

Developing a Betel Quid Cessation Program on the Island of Guam

John Moss
Yvette Paulino

University of Guam

Crissy Kawamoto
Pallav Pokhrel
Thaddeus Herzog

University of Hawai'i Cancer Center

Abstract

Betel quid is a psychoactive drug preparation typically made up of a combination of areca quid, slaked lime, piper betel leaf and tobacco. It is the fourth most commonly consumed drug in the world with global use concentrated in the Asia-Pacific region (Boucher and Mannan, 2002; Warnakulasuriya and Peters, 2002). The International Agency for Research on Cancer has classified betel quid as a Group 1 carcinogen (IARC, 2004; Lin et al., 2006), and its use has been associated with oral and oropharyngeal cancer, oral lesions, oral leukoplakia, submucous fibrosis, gum disease, and cancer of the pharynx and esophagus (IARC, 2004; Oakley et al., 2005; Shah et al., 2002; Warnakulasuriya, 2002). This paper reports on the feasibility of an innovative betel quid cessation program carried on the U.S. territory of Guam, and is the first of its kind. The program is described, along with the challenges encountered during the implementation process.

Introduction

Betel quid is the fourth most commonly consumed psychoactive substance in the world, preceded only by alcohol, nicotine, and caffeine (Boucher and Mannan, 2002; Warnakulasuriya and Peters, 2002). It is chewed by approximately 600 million people globally, most of whom live in low- to moderate-income countries in the Asia-Pacific region (Gupta and Warnakulasuriya, 2002). The primary ingredient of betel quid is areca nut, which is the seed of the palmaceous *Areca catechu* tree. The term “betel quid” refers to a combination of ingredients that most typically includes areca nut, piper betel leaf (a common vine), slaked lime (calcium hydroxide), and tobacco, though the ingredients of betel quid vary considerably by region, country, ethnicity, and personal preference¹ (IARC Working Group on the Evaluation of Carcinogenic Risks to Humans, 2004; Paulino, Novotny, Miller, Murphy, 2011; Winstock, 2002). The International Agency for Research on Cancer has classified betel quid as a Group 1 carcinogen (IARC, 2004; Lin et al., 2006), and it has been associated with oral and oropharyngeal cancer, oral lesions, oral leukoplakia, submucous fibrosis, gum disease, and cancer of the pharynx and esophagus (IARC, 2004; Oakley et al., 2005; Shah et al., 2002; Warnakulasuriya, 2002). Recent research has revealed that betel quid chewers have dependence levels similar to those of cigarette smokers (Herzog et al., 2014). Further, this study indicated that most betel quid chewers and smokers have similar attitudes concerning their intention to quit (Little et al., 2014). Despite these findings, no systematic research on betel quid cessation programs exists. It would seem the development of betel quid cessation programs is long overdue.

¹ For the purposes of this article, the term “betel quid” will be used to refer to preparations that include the use of areca nut alone, along with any combination of the ingredients previously mentioned.

Based on these findings, the authors proposed that the essential psychological orientation towards quitting betel quid on Guam would be similar for tobacco smokers and chewers, suggesting that betel quid chewers who want to quit may benefit from a cessation program modeled after smoking and tobacco-chewing cessation programs. The authors employed several sources of information for the purposes of designing the betel quid cessation program, including: (1) the smoking and chewing tobacco cessation literature and empirically supported tobacco cessation programs, (2) the results of our recent research on betel quid chewers and ex-chewers in Guam (Herzog, Murphy, Little, Suguitan, Pokhrel and Kawamoto 2014; Little, Pokhrel, Murphy, Kawamoto, Suguitan and Herzog 2014 (A); Little, Pokhrel, Murphy, Kawamoto, Suguitan and Herzog 2014 (B)) and (3) the betel quid research literature from Guam (Paulino, Y., Novotny R., Miller MJ., Murphy SP 2011). and other sources (i.e., researchers in other countries). This paper focuses instead on the program's design, what has been learned about the quitting process thus far, and issues that we confronted during program implementation. A demographic profile of participants also is presented. It is hoped this information will inform the development of a larger study to test the effectiveness of such a cessation intervention for betel nut chewers.

