

Preventing Parental Behavior Regarding Childhood Chewing Betel Habits In Preschool

Christina Ngadilah¹, Merniwati Sherly Eluama², Yansestina Erlince Eky³,
Novianti Baunsele⁴

^{1,2,3,4}Politeknik Kesehatan Kementerian Kesehatan, Kupang

Alamat Institusi : Jl. Piet A. Tallo, Liliba, Kec. Oebobo, Kota Kupang, Nusa Tenggara Tim.

Christinangadilah62@gmail.com¹, sherlyeluama@gmail.com², y.erlince.eky@gmail.com³,

nbaunsele@gmail.com⁴

ABSTRACT. *In Nefoneke village, Kec. Takari District, Kupang, 79.5% of people consume betel nut, and they often teach their children to consume it in a unique way. A community service aims to increase the knowledge and attitude of preschool teachers, health cadres, and parents of preschool children about the dangers of betel nut consumption. The service involves collaborating with Posyandu cadres and mothers with children under five to socialize about the dangers of betel nut consumption, demonstrating proper tooth brushing, and creating booklets for distribution. Community education, cadre training, and mentoring are also provided to mothers to serve as role models for their children. Results show that 5 Family Welfare Education cadres, health cadres, and Early Education teachers have been trained in recognizing the dangers of betel nut consumption for pregnant women and children. The knowledge and attitudes of these cadres and teachers have increased from 50 to 80, and the "OLOK" system has been implemented, with 89% of Early Education children using this method.*

Keywords: *Betel Chewing, Early Education Children, Parent Behavior*

INTRODUCTION

The areca nut is the primary ingredient in betel quid (BQ), which is consumed by >600 million people in the world. BQ can be made up at home or purchased from vendors as a ready-to-chew mix. (Warnakulasuriya et al. 2022). Four alkaloids—arecoline, arecaidine, guvacine, and guvacoline—are important biologically. There is strong evidence from studies in human primary cells and various experimental systems that arecoline exhibits key characteristics of carcinogens (Gupta et al. 2020). The main ingredient of betel nut is areca nut, which is the fruit of the palmaceous Areca catechu tree. The term "betel nut" refers to a combination of the most common ingredients including areca nut, calcium hydroxide/lime betel leaf, and tobacco,

although the ingredients of betel nut vary greatly according to region, country, ethnicity, and personal preferences. In India the ingredients used The types of betel nut consumed are very varied and different from those consumed in Timor, East Nusa Tenggara, Indonesia, where it is simpler, namely the basic ingredients are just betel nut and lime. . Arecoline is genotoxic, inducing DNA strand breaks, micronucleus formation, chromosomal aberrations, and sister-chromatid exchanges in human primary and cultured cells (Gupta et al. 2020; IARC Monographs 2021). Based on mechanistic evidence, arecoline was classified as possibly carcinogenic to humans (group 2B) by the International Agency for Research on Cancer (IARC Monographs 2021). Lin et al. (2011) proposed that the mutagenic effects of arecoline may be due to one of its major metabolites: arecoline N-oxide. Recent research has revealed that betel chewers have the same level of dependence as smokers (Herzog et al., 2014). Furthermore, this research shows that most betel chewers and smokers have similar attitudes regarding their intention to quit (Little et al., 2014). Despite these findings, there is no systematic research on betel nut consumption cessation programs. It seems that the development of a betel cessation program has been planned for a long time. Betel nut also causes systemic damage or disease apart from damage to periodontal tissue in the tooth supporting tissue. Periodontal disease is an inflammatory disease that affects the tooth structure including the gingiva, periodontal ligament and alveolar bone

Research conducted in Kupang Regency, the source of introduction to consuming betel nut for both men and women, was their parents (Ngadilah et.al., 2019). Most parents do not understand and are not aware of the effects of consuming betel nut. On intra-oral appearance, there are black stains on the teeth, severe tooth decay, wear involving the incisal and occlusal surfaces of the teeth, especially the enamel layer which causes sensitivity of the teeth. Periodontal attachment loss and calculus formation were also found to be greater in betel nut consumers (IARC, 2021). This could be related to the fact that arecoline (the carcinogenic content in areca nut) has the following properties:

