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Effectiveness Of Herbal And Non-Herbal Toothpaste To Decrease Plac Index In Class Iv Students At Sd Neg E Ri 62 Cot Mesjid, Banda Aceh

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ABSTRACT
Plaque is an organic deposit that is an indicator of dental and oral hygiene. The emergence of dental plaque can be prevented by taking preventive measures, namely by brushing teeth accompanied by the use of toothpaste. In the market there are various toothpaste products with various brands with various compositions. Among them are toothpaste with ingredients that contain herbs and toothpaste that does not contain herbs. The herbal content in toothpaste is expected to inhibit plaque growth because it is related to the ability of herbal ingredients to inhibit microbial growth. The purpose of this study was to determine the effectiveness of herbal and non-herbal toothpaste on reducing plaque index. This research method is quasi-experimental with pretest and posttest. A sample of 46 respondents was obtained using the Slovin formula and divided into 2 groups, namely group I for herbal toothpastes with 23 respondents and group II for non-herbal toothpastes with 23 respondents. Plaque index was measured using the PHP-M (Personal Hygiene Performanced Modified) method. Paired t test was used to determine differences in dental plaque index before and after treatment. Results The average plaque index after using herbal toothpaste and after using non-herbal toothpaste was 30.35 and 34.78. Dependent sample t-test analysis showed that the mean difference in plaque index in the two groups was 4.43. Conclusion: there is a big average difference of the two variables above or the use of herbal toothpaste is better than non-herbal toothpaste based on the php-m index value and the use of herbal toothpaste is better for lowering the php-m index. (CI 90% p= 0.092).

INTRODUCTION

Dental and oral health is part of overall body health and cannot be separated from general body health . Dental and oral health can affect the quality of life, due to disruption of speech, mastication and aesthetic functions. (1).

The group of elementary school age children is a vulnerable group for dental and oral health cases, so it needs to be watched out for or managed properly and correctly. As many as 89% of Indonesian children under 12 years suffer from dental and oral diseases, these conditions will affect the degree of health in the process of growth and development. (2)(3).

Based on the results of the Basic Health Research the prevalence of children aged 10-14 years having cavities is 73.4%, and for Aceh Province the problem of cavities reaches 47.0%, swollen gums 11.1% and easy gums. bleeding (one of them when brushing teeth) by 13.8%.(4)(5).

Dental and oral health problems that occur are generally caused by dental plaque. Dental plaque is a soft layer consisting of a collection of microorganisms and proliferates in a matrix. Plaque is the main cause of tooth and gum disease. The plaque layer is mostly made up of germs. On the teeth, the plaque layer can cause cavities or cavities caries. While on the gums, the layer of plaque can cause inflammation of the gums or gingivitis.(6)(7).

Plaque control can be done by mechanical and chemical cleaning of plaque with anti-bacterial agents, especially to suppress the growth of the bacterium Steptococcus muntans. Mechanically, tooth brushing helps control plaque and is the first step to control caries and periodontal disease for both individuals and populations. (8)(9).

Efforts to reduce the plaque index number can be done by brushing teeth in the right way, many factors affect the success of brushing teeth, for example: a person's knowledge, toothbrush and toothpaste used, pressure, and the amount of plaque in the oral cavity(10).

Currently, herbal toothpastes have been developed in accordance with the increasing public interest in the use of natural ingredients. One of them is the use of herbal toothpaste which is believed to increase the protection of the oral cavity by inhibiting the growth of bacteria(11).

The addition of herbs to toothpaste is expected to inhibit the growth of plaque. This is related to the ability of several types of herbs to inhibit microbial growth. In addition, herbal ingredients derived from plants are safe to use.(12)(13).

Non-herbal toothpastes contain surfactants or detergents, which function as antibacterial and reduce the tension on the tooth surface to eliminate the plaque. According to.(14)(15).

Based on the results of research (Pratiwi, 2005) stated that herbal toothpaste has a greater inhibitory power against bacteria than non-herbal toothpaste. Based on research results. stated that there was a decrease in the Dental Plaque Index using herbal toothpaste by 76.9% and Non-Herbal Toothpaste by 49.3%. Based on research results stated that Herbal Toothpaste was more effective in reducing Plaque index with the result in the herbal group was 12.05 ± 6.76 and in the non-herbal group 26.75 ±

13.20. The average difference in the plaque index in the two groups was 14.70. It can be seen where the decrease in the average plaque index value after brushing teeth using herbal toothpaste is higher than the decrease in the average plaque index after brushing teeth using non-herbal toothpaste

The toothpaste tested in this study is a type of toothpaste made from herbal and non-herbal ingredients, each of which contains antibacterial active ingredients to inhibit plaque formation and prevent gingivitis(16)(17).

