

DESCRIPTION OF GRADE V STUDENTS' KNOWLEDGE OF CHEWING FUJI APPLES AGAINST PLAQUE INDEX AT UMMI AIDA INTEGRATED ISLAMIC ELEMENTARY SCHOOL, MEDAN TEMBUNG DISTRICT

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ARTICLE INFO

eISSN: 2830-7186

DOI Prefix: 10.30867

Published online Desember 2023

Received: November 16, 2023

Accepted: November 20, 2023

Published: December 15, 2023

Keywords:

Keywords 1; Knowledge

keywords 2; Fuji Apples

keywords 3; Plaque

ABSTRACT

Chewing apples is one way to reduce the plaque index on the teeth, because apples contain vitamins and tannins which function to clean teeth and freshen the mouth which can reduce the formation of plaque on teeth. This research is a descriptive survey study that aims to determine the level of knowledge of students before and after dissemination and to determine their plaque index before and after chewing Fuji apples. This research was conducted on 30 grade V students at Ummi Aida Integrated Islamic Elementary School, Medan Tembung District. Through research, the level of knowledge of students was obtained: before dissemination, 13 people were in good criteria (43.3%), and 17 people were in fair criteria (56.7%); whereas after the dissemination, all respondents (100%) were in good criteria, none were in fair and poor criteria; plaque index before chewing Fuji apples, 22 people in good criteria (73.3%), 6 people in fair criteria (20%), and 2 people in poor criteria (6.7%), while afterwards, 28 in good criteria (93.3%), and 2 people in moderate criteria (6.7%). The conclusion of this study is that chewing apples can reduce the plaque index in school children. In order to maintain dental and oral hygiene, it is expected that students consume fruits rich in fiber such as fuji apples.

INTRODUCTION

Healthy according to WHO (World Health Organization) is a condition that is not only free from disease or weakness, but also a balance between mental, physical and social functions. So that the measurement of quality of life related to health includes 3 areas of function, namely: physical, social, and psychological (cognitive and emotional).¹

Based on the results of the Basic Health Research (Riskesdas) in 2018, the percentage of Indonesian people who experienced dental caries was 45.3%. In children with the age group 5-9 years, the number of children with tooth decay was 54.0%. And the average index of dental caries in children aged 10-12 years is 1.89%.²

According to data on dental and oral examinations of primary school students through UKGS in all districts in the province of North Sumatra in 2010, out of 1,420,129 students, 375,180 students or 26.42% had been examined, 42,617 people suffered from dental caries, and 22,560 people received treatment or 53.17%. The number of elementary schools that have conducted mass toothbrushing is 1,490 elementary schools or 17.19% of the total number of elementary schools of 8,869 elementary schools.³

In children, one of the most common dental health problems is dental caries. This dental disease is a problem that is very disturbing for school children, because it not only causes complaints of pain but also spreads infection to other parts of the body, resulting in decreased

productivity. In this condition, it will certainly reduce the frequency of children's attendance to school, disrupt learning concentration, affect appetite and food intake so that it can affect the nutritional status of children, which in turn can lead to physical growth disorders and have implications for the quality of human resources as the next generation of the nation.⁴

Caries is a disease caused by the interaction between bacteria, plaque and debris, diet, and teeth. Caries prevention and dental health improvement have become major goals in the world of dental health, since it is known that dental debris and plaque are the dominating factors that cause dental caries.⁵

The cause of caries that occurs in the world population is plaque, which is 75% to 90%. Plaque is formed from soft deposits that form a biofilm layer and adhere tightly to the surface of the teeth, gums and other hard surfaces in the oral cavity. In other studies, plaque is called the main causative factor for caries and periodontal disease, this is because plaque contains pathogenic bacteria whose metabolic products stick to the surface of the teeth and gingiva.⁶

Plaque control can be done mechanically, chemically and naturally. In general, daily plaque control is carried out mechanically through tooth brushing and flossing. Chemical plaque control is carried out by rinsing with antiseptic liquids, and natural plaque control can be done by chewing solid and fibrous fruits.⁷

One way to control plaque can be done by consuming fruits, for example consuming apples. Apples also have a high flavonoid content that is antibacterial, one of which catechin (flavonoid) prevents the formation of dental plaque because it has bactericidal ability and inhibits the glycosylation process of bacteria that cause dental plaque, namely *Streptococcus Mutans*.⁸ Besides that apples are tannin, which is an astringent that is spasmolytic and antiseptic so that it can prevent the growth of plaque that causes dental caries and gum disease,⁹

Based on the results of an initial survey obtained from fifth grade students at Ummi Aida Integrated Islamic Elementary School, Medan Tembung Subdistrict, 10 students were examined, 7 of whom were known to have an Index.

Based on the above background, the researcher wanted to conduct a simple study, to find out how the Knowledge of Chewing Apples on

Plaque Index in fifth grade students at Ummi Aida Integrated Islamic Elementary School, Medan Tembung District.

Research Objectives

The specific objectives of this research are as follows:

1. To determine the level of knowledge before and after chewing fuji apple fruit in fifth grade students at Ummi Aida Integrated Islamic Elementary School, Medan Tembung District.
2. To determine the plaque index before and after chewing fuji apples in fifth grade students at Ummi Aida Integrated Islamic Elementary School, Medan Tembung District.