1. Toxic to fibroblast at a concentration of 300–500 g/mL, causing cell death
2. Suppresses protein synthesis in cultured human periodontal fibroblasts.
3. Causes growth inhibition

According to a cross-sectional study done in Taiwan, most of the people who used to smoke and chew betel quid were less educated, middle aged males leading unhealthy lifestyles (Guo et al. 2013). Based on the above, the author proposes to provide strategies and policies for primary

prevention, health promotion and education related to controlling oral cancer and other systemic dangers, especially in rural areas. Through education for parents, especially mothers who have toddlers, apart from mothers, mothers can slowly stop consuming betel nut, while children can be prevented from an early age so that they don't continue trying to consume betel nut, considering that betel nut, especially areca nut, is addictive. In children from an early age, if prevention efforts are not made, they will continue into adulthood and even old age and find it difficult to give up consuming betel nut, even though there are various health problems that will arise both regarding dental health and body health in general. Nefoneke Village is one of the villages in Takari District, Kab. Kupang, NTT Indonesia, is a village located far from the city, the area is very difficult to access by road. Apart from the difficulty for vehicles to enter the village area, water shortages are also an obstacle to progressing development in both the education and health sectors. In previous research (Ngadilah et al, 2019) in Kupang Regency almost 80% of people consumed betel nut, including children. The reason why children consume betel nut is because there are no snacks available, so it is a substitute for snacks. But apart from that, they follow in the footsteps of their parents who consumed sirih areca nut. Considering its detrimental impact on health, and also more severe gingival damage, it is very necessary to guide and accompany mothers who consume betel nut to stop consuming betel nut after being given counseling. Another big goal is that children can be prevented as early as possible do not consume betel nut. The Head of Community Service once conducted research in the village of Nefoneke sub-district. Takari District. Kupang had visited the village previously to provide outreach about the dangers of consuming betel nut for health.

A. Target 1. mother and child remember that children are usually close to their mother..

2. Health cadres and Teacher of Early Education Children

B. Problem:

1. There are still many mothers and children who consume betel nut
2. The initiative to break the chain of consuming betel nut has not yet begun in Nefoneke village, Kec. Takari
3. There are no instructions or ways to maintain healthy teeth and mouth for parents and children in Nefoneke Village. Takari sub district, Kupang District
4. There has been no socialization regarding the dangers of consuming betel nut

C. Objectives: 1. Mothers with toddlers have not been helped to stop consuming betel nut. 2. Collaborate with Posyandu cadres in Nefoneke village, Takari District, Kab. Kupang and mothers who have children under five to conduct outreach about the dangers of betel nut.,3. Demonstrate how to brush your teeth properly and correctly. 4. Accompany and monitor those who have children under five in undergoing cessation to stop consuming betel nut. 5. Making pocket books which were distributed to mothers who have children under five and health cadres at the posyandu in Nefoneke village. 6. Community education, cadre training and mentoring so that mothers with toddlers can be role models for their children and it is hoped that in the future these toddlers will not consume betel nut and can maintain healthy teeth and mouths.

D. Benefits: 1. Improve improve the knowledge and attitudes of cadres and teachers. 2. Improving the health of mothers and children, 3. Educating the public, 4. There are guidelines for mothers or parents not to consume betel nut , in the form of a pocket book

METHODS

The Community Service Implementation Method is as follows:

Preparation:

1. Conduct approaches with the village head, community health center and health cadres in Nefoneke village (MAS service team)
2. Collect data on children who consume betel nut in the village. Select respondents who will be used as partners (community partners, mothers and health cadres. (Team community service).
3. Village officials coordinated by the village head prepare cadres, preschool school children and their parents and preschool teachers. Apart from that, also prepare tents, tables and chairs

B. Implementation

Socialization/Education to parents of preschool children, cadres, teacher and official community in the Nefoneke villages. with the following material :1. consuming betel nut and its effects on teeth and periodontal tissue by lecturer. 2.consuming betel nut and its consequences on systemic diseases such us diabetes, heart disease, kidney, abdominal colic and so on by lecturer.3. Demonstration how to brush your teeth properly and correctly. 4. Consultation by lecturer and students. 5. Post Test and Distribution to team community services of toothbrushes, soaps and toothpaste and pocket book. Training for health cadres and teachers of Early Education Children:

1. Pre test with material that has been socialized abou betel chewing and health. 2.Practice on how to socialize the dangers of areca nut to children,

pregnant women and adults using the pocket book and pictures provided. Monitoring and evaluating the implementation of socialization by early childhood cadres and teachers at Sub community health centers (posyandu). Monitoring and evaluation is carried out 1 month after the community service during the posyandu schedule. We monitor and evaluate Health cadres and teachers to educate mothers Early Education children about the dangers of areca nut for dental and oral health and general health during visits at the posyandu every month.

RESULTS AND DISCUSSION

Table 1. Condition of respondents' knowledge about betel nut

no	Question Material	Y (%)	N(%)
1	Father/mother chewing betel	81	19
2	Betel nut can cause various diseases	5	95
3	Betel nut damages gums and teeth	3	97
4	Betel nut can cause tuberkulosis and hepatitis.	15	85
5	Throwing saliva carelessly can spread disease	21	79
6	What do you think if young children consume betel nut	80.5	19.5
7	How inisiation consume betel nut by chewing it from the mother and then giving it to the baby 1-3 years old	89	11
8	Betel nut is dangerous for pregnancy?	6	94
9	In 3 generation at homes chewing betel	80	20
10	Betel nut can cause systemic diseases such as heart disease, high blood pressure, diabetes	3	97

Table 2. Pre Test and Post Test Knowledge and attitudes of mothers before and after being given counseling

Nilai rata rata	knowledge		Attitude		Average knowledege and Attitude	
	before	after	before	after	before	after
Total	51	82	45	80	48	81

Table 3. How to initiate PAUD children in Nefoneke village, Kab. Kupang in consuming betel nut

Inisiasi betel chewing	Olok	Try themself
------------------------	------	--------------

	F	%	F	%
	58	89	7	11

From the results obtained after training and outreach, mothers, parents of Early Education students, health cadres and preschool teachers have increased their knowledge. Preschool teachers have carried out outreach using language that can be accepted by PAUD students or simple language for children to provide understanding to children about the dangers of consuming betel nut by showing pictures of which ones can be consumed and which ones cannot be consumed. Meanwhile, cadres in groups practice providing education to mothers regarding the dangers of areca nut to general health and dental health.

As many as 80% respondent said that there were 3 generation in the house consuming betel nut and mother said no problem with children consuming betel nut. Regarding the spread of hepatitis and TB due to throwing saliva carelessly, and airborne spread of infection, most mothers expressed their disagreement, this was before socialization and training is carried out. The possibility of a role of betel quid use in the transmission of infectious disease through pathways such as immunosuppression, oral route of entry for a pathogen (i.e., through injury to the oral mucosa), and contamination (i.e., fecal-oral) of the betel quid ingredients. (singh et.al. 2012). However, some participants with a low average level of education incorrectly linked betel chewing to increased work ability. A significant finding was that many of the respondents who were addicted to the habit had actually tried to quit the habit for ill reasons such as coughing and a thick taste in the mouth.

This implies that professional counseling services for those in addiction can play an important role in reducing consumption of areca nut. Even participants with low incomes spent a lot of money buying areca nut because they were addicted to it. In a study mentioned previously, 88% of users had access to areca nut from the market and shared with each other if there was an event in the village. The results of previous research were that 79.8% (Ngadilah, et.al.2019) of people consumed betel nut and that chewing betel nut was a good habit (96%). In this community service, around 89% of consumers have understood and will stop this habit. Almost all (98.6%) had received socialization to stop this habit, especially . The high prevalence of betel nut consumption among children is determined by their parents because 89% of children learn to consume betel nut through the "mamah" or "Olok" method, which means that when they are still babies, mothers chew

