

The Correlation Between Betel Nut Consumption and Dental Health Status of The Community Within The Working Area of Camplong Health Center in Kupang District, East Nusa Tenggara

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Abstract— Dental health is a reflection of the general health of each individual, because it is very important to maintain dental hygiene and health. A problematic or unhealthy tooth will be very disruptive, both from the function of speech, chewing and aesthetic functions that have an impact on one's activity and confidence. Betel is a term used to refer to the habit of chewing a mixture of leaves / betel, areca nut and lime which is a habit of the gathering community which is handed down from generation to generation and has become an inseparable part of people's lives. Besides consuming betel nut has become a culture of Timorese society and as a symbol of brotherhood. The aim is to determine the relationship between consuming betel nut and dental health status in the community of Puskesmas Camplong. The method used in this research is analytic observational method with cross sectional approach, the method of sampling in this study was carried out by using purposive sampling technique, the sample in this study amounted to 70 respondents. The results of this study indicate that there is a relationship between consuming betel nut and dental health status in the community of Puskesmas Camplong working area, based on the Spearman rank test results obtained calculation results ρ value = 0.011 is smaller than $\alpha = 0.05$ then H_0 is rejected and H_1 is accepted. The conclusion is that there is a significant correlation between consuming betel nut and dental health status in the community of Puskesmas Camplong.

Keywords— Consume Betel Nut, Dental Health Status

I. INTRODUCTION

Dental and oral health a public health problem that requires comprehensive treatment as it has broad impacts unless it is immediately treated [1].

As shown by the data of Basic Health Research [2] in 2018, the national prevalence of tooth decay problems was 57.6%, in which 21 provinces had the prevalence exceeded the percentage. The prevalence of tooth decay in NTT was found at 54.9%.

Globally, 60-90% of school-aged children and nearly 100% of adults experienced tooth decay [3]. The most common dental and oral diseases experienced by most people in Indonesia include periodontal disease and dental caries. In Indonesia, dental and oral disease remains a major problem which prevalence keeps increasing every year. According to the World Health Organization [3], the prevalence of tooth decay has increased by 13.7% from 28.9% in 2007 to 42.6% in 2013.

Menyirih or betel nut chewing is a term used to refer to the habit of chewing betel leaves. The chewing of a combination of betel leaves, betel nut and lime has been a traditional habit inherited across generations. This habit has been an inseparable part of the community. Betel nut chewing has certain effects on teeth, gingiva and oral mucosa [4].

Betel nut chewing has been believed to be able to avoid oral diseases such as treating toothache and smelly breath. Despite the fact that betel nut chewing has become a community habit, this habit can cause tooth decay due to improper frequency, duration and the dosage of betel nuts consumed [5].

A research conducted by Amalisa Iptika in 2014 [6] involving the community in Sentul, Blitar, East Java showed that people's claim over the function of betel nut chewing to strengthen the teeth was not scientifically proven. On the other hand, betel nut chewing was found to give negative impacts to dental health as it caused broken teeth, irregular-shaped teeth, missing teeth, dental caries and discolored teeth.

The preliminary data collected on May 3, 2019 at the Camplong Health Center showed that there were 123 cases of tooth decay in 2018. It was revealed in an interview with a respondent that betel nut chewing habit was somehow similar to smoking, tea drinking or coffee drinking habits. Betel nut chewing gave pleasing sensation that was difficult to resist. Some people started to grow betel nut chewing habit since childhood, and they could chew it 4-5 times a day. In addition, the Timorese culture requires them to consume betel nut as a symbol of brotherhood.

II. METHOD

This observational analytical research was conducted using a cross sectional approach. Research samples were 70 respondents selected using the purposive sampling technique.

III. RESULT

A. General Data

The data collected in this research are generally described as follows. It is seen from the table that the 36 respondents (51.4%) aged between 46-60 years and most of them were female (51.4%).

Table 1. General Data of Research Respondents

Characteristics		N	%
Age	20-35 years old	16	22.9
	36-45 years old	18	25.7
	46-60 years old	36	51.4
Sex	Male	34	48.6
	Female	36	51.4

Table 2. The Results of Univariate Analysis

Variable		N	%
Betel nut chewing Habit	Good	30	42.9
	Poor	40	57.1
Dental Health Status	Mild	23	32.9
	Moderate	29	41.4
	Severe	18	25.7

It was revealed that out of the 70 respondents, 40 respondents (57.1%) had severe betel nut chewing habit and 29 of them (41.4%) suffered from moderate dental health problems.

B. The Correlation between Betel nut chewing Habit and Dental Health Status

Table 3. The Result of Bivariate Analysis

Independent Variable	Dependent Variable	p.	r.
Betel nut chewing Habit	Dental Health Status	0,011	-0,301

The correlation value was found significant at 0.011, rejecting the H₀. It implies that there is a meaningful relationship between betel nut consumption and dental health status in the community. The result of Spearman rank analysis obtained a correlation coefficient of -0.0301

C. Betel Nut Consumption

Based on the consumption of betel nut in the working area of Camplong Puskesmas showed 30 people (42.9%) had good betel nut chewing frequency of less than 2 years. Whereas, 40 people (57.1%) had bad betel nut chewing frequency over 2 years and could be considered severe behavior.

