Betel nut use and attitudes among guards at US Embassy Kolonia (Pohnpei, Federated States of Micronesia)

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Declarations of Interest

The author is a US Federal Government employee and she performed this work as part of her job responsibilities. She reports no conflict of interest and has no financial holdings to disclose.

The views expressed here are those of the author and do not necessarily represent any official position of the National Cancer Institute or National Institutes of Health.

Abstract

Objectives: Betel nut chewing, with and without the addition of tobacco, is associated with an increased risk of oral cavity cancer. Betel nut chewing in Pohnpei (Federated States of Micronesia) has grown in popularity, and as expected, oral cavity cancer rates appear to be on the rise. Reasons for chewing and attitudes toward quitting were explored using a self-administered survey given to security guards at US Embassy Kolonia in January, 2020.

Design: Guards were invited to complete a 10 question survey. The survey was developed for this situation. Each question addressed a different aspect of betel nut use, including frequency, reason for chewing, and desire to quit. Nine of the 10 questions were close-ended. All nineteen guards employed at the Embassy were invited to participate. Eighteen completed and returned the survey.

Results: Ten, or 56%, of the eighteen guards reported chewing betel nut at least once in the last 3 months. Eight of the 10 reported chewing at least a couple of times a week, and 5 of the 10 reported adding tobacco most of the time they chewed. Nine of the 10 chewers reported that they wanted to quit chewing or reduce the amount they chew. The most frequently reported reason was fear of getting oral cavity cancer and disfigurement resulting from surgical treatment.

Conclusion: Though this dataset is too small and its respondents too select to generalize results to all Pohnpei adult males, it provides, to the best of our knowledge, the first information on attitudes regarding betel nut chewing in that group. The results provide reason to be optimistic that cessation resources, if made available, would be of interest to the adult male Pohnpeian population.

Keywords:

Betel nut, areca nut, tobacco, Federated States of Micronesia, Pohnpei, males, attitudes, beliefs, US Embassy Kolonia, oral cavity cancer

Abbreviations

US: United States

DCM: Deputy Chief of Mission

WHO: World Health Organization

STEPS: STEPwise Approach to Surveillance of Risk Factors for Non-Communicable Diseases

AHS: Adult Hybrid Survey

Introduction

Betel nut refers to the packet of areca nut and betel nut vine leaf that is chewed in the Western Pacific region. Betel nut chewing, both with and without tobacco, is known to cause cancer of the oral cavity and other head and neck cancers. (1) Chewing in Pohnpei, Federated States of Micronesia, is common (2, 3), and there is evidence that oral cavity cancers are on the rise as well. (4) Surgery for oral cavity cancer can be very disfiguring and is of concern to Pohnpeians, yet betel nut and tobacco chewing are addictive. Furthermore, they are socially acceptable behaviors in Pohnpeian culture.

Most research on betel nut chewing in the Federated States of Micronesia and other areas of the Western Pacific have focused on habits in youth or adolescents. (5-8) While it is imperative to reduce initiation of these behaviors in the young, it also is important to examine the practices of adults. Adults, especially those who express an interest in stopping, can be targeted for chewing cessation services. Non-chewing adults can serve as role models for their children and other children and adults in the community.

A small number of adult Pohnpeian males were queried in January, 2020, about their beliefs and attitudes regarding betel nut chewing. The research, while not extensive or widely generalizable, provides some insight on how adults feel about chewing, whether they wish to stop, and why.

Materials and Methods

In early 2020, a US cancer epidemiologist (PM Marcus) spent five weeks at US Embassy Kolonia in Pohnpei at the request of the Embassy's DCM. The epidemiologist, a US Embassy Science Fellow, was charged with investigating betel nut chewing and rumored increases in oral

cavity cancer incidence in Pohnpei. The DCM suggested that the fellow develop and administer a survey to the Embassy guards, as she (the DCM) suspected that many of the guards chewed betel nut.

The fellow created a 10 question survey that comprised questions to assess frequency of use, reasons for chewing, desire to cease chewing, and reasons driving the desire to quit. Surveys did not ask for identifying information such as name or age. Nearly all questions were closed-ended. All 19 guards were invited by their supervisor to complete the survey. Participation was voluntary, and employment was not at risk due to non-completion. Guards were given the opportunity to complete the survey on work time and in private. Upon completion, each gave the survey to his supervisor, who then gave them to the fellow. The fellow received 18 completed surveys.

Publication of survey results was not considered until after data collection was complete.

Therefore, no Institutional Review Board reviewed this project. The fellow, who has extensive human subjects research experience, employed privacy and protection safeguards as noted above to collect the data, and at no point was she able to link a specific questionnaire to a specific guard. She considered completion and return of the survey as indication of informed consent.

Results

Survey questions and responses are found in Table 1. Ten of 18 respondents, or 56%, reported chewing betel nut at least once in the last three months. Eighty percent of those reporting chewing indicated that they chewed at least a couple of times a week. Six of the 10 chewers reported adding tobacco at least half the time. Nine of the 10 chewers reported wanting to reduce

the amount they chew (30%) or stop chewing completely (60%). The most common reason for wanting to reduce or quit chewing was fear of losing part of the face due to surgical resection for cancer (n=7), but other reasons were wanting to be as healthy as possible (n=6). setting a good example for children (n=4), and jaw pain (n=3).

Discussion

Nearly all US Embassy Kolonia guards who chew betel nut reported that they are interested in reducing the amount they chew or may want to stop chewing entirely. The findings are from a very small and select group of individuals and their generalizability to other adult males in Pohnpei is uncertain. Nevertheless, they provide reason to be optimistic that cessation resources, if made available, would be of interest to the adult Pohnpeian population.