Procedures

The betel quid cessation program was modeled after an intensive behavioral treatment program for smokers presented in *The Tobacco Dependence Treatment Handbook: A Guide to Best Practices* (Brown, 2003). This group-based cognitive-behavioral smoking cessation program comprised an informational support group of five to ten people that met for five one-hour sessions over 22 days. Because the program required at least five hours of participants' time (travel time not included), up to \$175 in incentives was paid to each participant. In addition to these incentives, refreshments were served at each meeting. Group meetings were facilitated by one of the study investigators and were held one week apart, with the exception of Sessions 3 and 4, which convened four days apart in order to provide more intensive counseling around the target quit date, the day of Session 3 (See Table 1). Discussion topics for Sessions 1 and 2, in preparation of quitting, included self-monitoring of betel nut chewing behavior, reduction of chewing rate in preparation of chewing cessation, identification and management of situations that trigger the temptation to chew, and lifestyle changes to support quitting betel nut. Beginning with Session 3 (quit date), participants discussed their quit experiences, including challenges they had faced thus far, as well as their successes. Other facilitated topics of discussion included identifying high-risk situations for relapsing to chewing, avoiding slips and relapses, developing social support, and coping with withdrawal symptoms and urges to chew.

Table 1. Betel Quid Cessation Program Schedule

Session 1 (baseline)	Day 1
Session 2	Day 8
Session 3: Quit Day	Day 15
Session 4	Day 18
Session 5	Day 22

Worksheets were provided at each group session to supplement the discussion topics, similar to the program described in Brown's tobacco intervention (2003). For example, a tracking sheet was provided in Session 1 to encourage participant tracking of chewing behavior, such as

the emotional context of betel quid use and the stress level that preceded each chew on a given day. These worksheets often served as “homework” that reinforced the themes of the group sessions and assisted participants in preparing to quit and in staying quit. At each meeting, the goals for future sessions were mapped out so participants could anticipate what was expected of them. The facilitator encouraged participants to share their experiences with the process of quitting betel quid at each meeting. Except for Session 4, all meetings were planned for Saturday to avoid conflicts with church services, regular work hours, and school schedules. As many betel nut users chew after meals, these Saturday meetings were scheduled between mealtimes (i.e., 9 a.m. - 12 noon and 2 p.m. - 5 p.m.), with two to three of these groups planned for morning, and two to three groups planned for the afternoon. Session four was held in the early evening hours on Wednesday to enhance social support during the difficult week-long period of abstinence. Participants completed surveys at Sessions 1 and 5, as well as a month following Session 5, to track their progress in quitting, and to evaluate their experiences with the program.

Participants

A total of 50 participants were recruited between May 24 and August 29, 2014, made up of almost equal numbers of men and women. Most participants self-identified ethnically as Chamorro, the dominant ethnic group on Guam, followed by Pohnpeians and Marshallese. Over half of the participants were between the ages of 18-29.

Participants were recruited through a variety of strategies. Advertisements concerning the study were placed in a free shopping guide on Guam, and in the two local newspapers. Color pamphlets and posters were distributed to community organizations. Program staff also spoke directly with health and human services providers and community members.

Results

The Guam survey of betel nut chewers described earlier suggested that our target population was likely to comprise members of the working class, as respondents’ education often did not extend beyond high school. Many people whom we attempted to recruit to the current program were not interested in participating because they viewed betel quid chewing as an essential part of their cultural heritage as Pacific Islanders. These attitudes were respected, and our efforts focused only on those chewers who wanted to quit. The groups reporting the highest mean motivation to quit in that study had relocated to Guam from the Republic of the Marshall Islands, Chuuk, and Pohnpei (Little, Pokhrel, Murphy, Kawamoto, Suguitan and Herzog 2014).

Recruitment was our biggest challenge during the early weeks of the program. While our staff confirmed approximately ten people would show up to our first meetings, only one participant actually appeared at the agreed time and place. In response, we created a new recruitment incentive for participants that encouraged each participant to invite fellow betel nut chewers to cessation meetings. Staff also informed local village mayors on the island about our program. Once trust was established with staff and facilitators at the initial meeting, the new recruitment incentive led our participants to link other family members in their household who began the program, and even invited extended family members. The primary research participants were families who all carpooled to attend meetings. After implementing these changes, our first successfully attended cessation group was formed. Once trust was established between participants and program staff at the initial meeting, incentivized recruitment was our most successful approach, with the vast

majority of our participants joining as a result of this method. Participants informed us that when they joined the program, they were motivated to quit betel quid to improve the appearance of their mouths and teeth, and to save money.

Based on what we learned from resulting cessation group discussions, one of the barriers to recruitment may have been a lack of awareness among chewers of the connection between betel quid chewing and cancer risk, a finding that has support in other studies on Guam (Paulino et. al 2011). Whereas our participants were well aware of the links between tobacco and cancer, most of our attendees expressed a lack of awareness that the use of betel nut alone (i.e., with or without tobacco) was also associated with oral and pharyngeal cancer.

