

## KNOWLEDGE OF DENTAL AND MOUTH HEALTH WITH THE BEHAVIOR OF ARECA NUT CHEWING OF ADOLESCENTS IN YAPEN ISLANDS REGENCY

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### ABSTRACT

**Background:** Dental and oral health problems in the community, one of which arises because of behavioral factors or attitudes of ignoring dental and oral hygiene. In Indonesia, dental and oral health problems are relatively high, based on data from the 2018 Basic Health Research that 57.6% of the Indonesian population has dental and oral health problems with 10.2% of dental health workers. Papua Province has dental and oral health problems as of 48. The lowest tooth brushing behavior in Indonesia is 54.4% from the national data of 94.7% with a ratio of dental medical personnel still very low at 8%. **Methods:** The design of this study used a cross-sectional study, the sample used the Probability Proportional Size sampling technique and obtained 90 respondents, and the data analysis in this study used the chi-square test. **Results:** Based on the results of research and discussion in this study, the distribution of respondents with knowledge of Dental and oral health with the poor category as much as 58.9%, the sufficient category 20%, and the good category as much as 21.1%, the distribution of respondents who have chewing betel nut behavior is 66.7%, and do not have betel nut chewing behavior 33.3%, and the results of the analysis using the chi-square test obtained p-value  $0.000 < = 0.05$ . **Conclusion:** there is a relationship between the level of knowledge of respondents about dental and oral health with betel nut chewing behavior in the Yapen Islands Regency. It is necessary to do health promotion about dental and oral health in the Yapen Islands Regency. It can increase the knowledge and behavior of adolescent health in maintaining dental and oral health in the Yapen Islands Regency.

**Keyword:** Teeth, Mouth, Health, Betel Palm, Areca Nut

### Introduction

Chewing areca nut is the behavior of people to chew betel nut, lime, and gambier. Areca nut contains alkaloids, flavonoids, tannins, saponins, and polyphenols which have been studied. These compounds can increase the activity of bacteria in the mouth. Areca nut contains alkaloids, flavonoids, tannins, saponins, and polyphenols which are known to have antibacterial activity. In the mouth, there is also *Streptococcus mutans* which is a normal flora found in the oral cavity. However, if oral hygiene is not maintained, there will be an increase in the bacterial population. Bacteria will turn into pathogens (Hontong et al., 2016)

The habit of chewing areca nuts is widely practiced in various tribes in Indonesia. One of them is Papua. The tradition of chewing areca nuts in several regions of Indonesia has long been known. Several studies have been conducted to determine the effect of areca nut on oral

health. Both studies determine its effect on caries, dental and oral hygiene, calculus formation, as well as pre-cancerous and cancerous lesions (Siagian, 2012)

Dental and oral health problems in the community arise due to the attitude of neglecting dental and oral hygiene. In Indonesia, dental and oral health problems are high. Based on data from Basic Health Research (2018) stated that 57.6% of Indonesia's population had dental and oral health problems. Papua Province has 48% of cases. Meanwhile, the ratio of dental medical personnel is still very low, namely 8%. It is because the people of Papua have had a habit of chewing areca nuts since childhood (Kemenkes RI, 2021).

Papuan people often chew areca nuts. Areca nut or kakes (a mixture of betel sticks and lime) is a daily custom passed down by their ancestors to strengthen kinship. Until now, chewing areca nuts cannot be separated from the life of Papuan, especially residents of coastal areas. The culture of eating areca nuts in Papua can be seen everywhere. Young areca nut mixed with fruit stalks or betel leaves and lime is consumed by the Papuan people of the Menyah, Arfak, Biak, and Serui tribes who live on the coast of the villages of Assai and Yoonnoni (Siagian, 2012).

The custom of instilling in Papuan does not pay attention to age, race, rank, and class. The Papuan people believe in the efficacy of chewing areca nut for dental and oral health. They believe that betel nuts can relieve toothache and make teeth strong. This belief makes people not pay attention to dental and oral hygiene. It causes the habit of chewing areca nuts to increase. Many people have discolored teeth and tartar buildup. This problem is exacerbated by the lack of public knowledge about dental and oral health (Yulyanisma, 2019)

The results of a previous study conducted on 15 adolescents in the Yapen Island District found that 13 respondents had betel nut chewing behavior and 2 people had never chewed betel nuts. The results of measuring the respondents' level of knowledge with a questionnaire about oral health showed that 12 respondents had very little knowledge. 3 people have sufficient knowledge about dental and oral health. However, there is one person who still chews betel nuts because of the custom and culture that developed in the Yapen Islands. They assume that chewing areca nut is a hereditary habit and has been carried out since childhood.