Publicly-available population-based data on betel nut chewing among adults in Pohnpei are quite limited and are dated. The most recent non-communicable disease WHO report (2) included data collected in 2002, and in that study, about 40% of male Pohnpeians ages 25-64 reported that they chewed betel nut daily. Pohnpei's AHS, which was developed using STEPS questions and questions from other well-known non-communicable disease risk factor surveys, surveyed its 1500 respondents in 2019. (3) In that study, 43% of respondents had chewed betel nut in 30 days prior to interview and of those 75% reported chewing every day, 94% percent reported adding tobacco to the betel nut, and 75% reported wanting to quit. The results for the similar questions asked in the study reported in this manuscript were not particularly different.

Given Pohnpei's small population (n=36,000), relatively rare cancers, like oral cavity cancer, do not result in many cases a year, and can easily be overlooked. The most recent report of the

Pacific Regional Central Cancer Registry indicates that 58 cases of “tobacco-related” oral cavity and pharynx cancer were reported for Pohnpei during the years 2007 through 2018. On average, that amounts to less than 5 cases a year, though the world standardized annual incidence rate for Pohnpei was 17.7 per 100,000. The US annual incidence rate in 2018, for comparison’s sake, was 12.1 per 100,000. (9)

Size of the study is clearly a limitation, as is lack of questionnaire field-testing and chance omission of women (as there were no female guards at the time of questionnaire administration). Administration of the survey in a work setting may lead respondents to answer in a manner that they believe employers wish to hear. Anonymous completion may have helped to minimize that possibility.

Like many low and middle income countries, the prevalence of non-communicable diseases is on the rise in Pohnpei and already is a public health problem. Oral cavity cancer presents unique challenges but early detection may be possible through self-examination. Chewing cessation aids may be a worthwhile investment given that a meaningful percentage of adult chewers appear to want to stop chewing.

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Table 1: Responses to US Embassy Kolonia Guard survey on betel nut chewing beliefs and attitudes.

Question	Number (percent)
Have you chewed betel nut at least once in the last 3 months?	
<i>No</i>	8 (44)
<i>Yes</i>	10 (56)
Where do you get the betel nut that you chew? Check all that apply*.	
<i>A store</i>	5 (50)
<i>A friend or family member gives it to me</i>	2 (20)
<i>From a tree at my house or someplace else in Pohnpei</i>	6 (60)
<i>Someone or someplace else</i>	1 (10)
(*Three guards reported more than one source)	
In a typical month, how often do you chew betel nut?	
<i>Every day or almost every day</i>	4 (40)
<i>A couple of times a week but not every day</i>	4 (40)
<i>A couple of times a month but not every week</i>	0 (0)
<i>Less than once or twice a month</i>	2 (20)
<i>It varies a lot</i>	0 (0)
<i>I'm not sure</i>	1 (10)
On a typical day when you chew betel nut, how many nuts do you usually chew?	
<i>Two guards did not answer this question. Of the remaining 8, 6 said 10 nuts or fewer nuts. One guard said 20, and another guard said 70.</i>	
For the most part, do you only chew on special occasions?	
<i>Yes</i>	1 (10)
<i>No</i>	6 (60)
<i>I'm not sure</i>	3 (30)

Table 1: Responses to US Embassy Kolonia Guard survey on betel nut chewing beliefs and attitudes - continued.

Question	Number (percent)
When you chew betel nut, how often do you chew it with tobacco? Tobacco includes parts of cigarettes or tobacco from a can. Choose the answer that's closest to how you chew betel nut.	
<i>Every time</i>	2 (20)
<i>Most of the time</i>	3 (30)
<i>About half of the time</i>	1 (10)
<i>About a quarter of the time</i>	0 (0)
<i>Rarely</i>	1 (10)
<i>Never</i>	1 (10)
<i>I'm not sure</i>	2 (20)
If you add tobacco when you chew betel nut*, where do you get the tobacco? Check all that apply.	
<i>Only at a store</i>	8 (89)
<i>Only from a family member or friend</i>	0 (0)
<i>Both a store and a family member or friend</i>	1 (11)
(The one guard who reported not using tobacco did not answer the question and is omitted from this table)	
Why do you chew? Check all that apply.	
<i>Everyone else does</i>	2 (20)
<i>I'm addicted – I can't stop</i>	1 (10)
<i>It's part of my culture</i>	2 (20)
<i>I would offend someone if I didn't chew</i>	0 (0)
<i>I don't have enough to eat</i>	0 (0)
<i>To avoid smoking cigarettes</i>	3 (30)
<i>I chew when I can't drink sakau or beer</i>	2 (20)
Do you want to stop chewing betel nut or reduce the amount you chew?	
<i>Yes – I want to stop completely</i>	6 (60)
<i>Yes – I want to reduce how often I chew</i>	3 (30)
<i>Maybe</i>	0 (0)
<i>Not now</i>	1 (10)
<i>No</i>	0 (0)

Table 1: Responses to US Embassy Kolonia Guard survey on betel nut chewing beliefs and attitudes - continued.

Question	Number (Percent)
If you want to stop chewing or reduce the amount you chew, what are your reasons? Check all that apply*.	
<i>I am worried about getting cancer and losing part of my face</i>	7 (70)
<i>I am worried about getting cancer and dying</i>	4 (40)
<i>My jaw hurts</i>	3 (30)
<i>There is a sore or lump in my mouth and I'm worried that chewing will make it worse</i>	0 (0)
<i>I want to set a good example for my children and other children I know</i>	4 (40)
<i>I want to be as healthy as I can be</i>	6 (60)
(*5 guards chose more than one reason)	