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Children's Aged 9 - 12 Years Knowledge About Toothbrushes Cleanliness

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ABSTRACT

The toothbrush is one of the tools that is used to clean teeth and mouth from microorganisms that cause dental infections. Tooth brushing alone was not enough to maintain teeth and mouth hygiene but also maintaining the cleanliness of the used toothbrush also needs to be considered because toothbrushes that were not properly stored and treated well enough could be contaminated by microorganisms. This research and identity to identify the knowledge of 9-12 years old children about toothbrush maintenance. This research was done as a descriptive study. The sample of this research was 50 children aged from 9 to 12 years old who live in Cicaheum, Bandung, selected randomly. We used some online questionnaires to the children about toothbrush maintenance and storage as the research instrument. The data of this research were presented in the form of a table of characteristics of the subject's knowledge level. The result showed that the knowledge of children aged 9 to 12 years old in Cicaheum towards toothbrush maintenance was relatively high, with the number of 23 children (46.00%).

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1. Introduction

Oral and dental health in elementary school children was determined by several factors, including children's behavior in maintaining dental and oral health, which is related to children's knowledge of maintaining oral and dental hygiene. Poor oral and dental hygiene can cause various dental diseases such as dental caries caused by plaque produced by bacterial metabolism. There are several methods to maintain dental and oral hygiene andtheplay purposeof all that methodswasto controlplaqueandprevent the formation of dental caries. The mechanical action for plaque control was handled by using a toothbrush because it is easy to obtain and can be used easily every day by children. The success of brushing teeth to remove plaque was determined by three main factors: toothbrush design, brushing frequency, and the way of using the toothbrushitself. Dental and oral hygiene is not enough just to brush your teeth butalso maintainthe toothbrushin good condition or even in good storage.[1,2,3]

To preserved toothbrush in good condition, it needs to be maintained and stored in free bacteria contamination area. A good toothbrush that can be used is seen from the way the toothbrush is maintained or stored so that it is not contaminated by oral bacteria or from outside the mouth. Based on several studies, a toothbrush that was used for more than 3 months or a toothbrush that was not stored properly will be contaminated by Streptococcus and staphylococcus bacteria. 4 Based on Farooq Aasim's (2017) study in India regarding an assessment of the storage and hygiene methods of toothbrushes used by orphans, it was shown that toothbrushes that had been used by orphans were not placed in a clean place so that toothpaste and food particles are still stuck to the toothbrush. 5 According to the American Dental Association (ADA) the maintenance and use of toothbrushes should not be used simultaneously with other subjects, because using one toothbrush at the same time can result in the exchange of body fluids and microorganisms. Toothbrushes that have been used should be cleaned to

remove any remaining toothpaste and dirt, and it is recommended that toothbrushes should be replaced within three to four months because if the bristles were damaged, the effectiveness of cleaning the tooth surface will be reduced. A good way to store toothbrushes after use should be stored in an upright position in a place that is not damp or in an open container and disinfect the toothbrush used with chlorhexidine or triclosan. 6 Children aged 9-12 years are generally elementary school age at that age children like to read and already have a good understanding of two-way communication. When the research was started, the condition of the COVID-19 pandemic in the city of Bandung is increasing to the highest rate of infection which results in more limited research activities, we have decided to do the preliminary research in a small amount of sample size to keep the researchers from the risk of virus transmission. Our research staff to know how children in Indonesia maintain their toothbrushes, especially about their storage. we have decided to do the preliminary research in a small amount of sample size to keep the researchers from the risk of virus transmission. Our research staff to know how children in Indonesia maintain their toothbrushes, especially about their storage. we have decided to do the preliminary research in a small amount of sample size to keep the researchers from the risk of virus transmission. Our research staff to know how children in Indonesia maintain their toothbrushes, especially about their storage.

2. METHODS

The research method that will be used is a descriptive study. The data was collected using the online questionnaire research instrument, which aims to determine the knowledge of children aged 9 to 12 years on toothbrush maintenance. The type of questionnaire used was a closed questionnaire. In this part, the subjects only choose the answer and put a cross (√) in the available column. Before the questionnaire was given to the subjects, all of the questions were tested for validity and reliability. The questionnaire was tested first on 30 subjects of the same age children (9 to 12 years). The subjects in the main study were children aged 9 to 12 who were in the researcher's home environment, known as the Cicaheum village. Cicaheum is an area in the middle of the city of Bandung which is the 2nd most crowded populous city in West Java, Indonesia.