Research conducted by Yulyanisma (2019) states that the dental and oral hygiene status of people who chew areca nuts is bad. It is exacerbated by the lack of public belief and knowledge related to dental and oral hygiene. After chewing betel nuts, dental and oral health problems can have a serious impact so that oral cancer occurs and even becomes the cause of other diseases. The research conducted by Fatlolona (2013) stated that the periodontal health status of ethnic Papuan students in Manado was poor. There were 32 cases (76.2%) of it. There is a relationship between the frequency of chewing in a day with the status of periodontal health and there is no relationship between long chewing with periodontal health status.

Based on the description of the research background on "knowledge of dental and oral hygiene with areca chewing behavior in adolescents in Yapen Islands District", it is known that research is very important to do. It is intended to improve the dental and oral health of adolescents in the Yapen Islands Regency. In addition, this study aims to determine the relationship between dental and oral hygiene knowledge and betel chewing behavior in adolescents in Yapen Islands District.

## Method

This type of research is quantitative analytic with a cross-sectional study design. The research was conducted on the Yapen Islands and was carried out in October 2022.

The sampling technique uses Probability Proposal Size with a simple random sampling method. The number of samples is 90 teenagers in the Yapen Islands Regency.

Collecting data using a questionnaire about knowledge of dental and oral health. The questionnaire is presented online using Google Forms. Data were analyzed using the SPSS 20 statistical program.

Data analysis consisted of two stages, namely univariate and correlation. The univariate analysis describes the respondents' sociodemographics such as gender. While the correlation analysis was carried out through the chi-square test with a significance level of  $p < 0.05$ .

## Result

### Respondent Demographic Characteristics

The distribution of the characteristics of research respondents in Yapen Islands Regency based on gender, knowledge, and behavior of chewing areca nut in Yapen Islands Regency, can be seen in the following table:

**Table 1. Characteristics Respondent**

Variable	Frequency (n=90)	Percentage (n=100%)
<b>Gender</b>		
Male	10	11,1
Female	80	88,9
<b>Knowledge</b>		
Good	19	21,1
Sufficient	18	20
bad	53	58,9
<b>Chewing Areca Nut</b>		
Yes		
No	60	66,7
	30	33,3

Based on the data distribution in Table 1, it can be seen that the most sex in this study was 88.9% female while only 11.1% male. The highest level of knowledge distribution is in a low category, namely 58.9%, good knowledge is 21.1%, and sufficient knowledge is 20%. The distribution of betel nut chewing behavior was 66.7% and 33.2% did not chew areca nut.

### Relationship Analysis of Dental & Oral Health Knowledge with Areca Nut Chewing Behavior

The results of the analysis of the relationship between knowledge of dental and oral health and the behavior of chewing areca nuts in Yapen Islands Regency can be seen in the following table:

**Table 2. Analysis of Dental & Oral Health Knowledge with Areca Nut Chewing Behavior**

Dental & Oral Health Knowledge	Chewing Areca Nut				P Value
	Yes		No		
	F(n)	%	F(n)	%	
Good	5	5,6	14	15,6	0,000
Sufficient	12	13,3	6	6,7	
Bad	43	47,8	10	11,1	

Based on the data distribution in Table 2, it is known that the number of respondents who have less knowledge and have betel nut chewing behavior is 47.8%. Respondents who had less knowledge and the behavior of not chewing areca nuts were 11.1%. The distribution of respondents with adequate knowledge and behavior of chewing areca nut is 13.3%. The distribution of respondents with sufficient knowledge and behavior of not chewing areca nut was 6.7%. The distribution of respondents with good knowledge and behavior of chewing areca nut is 5.6%. The distribution of respondents with good knowledge and behavior of not chewing areca nuts was 15.6%. The results using the chi-square test obtained that the p-value is  $0.000 < \alpha = 0.05$ . It indicates that there is a relationship between the level of knowledge of respondents about dental and oral health and the behavior of chewing areca nuts in the Yapen Islands District.

### Discussion

Based on the data distribution, it is known that the number of respondents who have less knowledge and have betel nut chewing behavior is 47.8%. Respondents who had less knowledge and the behavior of not chewing areca nuts were 11.1%. The distribution of respondents with adequate knowledge and behavior of chewing areca nut is 13.3%. The distribution of respondents with sufficient knowledge and behavior of not chewing areca nut was 6.7%. The distribution of respondents with good knowledge and behavior of chewing areca nut is 5.6%. The distribution of respondents with good knowledge and behavior of not chewing areca nuts was 15.6%. The results of the analysis using the chi-square test obtained a p-value of  $0.000 < \alpha = 0.05$ . It indicates that there is a relationship between the level of knowledge of respondents about dental and oral health and the behavior of chewing areca nuts in the Yapen Islands District.

