oral and dental problem (Worotitjan dkk., 2013). Further, those who have this serious problem come from the family which has the low level in economy and education. However, the parents take the important roles for their children especially in having dental and oral health problem. They decide whether or not they will take their own children to

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see the dentist treat the children's caries. (Leghari, 2012).

Untreated caries can cause ache, loosing tooth, infection, and other consequential causes which tend to increase year by year. Dental caries which belongs to enamel (pulp irritation) usually having no treatment until it becomes pulp gangrene even, radix gangrene, when the children feel the ache, at the same time, the parents will look for the medicine (Yani, 2016). Based on the explanation above, the researcher is interested in conducting a research entitled, "Dental Caries Based on Under Five Years Old Children"

2 METHODS

Analytic observational research with cross-sectional approach was conducted. This research was conducted in Glingseran village, Wringin district, Bondowoso Indonesia in February 2017. The population involved is under five years old children who live at Glingseran village and there are 44 sample through purposive sampling. Meanwhile, the variables are dental caries and age. Dental caries is measured by dental diagnosis code based on *International Classification of Diseases to Dentisry and Stomatology* that consists of pulp irritation, pulp hyperemia, pulp gangrene and radix gangrene, while the age variable is using the measurement data from health mom and children book. The data will be drawn through the frequency distribution table and figure. Then, it is being analyzed by spearman correlation for analyzing the relationship between dental caries and the children ages.

3 RESULTS

The research to the five years old children in Glingseran village, Wringin district, Bondowoso Indonesia with the data of 44 samples showed as follows.

To know the distribution of the children's age with pulp irritation diagnose can be seen this following Table.

The distribution of the children ages with the pulp hyperemia diagnose can be seen in Table 3.

The following table, Table 4, refers to the distribution of the Children Ages with the gangrene pulp Diagnose

The Distribution of the Children's Age with radix gangrene diagnose can be seen in Table 5.

To know the relationship of dental caries and the children's ages, correlation spearman test is conducted through this following table.

Table 1: Respondents' distribution characteristic based on ages (under five years old children).

Age (month)	Total	%
1-12	20	35.71
13-24	7	12.50
25-36	10	17.86
37-48	5	8.93
49-60	14	25.00

Table 2: The distributions of the children's age with pulp irritation diagnose.

Age (Month)	Pulp Irritation	%
1-12	0	0
13-24	0	0
25-36	4	7.14
37-48	2	3.57
49-60	0	0

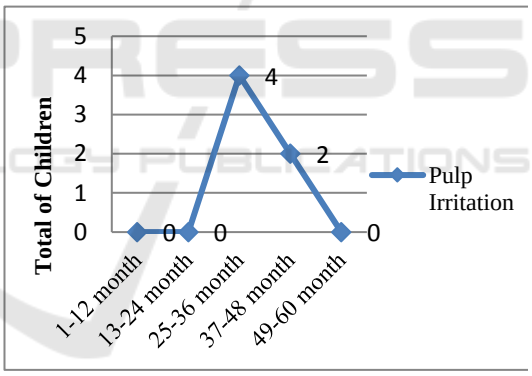

Figure 1: Diagram of the distribution of the children's age with pulp irritation diagnose.

Tabel 3: The distribution of the children ages with the pulp hyperemia diagnose.

Age (month)	Pulp Hypermia	%
1-12	0	0
13-24	0	0
25-36	0	0
37-48	0	0
49-60	0	0

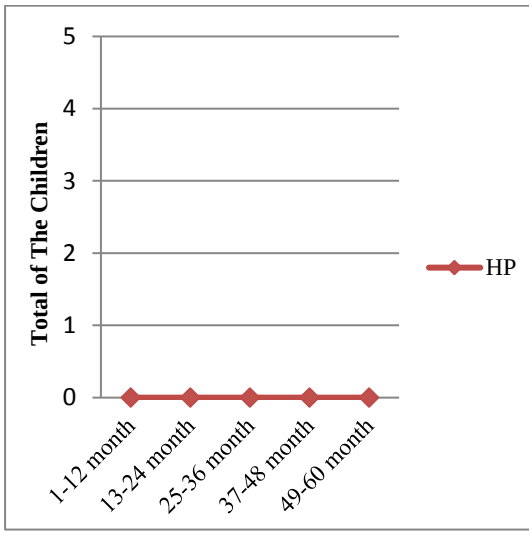

Figure 2: Diagram of the distribution of the children's age with pulp hyperemia diagnose.

Table 4: The distribution of the children's ages with pulp gangrene diagnoses.