betel nut complete with lime, when it is smooth it goes straight into the mouth. small children, aged 1-3 years. Only 11% of children learn to consume betel nut on their own without help from their parents. Syah's research, 2017, shows that in Pakistan it is proven that the use of betel products is high among Pakistani teenagers and as many as 74% of them are consumed by teenagers regularly, in class while studying they consume betel nut, while in Timor it is not a habit for school children to consume betel nut in the classroom. class or while studying. In Pakistan, the first step to control the oral and neck cancer epidemic is to prevent the use of areca nut and tobacco. To achieve this goal, extensive steps must be taken by health workers, the media and the community. Behavioral interventions have proven to be very effective in reducing the use of areca nut. A visual illustration of the harmful effects caused by the use of areca nut can help for this purpose of reducing betel nut consumption. A strong picture from the data above for health workers also needs strong emphasis, especially for mothers who have children under 5 years and even pregnant women and teenage girls.

The initial initiation method of consuming betel nut using the Olok method will ensure the continuity of this behavior because of its addictive nature. Boucher BJ (2002) and Warnakulasurya (2015) argue that areca nut is the 4th psychoactive substance after alcohol, tobacco and coffee. Areca users report increased feelings of well-being and stamina, euphoric effects, calming effects on digestion, and protection of the mouth and gums (Sharan et. al., 2012) In addition, consuming areca nut is claimed to produce a warm sensation in the body, sweating, salivation , heart palpitations and increase alertness, as well as tolerance to hunger so that it can delay the feeling of hunger. All of this is neurological. The effects show that the chemicals in areca nut affect the autonomic nervous system, at various levels (Rooban, et.al., 2005). A significant increase in brain dopamine levels was observed in rats after arecoline was injected (Molinengo et.al., 2000). Inhibition of monoamine oxidase-A (MAO-A) related antidepressant effects could be observed in the rat brain when dichloromethane in areca nut was injected (Dar and Khatoon, 2000). Winstock et al. have reported a dependency syndrome associated with chewing areca nut (Gupta and Warnakulasurya, 2002). A study of six people in the country, in specific groups such as Hunan men (a Chinese province), Malaysian women, and Indonesian women and Nepalese populations revealed that the incidence of areca nut dependence even exceeded alcohol dependence (Lee et.al. 2012).

The Cessation Program is important in order to stop consuming betel nut. The government's role in this matter is very big in the health sector in

order to reduce the prevalence of betel nut consumption. Several studies in various countries (Mirsha et al., 2012, Nair et.al. 2012, Pimple et al., 2014) have assessed the effectiveness of the ban and how it affects betel nut consumers and sellers. Nair et al. revealed that the ban raised awareness of the health effects associated with areca nut on the public. Mishra et al. reported that areca users appreciated the ban because it could influence them to quit or control the habit. A study conducted in India in 2014 found that the ban on consuming areca nut has actually reduced the use of areca nut but they are concerned that they may have found alternative products to use (WHO, 2014). Obstacles to cessation (stop areca nut) must be removed with proper planning appropriate to reduce the number of betel nut chewers in society. Public misunderstandings, lack of awareness, and socio-cultural influences can only be overcome with appropriate awareness programs that are rightly targeted at both individuals and society. Mass media campaigns, awareness programs, school-based education programs, and poster campaigns can be used to increase public awareness regarding the bad effects of consuming areca nut (Chande and Suba, 2016; Hussain et.al., 2018). Awareness programs and stopping areca nut should continue to be encouraged by using local languages (Moss et.al., 2015). Research in Taiwan by Lee in 2018 stated that respondents at certain stages did not believe that betel nut had a bad impact on health and they did not have the motivation to stop consuming betel nut, but at a certain stage that betel nut had a bad impact on health and those who had Motivation to stop consuming betel nut. Finally, research from Hung et.al. 2020 concluded that for the cessation/stop consuming betel nut or Betel User Disorder program responding to pharmacotherapy by prescribing fixed doses of escitalopram and moclo bemade for BUD patients for 8 weeks would be beneficial (Hung et.al., 2020).

Promoting the use of betel nut should be prohibited. Public Health Office must play an important role in designing new regulations and policies to curb the production, trade and consumption of areca nut. Awareness campaigns for all should be conducted and social support groups should also be conducted for those addicted to chewing areca nut.