The samples taken in this study were all children aged 9 to 12 years in the Cicaheum village who met the research criteria. The sample in this study amounted to 50 subjects. Sampling was done by non-probability sampling with a purposive sampling technique. Non-probability sampling is a sampling technique that does not provide equal opportunities or opportunities for members of the population to be selected as samples. Purposive sampling is a sampling technique by determining certain considerations or criteria that must be met by the sample

The procedure research was carried out in various stages. After the validity and reliability test of the questionnaire was done. Ethical permission was conducted in the Faculty of Medicine, Universitas Jenderal Achmad Yani No. 027/UM1.07/2020. The children were picked up in the same school and chosen randomly. From the selection, we found SDN Cikadut as the representative school in this research. Our inclusion criteria were children 9-12 years old, willing to follow the research, using toothbrushes, and studying at SDN Cikadut. In the other hand, our exclusion criteria were children who cannot access the online questionnaire and the incomplete answers to the questions.The Analysis of the data used in the study was quantitative descriptive analysis techniques with percentages. The subjects were categorized into three levels of scores such as high criteria, medium criteria, and low criteria.

Table 1 Formula for the Range of Assessment Norms

No	Normal Range	Category
1	X M + SD	High
2	M – SD < X	Medium
3	X M – SD	Low

Details:
X = score

M = mean count
SD = standard deviation arithmetic

After knowing the level of knowledge of children aged 9 to 12 years towards toothbrush maintenance, the percentage of each assessment category were determined in the form of a percentage with the following formula:

$$\% \frac{\sum X}{\sum \max x\ 100}$$

Details
% = percentage
X = score x count
Max = ideal maximum score

3. RESULT AND DISCCUSION

Our research study revealed some characteristics of subjects as shown in Table 1. This table show that the distribution of the number of research subjects based on gender. The male subjects were dominant in this research (52%)

Table.2 Frequency of Subjects' Characteristics by Gender and Age

Variable	Amount	Percentage
Gender		
Male	26	52.00
female	24	48.00
Total	50	100.00
age		
9 years old	20	40.00
10 years old	13	26.00
11 years old	6	12.00
12 years old	11	22.00
Total	50	100.00

By following the data obtained by the researchers, the population in the Cicaheum sub-district is mostly male.7,8 Based on the table above, it is known that most of the subjects are 9 years old, as many as 20 subject (40.00 %). Subjects aged 10 years were 13 subject (26.00%), subjects aged 11 years were 6 subject (12.00%), and subjects aged 12 years were 11 subject (22.00%). Based on the results of the study, it can be seen that the majority of subjects were at the age of 9 years with a total of 20 subjects. In this age, the children are generally in elementary school and they love to read and already have a good understanding in communication and could be involved in the research.9

Based on research by Fara Lossu et al (2015)10, at the age of 9 to 12 years, children begin to understand the importance of health, habits that can affect the state of their teeth, therefore the provision of knowledge about the maintenance of toothbrushes used should be given to school-age children because at school age it will be easier to give knowledge about toothbrush maintenance so that it is not easily contaminated by bacteria.10,11

The level of knowledge about toothbrush maintenance was measured through the answers to the online questionnaire during the research. Based on Table 3, it was found that most of the subjects have a high level of knowledge of toothbrush maintenance.

Table 3 Frequency of Subjects' Characteristics Based on Knowledge Level

Variable	Amount	Percentage

Knowledge		
High(X≥20,14)	23	46.00
Medium**(20.14 <X<**	21	42.00
15.78)	6	12.00
Low(X≤15.78)	50	100.00
Total		

The level of knowledge in children aged 9 to 12 years towards toothbrush maintenance is high and there are still exist children with lower knowledge, this is due to environmental factors and researchers' limitations because researchers do not directly accompany subjects when filling out the online form. Subjects could be interpreted by parents or guardians and children easily find the correct answer regarding toothbrush maintenance through the internet. The high and low level of knowledge of children about maintaining toothbrushes can also be influenced by several factors such as the level of education, economy, the existence of health facilities and parents also play an important role in developing children's knowledge.14

This condition is followed with the 2015 study by Fereirra et al11 stated that the high occurrence of bacterial contamination in toothbrushes that were not kept clean could happen because 97.5% of subjects never received instructions on how to store toothbrushes properly. Not yet fully aware of the bacterial contamination in the toothbrush used.13

Table 4 Level of Knowledge of Toothbrush Maintenance Based on Subject's Gender

Gender	**Knowledge Level**						**Total**	
	High		**Medium**		**Low**			
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Male	12	24.00	11	22.00	3	6.00	26	52.00
female	11	22.00	10	20.00	3	6.00	24	48.00
Total	**23**	**46.00**	**21**	**42.00**	**6**	**12.00**	**50**	**100.00**

Table 5 Knowledge Level of Toothbrush Maintenance Based on Subject Age

age	**Knowledge Level**						**Total**	
	High		**Medium**		**Low**			
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**
9 years old	8	16.00	8	16.00	4	8.00	20	40.00
10 years old	6	12.00	6	12.00	1	2.00	13	26.00
11 years old	3	6.00	2	4.00	1	2.00	6	12.00
12 years old	6	12.00	5	10.00	0	0	11	22.00

Table 3 shows the distribution of the subject's knowledge level of toothbrush maintenance by gender. In the male group, it was known that as many as 3 subjects (6.00%) had low knowledge, 11 subjects (22.00%) had moderate knowledge and 12 subjects (24.00%) had high knowledge. Meanwhile, in the female group, it was known that there are 11 subjects (22.00%) who have a high level of knowledge, 10 subjects (20.00%) have a moderate level of knowledge and 3 subjects (6.00%) have a low level of knowledge. Based on the distribution table above, the male children have a high level of knowledge about toothbrush maintenance, but there are differences of opinion from the research of Peker Ilkay et al in 2015 which stated that girls were high in knowledge about toothbrush maintenance. directly or indirectly related to a person's level of knowledge.15 The male sex tends to have better knowledge than women because men have wider activities and knowledge, can socialize better, so the opportunity to get information is greater.