METHODS

The type of research used is descriptive research with a survey method to find out the description of the knowledge of chewing Fuji apples on the plaque index in fifth grade students of Ummi Aida Integrated Islamic Elementary School, Medan Tembung District.

Population is the whole object under study.¹⁰ The population in this study were all students at Ummi Aida Integrated Islamic Elementary School, Medan Tembung District, totaling 186 students. The sample is the object under study and is considered representative of the entire population.¹¹ So in this study the researchers took a sample, namely grade V students totaling 30 people at Ummi Aida Integrated Islamic Elementary School, Medan Tembung District.

The types of data used are:

1. Primary data

Primary data is data that is directly obtained during examination through questionnaires distributed to collect data shared about the description of knowledge of chewing fuji apple fruit on plaque index,

2. Secondary Data

Secondary data is data that is directly obtained from existing data from the school of Ummi Aida Integrated Islamic Elementary School, Medan Tembung District, namely the number of students, names, ages, gender of students who are research samples.

Implementation

1. Day 1:

- a) Explaining the purpose of the study to all students in class V.

- b) Giving the first questionnaire sheet to all students in class V
 - c) Conducting counseling on chewing fuji apple fruit
 - d) Giving the second questionnaire sheet to all students in class V.
2. Second day:
- a) Prepare 30 cups of fuji apples, one cup contains 100 grams.
 - b) Checking the dental plaque index before chewing fuji apples to all students in class V.
 - c) Instructed all fifth grade students to chew fuji apples for 2 minutes.
 - d) Checking the dental plaque index after chewing fuji apples to all students in class V.

moderate criteria (0%), and there were no students with bad criteria (0%).

Table 3. Frequency Distribution of Plaque Index Examination Before Chewing Fuji Apple Fruit

No	Criteria	n	%
1.	Good	22	73,3
2.	Medium	2	20
3.	Sedang	2	6,7
Total		30	100

From the table above, the plaque index criteria before chewing Fuji apples in students were 22 students with good criteria (73.3%), 6 students with moderate criteria (20%), and 2 students with poor criteria (6.7%).

RESULTS AND DISCUSSION

Based on the results of research conducted on 30 fifth grade students at Ummi Aida Integrated Islamic Elementary School, Medan Tembung Subdistrict about the description of knowledge of chewing fuji apples on plaque index, the following results were obtained :

Table 1. Frequency Distribution of Knowledge Level Before Chewing Fuji Apple Fruit

No	Criteria	n	%
1.	Good	13	43,3
2.	Medium	17	56,7
3.	Sedang	0	0
Total		30	100

From the table above, it can be seen that the level of knowledge before counseling on students was obtained 13 students with good criteria (43.3%), 17 students with moderate criteria (56.7%), and no students with poor criteria (0%).

Table 2. Frequency Distribution of Knowledge Level after Chewing Apple Fruit

No	Criteria	n	%
1.	Good	30	100
2.	Medium	0	0
3.	Bad	0	0
Total		30	100

From the table above, it can be seen that the level of knowledge after the counseling was conducted on students obtained 30 students with good criteria (100%), there were no students with

Table 4. Frequency Distribution of Plaque Index Examination after Chewing Fuji Apple Fruit

No	Criteria	n	%
1.	Good	28	93,3
2.	Medium	2	6,7
3.	Sedang	0	0
Total		30	100

From the table above, it can be seen that the plaque index criteria after chewing apples in students are 28 students with good criteria (93.3%), 2 students with moderate criteria (6.7%), and no students with bad criteria (0%).

From the results of this study, it can be seen that chewing apples can reduce the plaque index. This happens because the nutritional content and acidic substances that occur in apples are able to reduce the plaque index on the surface of the teeth. Were significant changes in dental plaque scores after consuming fuji apples.¹²

The same opinion was also stated by Koagouw (2016) who conducted research on SMK Negeri 6 Manado students stating that apples have a plaque control effect influenced by water and fiber, namely when the fruit enters the oral cavity and is chewed there is salivary secretion which is a mechanical action that can inhibit bacterial colonization on the surface of the teeth, block plaque formation, prevent mineralization, and dissolve plaque that has been formed so that there is a decrease in the dental plaque index. So that apples are stated to be able to clean dental plaque.

Research conducted by Aprilia said the same thing, namely a decrease in plaque index because apples can inhibit plaque formation because apples contain flavonoids which are phenol compounds that function as antibacterials by forming complex compounds against extracellular proteins that disrupt the integrity of membranes and cell walls.¹³ Flavonoids can also inhibit energy metabolism by inhibiting the use of oxygen by bacteria. Flavonoids contained in apples, namely catechins and tannins, function to inhibit the work of *Streptococcus mutans* bacterial enzymes, namely glucosyltransferase enzymes (GTFs).

CONCLUSIONS

From the results of the research that has been carried out, it can be concluded that:

1. The level of knowledge before counseling about chewing fuji apples was 13 students with good criteria (43.3%), 17 students with moderate criteria (56.7%), and no students with bad criteria (0%). While the level of knowledge of students after counseling about chewing fuji apples is that all respondents (100%) have a level of knowledge with good criteria, none with moderate and poor criteria.
2. Plaque index before chewing fuji apples there were 22 students with good criteria (73.3%), 6 students with moderate criteria (20%), and 2 students with poor criteria (6.7%). While the plaque index of students after chewing fuji apples was 28 students with good criteria (93.3%), 2 students with moderate criteria (6.7%), and no students with poor criteria (0%).

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