Participant eagerness to recruit extended family also presented a challenge. Program staff had assumed that transportation would not be problem and that each individual participant would independently schedule meetings in advance. Instead, family members came without prior scheduling, having carpooled with already participating group members. Program staff responded to this problem by transforming the program into a walk-in arrangement.

The family dynamics among the groups brought yet another difficulty. At times, the male members of the families contributed more to group discussions, while the female members of families were more subdued. The facilitator ensured that every participant had a chance to speak at each meeting to accommodate for this dynamic. Some participants also brought their children along with them to the cessation groups. These children were well behaved, but at times, participants were distracted by them.

Brown (2003) indicated that many smokers who are trying to quit prefer working with facilitators who are ex-smokers themselves. We had similar concerns because the facilitator did not chew betel nut himself and was a white “haole” from the mainland United States who had never conducted a drug cessation program. The facilitator addressed this by being approachable and respectful at all times. At the start of every new cessation group, the facilitator informed participants that while he did not chew betel nut himself, he worked as an assistant professor of sociology at the University of Guam who had taught classes about drug use and was very interested to learn about participants’ experiences with betel quid. The facilitator explained that the cessation program was the first of its kind and that both the researchers and participants would be learning from each other. Participants did not openly share any criticism of, or complaint about, the facilitator’s inexperience with betel quid.

As the sessions progressed, chewers shared valuable information during group discussions, including some of the difficulties they encountered during the quitting process. As is the case with use of many recreational drugs, chewing betel quid is a social event, and quitting sometimes involves strategic changes to existing relationships with friends, coworkers, and relatives. Some participants felt compelled to avoid the friends they used to chew with, to lessen the temptation of betel quid. A bigger challenge was avoiding family and work colleagues who chewed. Work colleagues sometimes teased and ridiculed ex-chewers and those in the process of quitting, and participants occasionally took lunch breaks at a different time to steer clear of such co-workers. During family events, some group participants would avoid other adults who chewed, spending more time doing activities with younger nephews and nieces in order to create more physical distance from chewers who were adult relatives. Given these reports, cessation programs should provide those attempting to quit with ready-made “excuses” to explain betel nut abstinence: In groups, participants shared several strategies that seemed to work, such as that people had cold sores or sore gums, or that they wanted to save money. Yet other participants adopted a practice of engaging in a “pretend” chew to avoid confrontation, suggesting that some sort of “fake” betel

nut could be developed to simulate betel nut chewing. One participant suggested that opportunities for informal group activities be incorporated into the program so that group members could provide each other with quitting-related social support in a non-formal setting.

One problem that came up during the cessation program was with the suggestion that participants reward themselves for remaining abstinent, a concept adapted from tobacco cessation programs. For many of our participants, rewards were difficult to afford. The facilitator suggested participants use the money they saved from not purchasing betel quid supplies to go towards these rewards, but some participants argued that saving money on betel quid was one of the primary reasons they were trying to quit in the first place. This suggests our participants may have had very little disposable income, given that 84.6% of chewers in the previously reported convenience sample survey of 324 Guam chewers spent between 0 and 30 dollars a week on betel nut, with a mode of 0-10 dollars a week (Kawamoto personal communication).

Another concern reported by participants was increased food consumption after quitting. Although weight gain is often an anticipated problem with smoking cessation, there was no precedent to suggest this might be an issue during betel quid chewing cessation; however, many participants reported rewarding themselves by eating tasty but unhealthy foods such as chips and ice cream, which also served to distract them from their betel nut cravings.

Some participants experienced language barriers. Whereas most participants were English speakers, we did have a group with two women who were originally from Pohnpei who spoke some English but weren't able to understand the language very well during meetings. These members had to rely on other participants for translation.