Age (month)	Pulp Gangrene	%
1-12	0	0
13-24	1	1.79
25-36	6	10.71
37-48	1	1.79
49-60	2	3.57

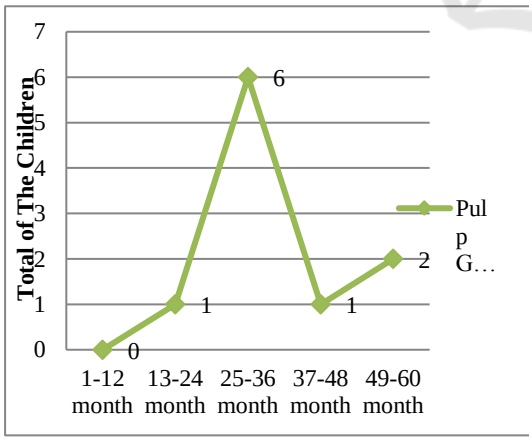

Figure 3: Diagram of the distribution of the children's age with pulp gangrene diagnose.

Table 5: The distributions of the children's age with radix gangrene diagnose.

Age (month)	Radix Gangrene	%
1-12	0	0
13-24	0	0
25-36	0	0
37-48	0	0
49-60	1	1.79

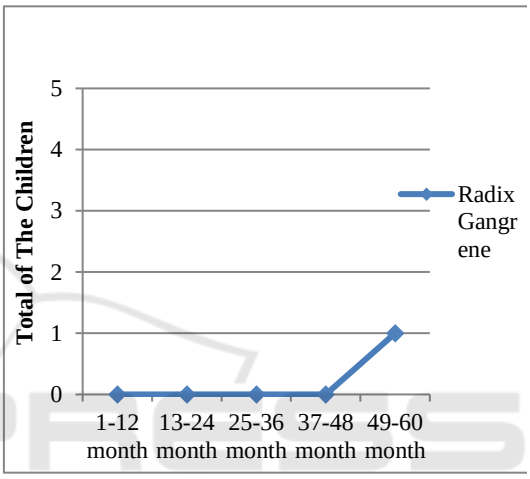

Figure 4: Diagram of the distribution of the children's age with radix gangrene diagnose.

Table 6: Correlation spearman test for dental caries and children's ages.

Variable	p-value	Result
Dental caries-Children's Ages	0,000	There is a relationship

4 DISCUSSION

Table 1 shows there are 20 respondents (35.71%) who belong to the children within the age of 1-12 month. There are 7 respondents (12.50%) who belong to the children within the age of 13-24 month. There are 10 respondents (17.86%) who belong to the children within the age of 25-36 month. There are 5 respondents (8.93%) who belong to the children within the age of 37-48 month, and 14 respondents (25.00%) who are children within the age of 49-60 month. The highest total of the

respondents belong to the children within the age of 0-12 month.

Table 2 and figure 2 shows there is no children within the age of 1-24 month who have pulp irritation. There are 4 children within the age of 25-36 month who have pulp irritation. There are 2 children within the age of 37-48 month who have pulp irritation, while for those who are 49-60 month old have no pulp irritation. It can be said that mostly, the children within the age of 25-36 month have the pulp irritation.

The highest percentage of children within the age of 25-36 month who have dental caries of pulp irritation can happen because of some factors. The first is their baby teeth have growth perfectly so they start to eat cariogenic, while its condition is so highly risk because the enamel and the dentin are so thin, pulp cavity is and the pulp horn is tall so it causes the dental caries for the baby teeth easily. The enamel of the baby teeth has less in mineralization so the mineral of its enamel is less than permanent teeth (Baginska, 2014).

Table 3 and figure 3 show that children within the age of 1-60 month have no pulp hyperemia. Enamel and dentin of the baby teeth are thinner than the permanent ones. There is no pulp hyperemia found because the process if dental caries is done quickly and it can be related to the baby teeth morphology which has wide pulp cavity also the thin enamel and dentin range. Moreover, when the pulp irritation has no treatment, dental caries will get worse quickly becoming pulp hyperemia and it takes less time to be pulp irritation. Some of parents do not care and understand dealing with oral and dental health. Commonly, they do not realize about dental caries to their children and tend to ignore it. It makes pulp hyperemia growths quickly to the worse condition (Baginska, 2014). It causes that there is no found of pulp hyperemia.

Table 6 shows that there is a relationship of the dental caries with the children's age ($p>0,05$). The elder of children, the more dental caries will found.

The higher age of the children, the more dental caries they will have. Under five years old children who have the less dental caries are those within the age of 0-12 month. One of the factors to avoid dental caries is through giving breast milk exclusively because it contains non-cariogenic. Giving breast milk more than 40 days will obstruct the growth of bacteria which causes caries, Streptococcus mutants. Caries index is improving to the non-breast milk (common milk) that contains lots of sugar. Breast milk must be given for those who are 0-24 month, and they consume breast milk mostly than others, so they have less risk in having dental caries.

