

Survey of betel nut consumption behavior and health risk perceptions among Papuan Community

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Abstract

Betel nut consumption is a strong tradition in Papuan society, with no age limit and practiced by various groups, including teenagers, adults, and the elderly. This custom is considered important in strengthening kinship ties and is often practiced in traditional events. In addition, consuming areca nut is believed to provide certain benefits, although there are also health risks that may be associated, such as oral cancer, heart disease, addiction and can even trigger ulcers (News Antara Indonesia, 2021). This study aims to determine the perceptions of the Papuan people towards betel nut consumption behavior. This study used a quantitative descriptive method with a sample of 342 respondents. Results: The majority of respondents have a habit of consuming areca nut regularly as many as 236 people (69.0%), About 61.4% of respondents have a positive perception of areca nut consumption, while 38.6% are aware of the health risks that may arise. This study shows that areca nut consumption among Papuans is a common habit that is considered an important part of the culture. Despite the awareness of health risks, most people still see betel nut consumption as a beneficial activity. Therefore, it is recommended that health education efforts be made to raise awareness of the dangers of this habit, so as to reduce long-term health risks.

Keywords: behavior; betel nut consumption; health risks

1. Introduction

Consuming betel nut is a tradition deeply rooted in Papuan culture. This practice is carried out by all age groups and professions without restriction, from teenagers to the elderly (Guo et al., 2013). In addition to social benefits such as strengthening brotherhood, betel nut consumption is also believed to provide health benefits, such as strengthening teeth and eliminating bad breath (Gilang, 2022). The method of consumption, which involves chewing a mixture of betel nut, betel leaf, and lime, creates a mild stimulant effect (Kamisorei et al., 2017). Behind this custom lies a complexity between health benefits and risks that have not been fully explored.

Globally, betel nut consumption ranks fourth as the most widely used psychoactive substance after caffeine, alcohol, and nicotine, with approximately 600 million consumers worldwide (Gupta & Warnakulasuriya, 2002). This habit causes dependence similar to smoking (Papke, 2018). In Indonesia, the habit of consuming betel nut is most prevalent among communities in the eastern region, with the highest prevalence among women over 35 years of age (Ministry of Health, 2018). The Papuan community itself has a habit of consuming more than four betel nuts, with some consuming up to ten times a day. After consuming betel nut, they experience both positive and negative effects. The positive effects include feeling refreshed, eliminating bad breath, and strengthening teeth. The negative effects include a thickened tongue, sores on the edges of the mouth and tongue, occasional dizziness, and constant cravings (Kamisorei et al., 2017).

Although various studies have highlighted the prevalence and biomedical effects of betel nut consumption, there is still a gap in the literature regarding public perceptions of health risks and psychosocial factors that influence consumption behavior. Previous studies tend to be descriptive without linking behavior to health behavior. In fact, understanding individual perceptions and motivations is very important for designing effective and contextual health interventions.

Recognizing this gap, this study uses the Health Belief Model (HBM) theoretical framework as its conceptual foundation. The HBM explains that health behaviors are influenced by individuals' perceptions of susceptibility, severity, benefits, and barriers to health actions (Rosenstock, 1966; Janz & Becker, 1984). In the context of betel nut consumption, the community's understanding of health risks and inherent cultural values are important factors in shaping behavior.

The urgency of this research lies in the need for an educational approach that not only conveys medical risks but also considers local cultural values. By understanding the perceptions and motivations of the Papuan community, health interventions can be designed more effectively and contextually.

Therefore, this study aims to determine the Papuan community's perception of betel nut consumption and its health risks.

2. Methods

The method used in this study was quantitative descriptive to identify the community's perceptions of betel nut consumption behavior and health risks. It was conducted in 2024. The research was conducted in Asano Village, Abepura District, Jayapura City.

The population in this study was the entire community of Asano Village with a population of 211,191 people. A sample of 342 respondents was selected using purposive sampling from papuan community who were consuming betel nut. Data were collected through questionnaires covering the respondents' sociodemographic and their perceptions of betel nut consumption and health risks. The data were analyzed using univariate tests with frequency distribution, mean, median, standard deviation, maximum and minimum values using SPSS software.

3. Results and Discussion

Table 1. Distribution of Respondent Characteristics

Variable	Frequency (n=342)	Percentage%
Age		
Adolescents (12-25 Tahun)	132	38.6
Adults (26 – 45 Tahun)	178	52.0
Elderly (≥46 Tahun)	32	9.4
Gender		
Female	183	53.5
Male	159	46.5
Highest Education		
Elementary	14	4.1
Junior High School	25	7.3
Senior High School	178	52.0
College	125	36.5
Occupation		
Unemployed	205	59.9
Self-employed	95	27.8
Civil servant/military/police	42	12.3
Ethnicity		
Non - papua	77	22.5
Papuan	265	77.5

Based on table 1 the results showed that majority of respondents were adults aged 26-45 years old, totaling 178 people (52.0%). The majority were female, totaling 183 people or 53.5%. The majority had a high school education, totaling 178 people (52.0%). Most respondents were unemployed, totaling 205 people (59.9%). and the majority of respondents were Papuan, totaling 265 people (77.5%).