Awareness regarding the detrimental effects of betel nut was satisfactory amongst the subjects, but the population was not willing to quit the habit. Khan recommend a two-pronged approach, offering widespread educational and awareness campaigns to prevent increased consumption of betel nuts, and professional counselling services for those already addicted (Khan et.al. 2013)

CONCLUSIONS

The targets and outcomes achieved in this Community Services are 1. Availability of educational media for early childhood cadres and teachers, 2. Increase in knowledge scores about the dangers of areca nut for health, 3. Increase attitudes about consuming betel nut for health. By increasing the knowledge and attitudes of mothers, cadres and teachers, it is hoped that we can break the chain of consuming betel nut among generations of Early Education children in Nefoneke village, Kupang Regency.

RECOMMENDATION

Remembering the benefits of community service:

1. increase public knowledge about health on a regular basis
2. Mothers should no longer give betel nut to children under five because it will cause addiction

There is a need for programmatic government intervention in dealing with this problem, because this behavior creates health problems and greatly affects public health.

Conflicts of Interest : The authors declare that they have no conflicts of interest.

BLIBIOGRAPHY

- A. Hussain, S. Zaheer, and K. Shafique, "School-based behavioral intervention to reduce the habit of smokeless tobacco and betel quid use in high-risk youth in Karachi: a randomized controlled trial," *PLoS One*, vol. 13, no. 11, Article ID e0206919, 2018.
- A. Dar and S. Khatoon, "Behavioral and biochemical studies of dichloromethane fraction from the Areca catechu nut," *Pharmacology Biochemistry & Behavior*, vol. 65, no. 1, pp. 1–6, 2000.
- Boucher BJ, Mannan N (2002) Metabolic effects of the consumption of Areca catechu. *Addict Biol* 7: 103–110.
- Christina Ngadilah; Hari Basuki Notobroto, Rika T.Subarniati (2019):" Model Faktor Budaya Oko Mama Yang Mempengaruhi Masyarakat Kab. Kupang Mengkonsumsi Sirih Pinang Dan Implikasinya Terhadap Angka Karies, pH Saliva, Dan Saliva Flow Rate " Disertasi, FKM Universitas Airlangga Surabaya
- C.-Y. Lee, C.-F. Wu, and C.-M. Chen, "Qualitative study for betel quid cessation among oral cancer patients," *PLoS One*, vol. 13, Article ID e0199503, 2018.
- C.-C. Hung, C.-H. Lee, A. M.-S. Ko, H.-Y. Lane, C.-P. Lee, and Y.-C. Ko, "Effect of antidepressants for cessation therapy in betel-quid use

- disorder: a randomised, double-blind, placebo controlled trial," *Epidemiology and Psychiatric Sciences*, vol. 29, 2020.
- C. Lee, A. Ko, C. Yen et al., "Betel-quid dependence and oral potentially malignant disorders in six Asian countries," *British Journal of Psychiatry*, vol. 201, no. 5, pp. 383–391, 2012.
- G. A. Mishra, S. S. Gunjal, S. A. Pimple, P. V. Majmudar, S. D. Gupta, and S. S. Shastri, "Impact of 'gutkha and pan masala ban' in the state of Maharashtra on users and vendors," *Indian Journal of Cancer*, vol. 51, no. 2, p. 129, 2014.
- Gupta AK, Tulsyan S, Thakur N, Sharma V, Sinha DN, Mehrotra R. 2020. Chemistry, metabolism and pharmacology of carcinogenic alkaloids present in areca nut and factors affecting their concentration. *Regul Toxicol Pharmacol*. 110:104548. doi: 10.1016/j.yrtph.2019.104548 [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
- IARC Monographs Vol 128 Group. 2021. Carcinogenicity of acrolein, crotonaldehyde, and arecoline. *Lancet Oncol*. 22(1):19–20.
- J. Moss, C. Kawamoto, P. Pokhrel, Y. Paulino, and T. Herzog, "Developing a betel quid cessation program on the island of Guam," *Pacific Asia Inquiry' : Multidisciplinary Perspectives*, vol. 6, no. 1, pp. 144–150, 2015.
- A. A. S. Warnakulasuriya, "Smoking and chewing habits in Sri Lanka: implications for oral cancer and precancer," in *Control of Tobacco-Related Cancers and Other Diseases*, P. C. Gupta, J. E. Hamner III, and P. R. Murti, Eds., pp. 113–118, Oxford University Press, Mumbai, India, 1992.
- Lin KH, Lin CY, Liu CC, Chou MY, Lin JK. 2011. Arecoline N-oxide: its mutagenicity and possible role as ultimate carcinogen in areca oral carcinogenesis. *J Agric Food Chem*. 59(7):3420–3428
- Chande and K. Suba, "Tackling the use of supari (areca nut) and smokeless tobacco products in the South Asian community in the United Kingdom," *Dental Update*, vol. 43, no. 5, pp. 442–447, 2016.
- Muhammad Shahze b Khan, Faizan Imran Bawany, Syed Raza Shah Mehwish Hussain Mohammad Hussham Arshad,5 Nighat Nisa Comparison of knowledge, attitude and practices of betelnut users in two socio-economic areas of Karachi *Journal of the Pakistan Medical Assoc*. October 2013
- NJ, Bernabe E, Dahiya M, Bhandari B, Murray CJ, Marcenes W. Global Burden of Severe Periodontitis in 1990-2010: A Systematic Review and Metaregression. *Journal of Dental Research* 2014;93:1045-53.
- Oakley, demaine L. Warnakulasuriya S: Areca (betel) nut chewing habit