Based on the initial data that was carried out on 10 children with each subject the plaque index value was measured using the Patient Hygine Performance Index-Modified (PHP-M) from Podshadley and Haley. It was found that 7 children had a moderate score category, and 3 children had a bad score category. On average, children use non-herbal toothpaste. Based on the description above, the researcher is interested in conducting further research on the effectiveness of herbal and non-herbal toothpaste on reducing plaque index in children aged 9-11 years in elementary school at 62 cot mosque, banda aceh.

METHOD

The type of research used is a quasi-experimental research with pretest and posttest designs. namely to determine the effectiveness of herbal and non-herbal toothpaste on reducing plaque index in fourth grade students of SDN 62 Cot Masjid, Banda Aceh. The samples taken were all fourth grade students of SDN 62 Cot Mesjid, Banda Aceh using Slovin's formula. Research Location This research will be conducted at SDN 62 Cot Masjid, Banda Aceh. Research Time March 2021.

Tools and Materials :

The instruments used in this study were KSP, informant consent, diagnostic tool set, disclosing solution, herbal toothpaste, non-herbal toothpaste, and toothbrush.

Research Procedure:

1. Gathering students, Dividing informed consent
2. Respondents are divided into two groups, each group consists of two respondents
3. Examination of plaque index with PHP-M before and after a week using herbal toothpaste.
4. Plaque index examination with PHP-M before and after a week using non-herbal toothpaste
5. Data collection
6. Data processing.

Data Analysis

a. Univariate analysis is to see the description of the independent

variable, namely herbal toothpaste with non-herbal toothpaste and the dependent variable is a decrease in plaque index.

b. Bivariate analysis was to see the effectiveness of herbal and non-herbal toothpastes on decreasing plaque index. Using statistical test: paired T test (dependent sample T test).

RESULTS

Research Results

Based on research that has been carried out from April 20 to April 27 2021 for fourth grade students at SD Negeri 62 Cot Mesjid Banda Aceh with a total of 74 students as respondents, the results of the study can be seen as follows:

1. Univariate Data

a. Dental plaque index scores before and after brushing with herbal toothpaste can be seen in the table below:

Table .1 Frequency Distribution of PHP-M Score Before and After Brushing Teeth Using Herbal Toothpaste To Fourth Grade Students At SD Negeri 62 Cot Masjid Banda Aceh

No	Category	Frekuensi	Befor (%)	Frekuensi	After (%)
1.	Good (0-20)	0	0	1	4,4
2.	Medium (21-40)	14	60,8	20	870
3.	Bad (41-60)	9	39,2	2	8,6
Jumlah		23	100	100	23

Based on table 1, it can be seen that the dental plaque index score before brushing teeth using herbal toothpaste in the medium category is 60.8% and after brushing using herbal toothpaste in the medium category is 87.0%.

b. Dental plaque index scores before and after brushing teeth with non-herbal toothpaste. can be seen in the table below:

Table 2. Frequency Distribution of PHP-M Scores Before and After Brushing Your Teeth Using Non-Herbal Toothpaste in Grade IV Students at SD Negeri 62 Cot Masjid Banda Aceh

No	Category	Frekuensi	Befor (%)	Frekuensi	After (%)
1.	Good (0-20)	0	0	0	4,4
2.	Medium (21-40)	13	54,2	16	87,0
3.	Bad (41-60)	11	45,8	7	8,6
Jumlah		23	23	100	100

Based on table 2, it can be seen that the dental plaque index score before brushing teeth using non-herbal toothpaste in the medium category is 54.2% and after brushing using non-herbal toothpaste in the medium category, which is 69.6%.

2. Bivariate Data

a. To see if herbal toothpaste is better than non-herbal toothpaste, a t-test was carried out with the following results.

Table 3. Frequency Distribution of PHP-M Score After Brushing Teeth Using Herbal Toothpaste And After Brushing Using Non-Herbal Toothpaste To Fourth Grade Students At SD Negeri 62 Cot Masjid Banda Aceh.