Table 2. Frequency Distribution of Betel Nut Consumption Behavior

Behavior	n	%
Low	106	31.0
High	236	69.0
Total	342	100

The majority of respondents had high betel nut consumption behavior, totaling 236 people (69.0%), and low behavior, totaling 106 people (31%).

Table 3. Frequency Distribution of Community Perceptions of Health Risks

Perception	n	%
Negative	132	38.6
Positive	210	61.4
Total	342	100

The majority of Papuans have a positive perception of betel nut consumption, with 61.4% of respondents having a negative perception of the health risks associated with betel nut consumption.

3.1. Characteristic of Respondent

The results of the study showed that the majority of respondents were adults, followed by adolescents and the elderly. Betel nut consumption is acceptable and practiced by all segments of society, indicating that this habit is an integral part of daily life regardless of age. The high involvement of adults in this study may indicate that this group plays a significant role in preserving and continuing the tradition of betel nut chewing. These results are in line with research conducted by (Guo et al., 2013) The use of betel nut as part of the local culture in Papua is practiced by various age groups, from adolescents to the elderly. Women tend to consume more betel nut than men. This is in line with the findings of IARC (2004), which states that the habit of consuming betel nut is found in communities in eastern Indonesia, and most betel nut consumers are women.

Education does not influence the habit of consuming betel nut, as the majority of respondents have a high school education. Betel nut consumption behavior is not only seen from the perspective of education, but more as a tradition that is ingrained and widely accepted in all levels of society. This tradition is influenced by other factors, such as cultural values, customs, and social aspects, which are more dominant than formal education.

The majority of respondents were Papuan, while the rest were non-Papuan. This shows that betel nut consumption is a dominant habit among the Papuan community. Betel nut consumption in Papua is not just a daily habit, but also has deep cultural value. According to Gilang (2022), chewing betel nut is considered an important tradition in strengthening the bonds of brotherhood among the Papuan people. This tradition has been going on for a long time and has become part of their cultural identity. Papuan people believe that chewing betel nut not only serves as a means of socializing, but also as a way to maintain and strengthen relationships between individuals and communities. On the other hand, betel nut consumption by non-Papuan respondents indicates cultural adoption or influence from their living environment, especially if they live side by side with Papuan communities.

3.2. Betel nut Consumption Behavior

The high prevalence of betel nut consumption among Papuan communities reflects its deep integration into social identity and daily life. This behavior is not merely habitual but culturally embedded, practiced across age groups and professions. From the perspective of the Health Belief Model (HBM), the persistence of this behavior can be attributed to low levels of perceived susceptibility and perceived severity. Although some individuals are aware of the potential health risks—such as oral cancer and cardiovascular disease—their perception of the seriousness of these consequences remains minimal, which weakens motivation for behavioral change.

In contrast, the perceived benefits of betel nut chewing such as its refreshing effect and its role in strengthening social relationships are strongly reinforced within the community. These benefits contribute to the continuation of the habit, while perceived barriers, including entrenched cultural norms and limited access to health information, further hinder the adoption of healthier alternatives. This aligns with the findings of Janz and Becker (1984), who emphasized that meaningful health behavior change requires both an increase in risk perception and a reduction in barriers through culturally sensitive education. In this context, interventions that involve traditional leaders and community-based approaches are likely to be more effective in shifting public attitudes and practices.

The study also found that the majority of respondents exhibit high levels of betel nut consumption. Behavior, in this case, refers to the repeated actions of individuals, shaped by their attitudes and environmental interactions. According to Notoatmodjo (2014), attitude is formed through a combination of knowledge, emotional responses, and social experiences, and is influenced by

psychological, physiological, and cultural factors. These dimensions are evident in the Papuan context, where betel nut chewing is not only a personal choice but a socially reinforced norm.

Furthermore, the study reveals that betel nut consumption demonstrates a level of dependency comparable to smoking, as highlighted by Papke (2018). This finding is critical, as it positions betel nut use as a potential public health concern requiring targeted intervention. Given the addictive nature of the habit and its widespread acceptance, a strategic public health response is essential to mitigate long-term health risks. To fully understand and address this behavior, it is necessary to consider the multifaceted perspectives—cultural, psychological, and informational—that shape attitudes and consumption patterns among the Papuan population.

3.3. Community Perceptions of Health Risks

The majority of respondents had a positive perception of betel nut consumption. This shows that betel nut consumption has become an integral part of culture and daily life. This positive perception is influenced by factors such as traditional values, the use of betel nut in various traditional ceremonies, and the belief in certain benefits of betel nut consumption. On the other hand, there are also those who have a negative perception regarding the health risks of betel nut consumption. Although this proportion is smaller, it still shows that there is awareness among some Papuans about the potential negative health effects of betel nut consumption, such as the risk of oral cancer and dental health problems.