According to Mubrak17 in 2007, there were several factors that affect a person's knowledge, one of that factors is age, with increasing age a person will change physical and psychological aspects. Physical changes, in general, will experience changes both from the aspect of size and from the aspect of proportion that occurs due to the maturation of organ functions, while in the psychological aspect

there is a change in terms of the level of thinking of a person who is growing and mature. In line with the increasing age of a person, it affects the level of ability and maturity in thinking and receiving information that is getting better. This is because children's high knowledge only reaches the level of knowledge and understanding. According to the results of the data obtained by the researcher, the subject knows how to store and maintain a toothbrush, but from the results of the documentation, the subject has not applied it in his life, because a person's knowledge can be influenced by several factors so that this knowledge is not applied in behavioral action. Our research also found that several children still put the toothbrush in the wrong placement and could be infected by bacteria (Figure 1).

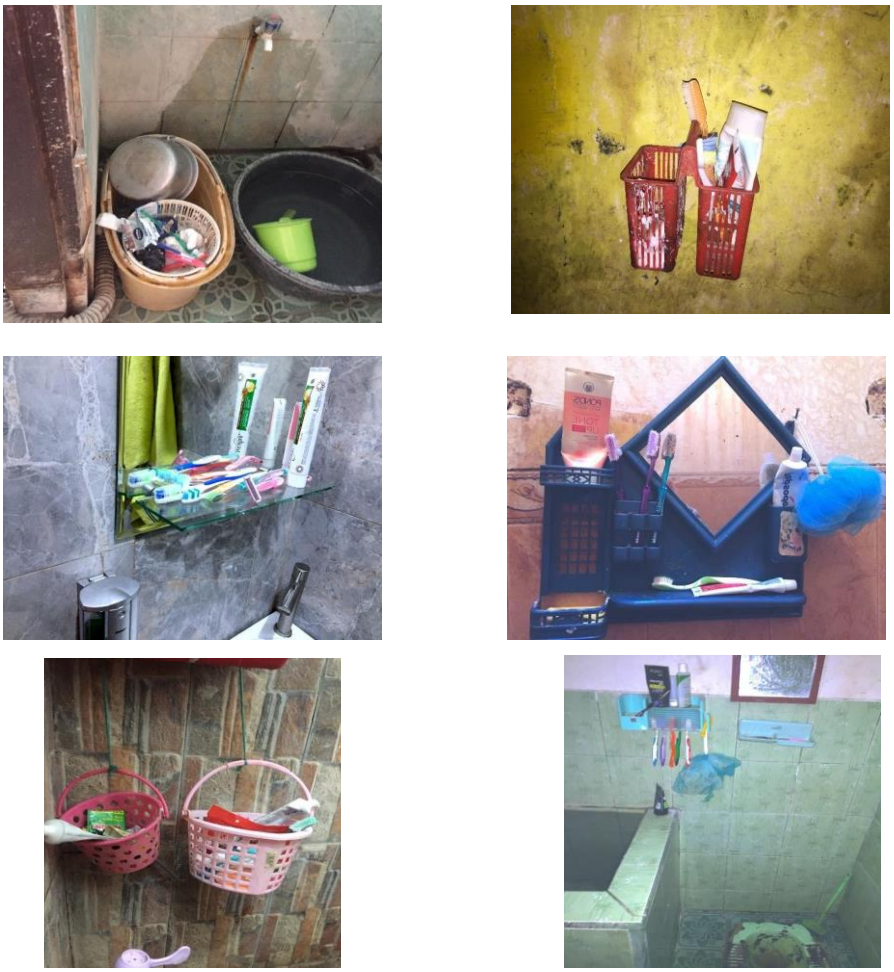

Figure 1. Several storages in our research subject. There was still found that some child or maybe family put the toothbrush closer to the closet area. This could be lead to bacteria contamination in toothbrushes

4. CONCLUSION

From the results of the study and which still need an improvement, the following conclusions were obtained: The level of knowledge of children aged 9-12 years towards toothbrush maintenance is high with a high category of 23 subjects (46.00%). Subjects with a moderate level of knowledge as many as 21 subjects (42.00%) and with a low level of knowledge as many as 6 subjects (12.00%). Further research needs to be accomplished for checking the number of bacteria in toothbrushes.

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