The habitual of consuming sticky and sweet foods, also having milk before going to sleep, adding some sugar to children's food, giving fiber foods, and some snack make the increasing causes of dental caries. Some foods which contain liquid texture will be easier to be cleaned up and it will avoid the dental caries (Ramayanti dan Purnakarya, 2013). Widayati (2014), states that there are 88,4% children within the age of 3-6 years old who likely to consume sweet and sticky food and contains carbohydrate. On the other hand, various kinds of foods that they consume make less of them have no dental caries. As it has been stated before, dental caries belong to the multifactorial disease that comes from host, time, substrate, and bacteria. That is why, the consuming food of the children within the age of 3-5 years old is various and it gives influence of the substrate to their dental surface, and the most highly risk is baby teeth. Moreover, the total host which belongs to the growth of substrate and bacteria also the certain time are needed to create dental caries.

Children still have bad attitude and habitual dealing with their oral and dental problem. Their less attention of looking after their teeth can be caused of their parents' knowledge regarding to oral and dental health. Notoatmodjo states that attitudes and knowledge comes second after practices, and it is well known as K-A-P (knowledge-attitude-practice) (Notoatmodjo, 2007). This case shows that mothers' practices and attitude in treating their oral and dental health is influenced by their knowledge. Commonly, the mothers think that the baby teeth are not important so, even it becomes decay, it brings no problem as long as permanent ones will change it. Nevertheless, it must be stressed that the function of baby teeth is to help the process of chewing and as the guidelines of the growth of permanent ones.

Table 4 shows the children within the age of 1-12 month have no pulp gangrene. There is 1 child within the age of 13-24 month who has pulp gangrene. There are 6 children within the age of 25-36 month who have pulp gangrene. There is 1 child within the age of 37-48 month who has pulp gangrene. Meanwhile, there are 2 children within the age of 49-60 month who have pulp gangrene. It can be said that the most children who have pulp gangrene are those who are 25-36 month old. It is in line with a research that was conducted by Sari (2017), that showed that there are two third out of all the children above 3 years old have dental caries. The dental caries happen is influencing of four main factors, host (teeth surface), microorganism (bacteria

of causing dental caries), substrate (fermentation carbohydrate) and time. (Yulita, 2013).

Besides those factors, the important one is the under five years old children are not able yet to look after their teeth. The parents also assume that the baby teeth are not that too important because they will be changed with permanent ones. This thought drives the parents tend to ignore their children's oral and dental health problem so it increases the risk of dental caries (Suarniti, 2014). The parents are likely to give no treatment for their children's dental caries until becoming worse. The first stage of caries which coming through pulp irritation is usually does not bring pain and then it grows becoming pulp gangrene. If the stage reaches pulp gangrene, the children will feel the pain and the parents will bring the children to see the dentist (Yani dkk, 2015). Besides, the highest case of pulp gangrene also happens because the children tends to eat many various food. Widayati (2014) says that there are 88.4% of the children within the age of 1-6 years old who likes to consume sweet food, sticky food and containing carbohydrate. Besides, Public Health England/PHE (2017) also states that the increase of dental caries risk to the children happens when they start eating every food and drink except milk and breast milk, yet still need some food and drink that contains sugar(PHE, 2017). The kind of food that is sweet and stick also carbohydrate, that have been stated by Widayati, belong to cariogenic food and it is easy to stick on the teeth. It causes the increasing of high risk dental caries.

Table 5 shows that there is no child within the age of 1-36 months who has radix gangrene. There is one child found for each within the age of 1-36 month and 49-60 month who have radix gangrene. Some developing country such as Indonesia is causing decay tooth with the percentage reaches 80-90% to the under five years old children (Winda, 2015). Survey Public Health England 2015 in PHE (2017) said that 25% of children under five years old in England have dental caries. Further, they have 3-4 teeth for each and most of them do not have any treatment for the caries. Besides that, the appearing dental caries also take time. Casamassimo dkk (2013) states that dental caries can happen because of some factors, such as host (tooth and saliva), microorganism, substrate, and time. This statement make the researcher assume that to reach the radix gangrene stage, dental caries do take time. This research proves it by looking at the radix gangrene case which appears to those who are 4 and 5 years old.

Parents' knowledge dealing with oral and dental problem also give influence for the radix gangrene case. They likely pay no attention of their children's dental caries because there is no complain of any aches of the children's teeth. Moreover, they tend thinking that the baby teeth are not worth it because it will be changed to the permanent ones. That is why, it causes the growth of dental caries becomes worst to the radix gangrene level (Nugroho, 2014; Sibarani, 2016). Children within the age above five years old belong to the transition age when they start consuming some food which they commonly like the most, such as sweet and sticky food and they often eat those foods so it increases the causing of dental caries. (Leghari, 2012; Winda, 2015). The highly risk of dental caries causes of how long the time will take for the teeth to be in oral cavity with high frequency and exposing cariogenic.

5 CONCLUSIONS

There is relationship between dental caries and the age of children. The higher age of the children, the more dental caries they will have .

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