- among high school children in the Commonwealth of the Northern Mariana Island (Micronesia); Bulletin World Organisation, 2005; 83 (9) : p. 656-660.· October 2005
- Pramil N. Singh a,b, *, Zuhair Natto a , Daravuth Yel c , Jayakaran Job a,b , Synnove Znutsen (2012) “Betel quid use in relation to infectious disease outcomes in ambodia” International Journal of Infectious Diseases 16 (2012) e262–e267.Published by Elsevier Ltd. All rights reserved.
- R. N. Sharan, R. Mehrotra, Y. Choudhury, and K. Asotra, “Association of betel nut with carcinogenesis: revisit with a clinical perspective,” PLoS One, vol. 7, no. 8, Article ID e42759, 2012.
- Shah SMA, Merchant AT, Luby SP, Chotani RA. Addicted school children: prevalence and characteristics of areca nut chewers among primary school children in Karachi, Pakistan. Journal Paediatr Child Health. 2002;38:507–510.S.S Wazir et al. / Journal of Oral Biology and Craniofacial Research 7 (2017)., p.161–166.
- Warnakulasuriya, P. Chaturvedi, and P. C. Gupta, “Addictive behaviours need to include areca nut use,” Addiction, vol. 110, p. 1533, 2015.
- S. Nair, J. J. Schensul, S. Bilgi, V. Kadam, S. D’Mello, and . Donta, “Local responses to the Maharashtra gutkha and Pan masala ban: a report from Mumbai,” Indian Journal of Cancer, vol. 49, no. 4, p. 443, 2012.
- S. Pimple, S. Gunjal, and G. Mishra, “Compliance to Gutka ban and other provisions of COTPA in Mumbai,” Indian Journal of Cancer, vol. 51, p. 60, 2014.
- S.-E. Guo, T.-J. Huang, J.-C. Huang et al., “Alcohol, betel-nut and cigarette consumption are negatively associated with health promoting behaviors in Taiwan: a cross-sectional study,” BMC Public Health, vol. 13, no. 1, 2013.
- T. Rooban, E. Joshua, A. Rooban, G. Kumar, and Govind, “Health hazards of chewing arecanut and products containing arecanut,” Calicut Medical Journal, vol. 3, p. e3, 2005.
- World Health Organization, Examining the Impacts of the Gutka Bans in Selected States in India Fact Sheet, Institute for Global Tobacco Control, Johns Hopkins University & World Health Organization, Pune, India, 2014.
- WHO, (2012) ‘Review of Areca (Betel) Nut and Tobacco Use in the Pacific. A technical Report
- Warnakulasuriya¹ and T.H.H. Chen² (2022):“Areca Nut and Oral Cancer: Evidence from Studies Conducted in Humans” Journal of Dental Research 101(10)