NO	Variable	Average	Real level /α	Pvalue / signifikansi
1	INDEKS PHP-M after brushing teeth with herbal toothpaste	30,35	90 % atau 0,1	0,092
2	INDEKS PHP-M after brushing teeth with non-herbal toothpaste	34,78	90 % atau 0,1	

Based on the average value above, it can be seen that the difference in the php-m index after brushing with herbal and non-herbal toothpastes is 4.43 points. Then the value of > significance (sig) or 0.1 > 0.092 which means that there is a big difference in the average of the two variables above or the use of herbal toothpaste is better than non-herbal toothpaste based on the value of the php-m index and the use of toothpaste herbs is better to lower the index php-m.

DISCUSSION

Based on the results of research conducted on April 20 to 27, 2021 for fourth grade students at SD Negeri 62, Masjid Banda Aceh, from 46 students studied, they were divided into two groups, namely group I Herbal toothpaste and Group II Non-Herbal toothpaste.

Based on the mean of table 4.3, it shows that the use of herbal toothpastes showed a better reduction in plaque index than non-herbal toothpastes.

Based on the assumption of researchers in this study that the use of herbal and non-herbal toothpastes has been able to reduce plaque index. This is because both types of toothpaste contain abrasive ingredients that help to clean, remove plaque and pellicle, and polish the tooth surface without damaging the enamel. However, herbal toothpaste is more effective in reducing plaque can be seen in table 4.3. by paying attention to the correct way and technique of brushing teeth, at the right time, and diet control.

Good and correct tooth brushing technique can significantly reduce plaque index thereby preventing dental disease in periodontal tissue and caries. Meanwhile, if you brush your teeth using herbal toothpaste in an inappropriate way and technique, the food debris will still stick to the tooth surface so that it does not reduce the plaque index value. Based on the results of the study before brushing their teeth using herbal and non-herbal toothpaste, there were still students who did not understand the time and how to brush their teeth properly and correctly. Therefore, the researcher gave directions on how to maintain oral hygiene. However, after being given direction, there are still students who do not brush their teeth when they finish breakfast and before going to bed at night, it can be seen from the results of the plaque control sheets given for a week.

The results of this study are supported by the results of research conducted by cahyanti and oroh, which states that the use of betel leaf herbal toothpaste reduces the accumulation of dental plaque more than the non-fluoride herbal toothpaste. This is due to the excess content of the betel leaf herbal toothpaste used in the study, namely betel leaf extract which can replace the function of fluoride as an antibacterial.

This research is supported by research conducted by Rahmah regarding the comparison of the effectiveness of herbal toothpaste with non-herbal toothpaste on reducing plaque index in students of SDN Angsau 4 Pelaihari. The results showed that there was a significant difference, namely that herbal toothpastes were more effective in reducing plaque index than non-herbal toothpastes.(1) research results also support this research. In the results of Rahmah's study, it was found that the mean value of decreasing plaque accumulation was greater in the betel leaf herbal

toothpaste group than the non-herbal fluoride toothpaste group.(2)(15)

CONCLUSION AND RECOMMENDATION

Conclusion

Based on the results of research and discussions that have been carried out on fourth grade students at SD Negeri 62 cot Banda Aceh mosque in 2021, it can be concluded that the use of herbal toothpaste is more effective in reducing plaque index in fourth grade students at SD Negeri 62 cot Masjid Banda Aceh in 2021 (P= 0.1 > 0.092).

Suggestion

1. For students: It is recommended to all students of SD Negeri 62 Cot Mesjid Banda Aceh to brush their teeth with the right time and technique and use a toothpaste containing herbs to reduce plaque index more significantly.
2. For Parents and the school: It is hoped that parents will pay more attention to their children's dental and oral health by supervising how and when to brush their children's teeth properly. As well as recommending herbal toothpaste to reduce plaque index on teeth. Likewise, the school will further enhance the role of educators in conveying knowledge, which should be accompanied by insights related to dental and oral health.
3. For health workers: It is hoped that health workers can provide advice on toothpaste used to reduce dental plaque index or what is appropriate for dental and oral health. As well as providing counseling to increase knowledge about tooth brushing techniques and handling dental and oral health care for school-age students.
4. Further research needs to be done by increasing the number of samples, extending the research time, comparing two brands of herbal toothpaste, or by comparing the composition of bacteria in plaque in terms of quality and quantity before and after using herbal toothpaste.

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