Research in the UK conducted by Flora et al. (2012) on immigrants from South Asia who consume betel nut shows different reasons, namely the perceived benefits such as a refreshing taste, as a snack, a stress reliever, and the belief that betel nut can strengthen teeth and gums. Despite differences in cultural and geographical backgrounds, both Papuans and South Asian immigrants in the UK showed strong reasons and positive perceptions towards betel nut consumption. Reasons such as refreshing taste and health benefits were also found in both populations, albeit in different contexts. Differences arose mainly in terms of awareness of health risks, which was more prominent in the study in Papua. These findings highlight the importance of understanding cultural perceptions of betel nut consumption, which influence community health patterns. For Papuans, despite awareness of health risks, betel nut consumption is still seen as an important part of daily life. This provides insight for policymakers and health professionals to design health interventions that take into account the cultural context and perceptions of the community.

The results of this study illustrate that many Papuans are still not fully aware of or concerned about the health risks of betel nut consumption. Thus, further efforts are needed in the form of more effective education and health campaigns to raise public awareness about the potential dangers of this habit.

4. Conclusion

Betel nut consumption is a strong cultural tradition among Papuans, with a high level of dependence involving various age groups, with the majority of respondents being adults. This habit is more prevalent among women, influenced by cultural and social factors. Educational background has no significant influence on betel nut consumption behavior, indicating that this habit has become part of Papuan culture.

Although most respondents have a positive perception of betel nut consumption as part of the local culture, awareness of the health risks is still low among the community. These findings underscore the need to consider cultural perspectives when designing public health interventions related to betel nut consumption. The existence of a dependency similar to that of cigarettes indicates that this habit has the potential to become a serious health problem.

More intensive education programs are needed on the health risks associated with betel nut consumption, especially for people who have a positive perception of it. Clear and easy-to-understand information can help raise awareness of the potential dangers of this habit.

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References

Awas "mabuk pinang" di Jayapura - ANTARA News

- Flora, Meerjady S, Christopher Tylor, Mahmudur Rahman, (2012). "Betel Quid Chewing and Its Risk Factors in Bangladeshi Adults". WHO South East- Asia Journal of Public Health, 2012:1(2):162-181
- Gilang Saputra Bida, Nurul Amelia Tanib, Hairil Akbar, & Sarman. (2022). Tradisi Kebiasaan Mengunyah Sirih Pinang Dapat Meningkatkan Kesehatan Gigi Pada Masyarakat Di Kota Kotamobagu. *Graha Medika Public Health Journal*, 1(1), 10 - 15. Retrieved from <https://journal.iktgm.ac.id/index.php/publichealth/article/view/90>
- Gupta, B., & Johnson, N. W. (2014). *Systematic Review and Meta-Analysis of Association of Smokeless Tobacco and of Betel Quid without Tobacco with Incidence of Oral Cancer in South Asia and the Pacific*. *PLoS ONE*, 9(11), e113385. <https://doi.org/10.1371/journal.pone.0113385>
- Gupta, P. C., & Warnakulasuriya, S. (2002). Global epidemiology of areca nut usage. *Addiction Biology*, 7(1), 77–83. <https://doi.org/10.1080/13556210020091437>
- Guo SE, Huang TJ, Huang JC, Lin MS, Hong RM, Change CH., 2013. Alcohol, betel-nut and cigarette consumption are negatively associated with health promoting behaviors in Taiwan: A crosssectional study. *BMC Public Health*; 13:23
- International Agency for Research on Cancer. (2004). IARC monographs on the evaluation of carcinogenic risks to humans, volume 85, Betel-quid and areca-nut chewing and some areca-nut-derived nitrosamines: This publication represents the views and expert opinions of an IARC Working Group on the Evaluation of Carcinogenic Risks to Humans, which met in Lyon, 11 - 18 June 2003. Lyon: IARC.
- International Agency for Research on Cancer, & WHO. (n.d.). Lip, Oral Cavity. Globocan 2020
- Janz, N. K., & Becker, M. H. (1984). *The Health Belief Model: A decade later*. *Health Education Quarterly*, 11(1), 1–47.
- Kamisorei R.V, & Shrimarti R.D. (2017). Description of Beliefs About the Benefits of Betel Betel Among Papuan People in Ardipura I Village, South Jayapura District, Jayapura City. *Health Prom Journal*, 5(2), 232–244. Kemenkes, R. I. (2018). Hasil Utama Reset Kesehatan Dasar (RISKESDAS). Kementerian Kesehatan, Badan Penelitian dan Pengembangan Kesehatan.
- Parmar, G, Sangwan, P, Vashi, P, Kulkarni, K. S, (2008). Effect of chewing a mixture of areca nut and tobacco on periodontal tissues and oral hygiene status". *Journal of Oral Science*, 50(1):57-62.
- Papke, R. L. (2018). Betel quid, health, and addictioHHS Public Access. *Physiology & Behavior*, 176(1), 139–148. <https://doi.org/10.1080/10826084.2019.1666147>.Betel
- Rosenstock, I. M. (1966). *Why people use health services*. *Milbank Memorial Fund Quarterly*, 44(3), 94–127.
- Serli Touwely.A.Ch.Kakicy, K.Makulua (2020). Sirih Pinang Sebagai Simbol Pemersatu Keluarga. *Jurnal Ilmu Sosial Keagamaan* 1