Amalisa Iptika 2014 [6] found there is a strong believe about betel nut chewing shared among this community. At first, they started to grow this habit by imitating their parents and people around. Moreover, this habit often started regardless of time and age from children to adults. The addiction to betel nut chewing creates a feeling of emptiness, darkness, lost and stress when they could not consume it. The situation will be as before if it has been chewing betel nut. This addiction also keeps this habit in which people do the betel nut chewing and always carry it when traveling.

From the results of this study, many people who had severe betel nut chewing habit believed that this habit is a culture and a hereditary tradition that is difficult to stop. Whereas those who had good betel nut chewing habit were newcomers and those who were new and still learn to do the betel nut chewing.

D. Dental Health Status

The dental health status of community within the working area of Camplong Health Center showed 23 people (32.9%) suffered from mild dental problem, 29 people (41.4%) suffered from moderate dental problem, while 18 people (25, 7%) experienced severe dental problem.

Dental health is an important aspect that needs to be maintained by all people [7].

Ningsih et al 2013 [8] stated that dental health care can be commonly performed by brushing the teeth regularly. Tooth brushing determine the rate of tooth decay process. Adequate teeth brushing will increase the efficacy of the brushing procedure. The use of fluoride is an adjunct in preventing tooth decay [9].

In addition, the frequency of teeth brushing also determines the cleanliness of the teeth. Similarly, Anitasari and Rahayu [10] found a positive relationship between dental hygiene with the frequency of brushing teeth for 2-3 times a day. The use of both systemic and topical fluoride (toothpaste) can also prevent cavities [11].

In this research, respondents who experienced dental health problems were dominated by those who aged between 46-60 years as their teeth strength has declined. Most people living in the working area of Camplong Health Center had bad habit of not brushing their teeth twice a day using toothpaste.

E. The Correlation between Betel Nut Chewing and Dental Health Status of the Community within the Working Area of Camplong Health Center.

This research involving 70 respondents resulted in a significant correlation value $\rho = 0.011$, which means that H₀ is rejected. Therefore, the relationship between consuming betel nut and dental health status has been confirmed. The Spearman rank test showed a correlation coefficient of -0.301. The negative correlation coefficient shows that an increase in one variable causes a decrease in other variable. Thus, the better the betel nut consumption, the better the dental health status. A good consumption of betel nut should not exceed 3 times a day or > 6 times a week. However, the interviews with several respondents showed that most respondents consume betel nut more than 3 times a day and more than 6 times a day, causing negative effects to their dental health.

Kamisorei and Devy [5] stated that the community living in the Ardipura I Village did not brush their teeth after chewing betel nut as they also rub the betel nut skin on the surface of the teeth. They considered this habit complemented the teeth brushing as they believed that the habit can remove stains on teeth and clean the remaining whitening material found in between the teeth. The whitening from the betel nut contains calcium hydroxide or Ca (OH)₂. High calcium hydroxide pH will cause the oral cavity to be alkaline and produces a reactive oxygen form in the form of

hydroxyl radical (OH •). (OH •) which can disrupt the oxidation system of the mucous cell DNA and accelerates the teeth plaque formation. The belief that rubbing the skin of betel nuts is equal to teeth brushing has made the community reluctant to brush their teeth after chewing the betel nut.

The research conducted by Agusta [12] showed that betel nut contained tannins and alkaloids. Therefore, excessive betel nut consumption can be bad for health as arekolin in betel nuts can affect the parasympathetic nerve by stimulating muscarinic and nicotinic receptors. The frequency of betel nut chewing over 2 times a day can be bad for oral health. At this frequency, people would get addicted to betel nut chewing as they found the sensation and pleasure stronger. The excessive frequency of betel nut chewing prevented the community from maintaining their oral hygiene properly [13] who conducted a research on the periodontal health of the Papuan people in Manado also found that the majority of the community had inadequate oral hygiene as shown by the low oral hygiene index due to inflammation from betel nut. The betel nut caused damages in periodontal tissue. Similar result was also found by Lim [14] in Pancur Batu Subdistrict, where most of the community had betel nut chewing habit (68.38%) and only (37.34%) of them chewed the betel nut occasionally. The frequency of betel nut chewing over five times a day reached 81.25%, and most of the community experienced oral health disorder.

Researchers concluded that consuming betel nut is a community habit carried down from generation to generation. The community believe that consuming betel nut can treat teeth and cure toothache. However, the fact shows the other way around in which betel nut has been proven to cause dental health issues including incomplete teeth, missing teeth, dental caries and teeth discoloration to brown and black. Inadequate knowledge among the community regarding dental health and improper betel nut chewing habit including excessive frequency, length of betel nut chewing, and the amount of betel nut consumed might be the causes of tooth decay.

IV. CONCLUSION

There is a relationship between betel nut consumption and dental health status among the community within the working area of Camplong Health Center.

It is considered necessary to enhance community's knowledge of the threats from consuming betel nut against

the dental health. It is also important to improve community's awareness to regularly check their dental health status to the health center.

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