This research is in line with Yulyanisma (2019) that said there is a relationship between knowledge of maintaining dental and oral hygiene with chewing habits. Teenagers in Burokup Village, Biak Regency, Papua Province, are still lacking in cleaning their teeth, such as brushing. The habit of brushing teeth has been replaced by the habit of chewing areca nuts. The process of it ends with shrinking. It is the activity of rubbing a wad of tobacco on the teeth to make the areca nut chewed evenly.

Another research from Hontong et al., (2016) said that there is a relationship between chewing betel nut behavior and oral dental health, especially in the problem of the respondent's gingival status. This is because the more often the respondents practice the habit of chewing, the more contact between the oral mucosal tissues and the ingredients used for chewing. Chalk can cause a buildup of calculus which is then coupled with unattended Oral Hygiene (OHI-S) hygiene. This is exacerbated by the habit of people who have replaced the habit of brushing their teeth with shrinking. This habit will increase the risk of developing gingivitis.

Research from Haba (2019) showed that many respondents have been informed but still experience periodontitis. Each of them will experience various kinds of tissue damage. In addition, informants also said that a clean mouth and teeth would not irritate. Based on Tonglo & Marami (2022) respondents who had low knowledge and technique of brushing their teeth had serious dental health problems. Moreover, this health problem will get worse if it occurs in adolescents who have betel and betel chewing behavior (Arisjulyanto et al., 2021).

Based on Siagian (2012) said that betel nut chewing behavior can harm dental and oral health. The use of lime can increase the base in the mouth so that calculus buildup can occur. The chitin product used in coriander is in the form of lime powder which can damage the periodontium. The destruction is done mechanically by forming calculus which will cause inflammation of the periodontal tissue and mobility of the teeth. At first, the respondent just wanted to try but over time it created a feeling of dependence (addiction). Addiction is a reason for most of them to continue the habit of betel nuts. In areca nut seeds there is a content of arecoline which can cause a sense of dependence (addiction). Chewing is considered an important habit to maintain teeth while they are still there (Hontong et al., 2016; Rosamali & Arisjulyanto, 2020)

Based on Kastini & Koch (2020) said that Some health problems or diseases of the teeth and mouth can occur from infancy to the elderly. The disease can cause various effects. Starting from the mildest such as discomfort to severe effects such as not being able to eat. It will cause a person to experience nutritional disorders. In addition, infections can also occur which cause other diseases in our bodies (Anakoda & Maramis, 2020; Arisjulyanto et al., 2022)

Dental and oral hygiene that is not paid attention to can cause food debris that accumulates on the plaque layer to experience remineralization with tartar. Because of its rough surface, tartar is often a place for the retention of food scraps. It has the potential to cause inflammation of the gums. Tartar also contains many bacteria of various types. Therefore, teeth that have tartar, and gums often bleed. If left continuously, the tartar will multiply and continue to press the gums apical through the surface of the tooth root. The gum pocket will get deeper and can cause damage to the periodontal tissue and can even cause the teeth to shake and fall off by themselves. So, we have to maintain the cleanliness of the teeth and mouth to avoid tartar so that the state of the periodontal tissue remains healthy (Tonglo & Marami, 2022; Mamonto & Harapan, 2021)

Based on the results of the research and discussion above, the areca nut chewing behavior of adolescents in the Yapen Islands Regency is influenced by very low knowledge of dental and oral health. This behavior continues to be carried out, exacerbated by environmental and cultural factors that have developed related to the beliefs of adolescents in the Yapen Islands District.

## **Conclusion**

Based on the result and discussion, it is known that the number of respondents who have less knowledge and have betel nut chewing behavior is 47.8%. Respondents who had less

knowledge and the behavior of not chewing areca nuts were 11.1%. The distribution of respondents with adequate knowledge and behavior of chewing areca nut is 13.3%. The distribution of respondents with sufficient knowledge and behavior of not chewing areca nut was 6.7%. The distribution of respondents with good knowledge and behavior of chewing areca nut is 5.6%. The distribution of respondents with good knowledge and behavior of not chewing areca nuts was 15.6%. The results of the analysis using the chi-square test obtained a p-value of  $0.000 < \alpha = 0.05$ . This indicates that there is a relationship between the level of knowledge of respondents about dental and oral health and the behavior of chewing areca nuts in the Yapen Islands District.

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