Discussion

Much was learned from this feasibility study. Additional public education concerning the carcinogenic effects of betel quid might help recruitment by providing chewers with health-related motivation to quit. Another related suggestion from participants was to include photographs of chewers who suffer from oral cancer or dental problems in recruitment materials to motivate people to enroll in the program and to follow through with attending meetings. Making recruitment and program materials in Micronesian languages and having personnel available who can speak these languages is highly recommended. Guam is extraordinarily family-centric and other Micronesian island communities are similar (Hezel 2001). While family participation can certainly bring benefits to group interventions, such as a built-in support network, researchers and program providers should also anticipate that families may bring their children. Facilitators should also be sensitive to the dynamics of mixed gendered family groups to ensure that women's contributions at meetings are heard. Transportation was also a problem for our participants. This may be overcome by creating a walk-in arrangement for cessation participants that does not rely on pre-scheduled cessation group appointments. Another way to address the transportation problem would be to make staff available to transport respondents, or locate cessation programs closer to where residents live. Information about diet and exercise should be incorporated into subsequent cessation programs. Adding components such as volleyball or softball games to the cessation intervention as suggested by one of our participants may also be beneficial. These activities could increase the strength of social supports, which are assumed to be critical in helping people quit. These activities could distract from betel quid cravings and encourage participants to exercise more to help avoid the weight gain problems researchers identified in participants. (For further

information about the relationships between weight gain and betel quid chewing see Paulino et. al. 2011).

Our results thus far suggest that betel quid cessation programs must be respectful of cultural contexts and be ready for unforeseen challenges. Though the preliminary results are promising, further research is needed, with a larger sample and a control group to better establish the efficacy of the betel quid cessation program described herein.

References

- Boucher, B.J. & Mannan, N. (2002). Metabolic effects of the consumption of Areca catechu. *Addict Biol* 7, 103-110.
- Brown, R.A. (2003). Intensive behavioral treatment. In: Abrams, D.B. (Ed.), *The tobacco dependence treatment handbook : a guide to best practices*. Guilford Press, New York. (Chapter 5).
- Ghani, W.M., Razak, I.A., Yang, Y.H., Talib, N.A., Ikeda, N., Axell, T., Gupta, P.C., Handa, Y., Abdullah, N. & Zain R.B. (2011). Factors affecting commencement and cessation of betel quid chewing behaviour in Malaysian adults. *BMC Public Health* 11, 82.
- Gupta, P.C. & Warnakulasuriya, S. (2002). Global epidemiology of areca quid usage. *Addict Biol* 7, 77-83.
- Herzog, T. A., Murphy, K. L., Little, M. A., Suguitan, G. S., Pokhrel, P., & Kawamoto, C. T. (2014). The Betel Quid Dependence Scale: replication and extension in a Guamanian sample. *Drug Alcohol Depend*, 138, 154-160.
- Hezel, Francis X. (2001). *The New Shape of Old Island Cultures*. Honolulu: The University of Hawaiian Press.
- IARC Working Group on the Evaluation of Carcinogenic Risks to Humans (2004). Betel-quid and areca-quid chewing and some areca-quid derived nitrosamines. *IARC Monogr Eval Carcinog Risks Hum* 85, 1-334.
- Lee, C.H., Ko, A.M., Warnakulasuriya, S., Ling, T.Y., Sunarjo, Rajapakse, P.S., Zain, R.B., Ibrahim, S.O., Zhang, S.S., Wu, H.J., Liu, L., Kuntoro, Utomo, B., Warusavithana, S.A., Razak, I.A., Abdullah, N., Shrestha, P., Shieh, T.Y., Yen, C.F. & Ko, Y.C. 2012a. Population burden of betel quid abuse and its relation to oral premalignant disorders in South, Southeast, and East Asia: an Asian Betel-quid Consortium Study. *Am J Public Health* 102, e17-24.
- Lin, C.F., Wang, J.D., Chen, P.H., Chang, S.J., Yang, Y.H. & Ko, Y.C. (2006). Predictors of betel quid chewing behavior and cessation patterns in Taiwan aborigines. *BMC Public Health* 6, 271.
- Little, M. A., Pokhrel, P., Murphy, K. L., Kawamoto, C. T., Suguitan, G. S., & Herzog, T. A. (2014). The reasons for betel-quid chewing scale: assessment of factor structure, reliability, and validity. *BMC Oral Health*, 14, 62.
- Little, M. A., Pokhrel, P., Murphy, K. L., Kawamoto, C. T., Suguitan, G. S., & Herzog, T.A. (2014). Intention to quit betel quid: a comparison of betel quid chewers and cigarette smokers. *Oral Health and Dental Management*, 13(2), 512-518.
- Oakley, E., Demaine, L., Warnakulasuriya, S., 2005. Areca (betel) quid chewing habit among high-school children in the Commonwealth of the Northern Mariana Islands (Micronesia). *Bull World Health Organ* 83, 656-660.

- Paulino, Y., Novotny R., Miller MJ. & Murphy SP. (2011). Areca (betel) nut chewing practices in micronesian populations. *Hawaii Journal of Public Health*, 3(1), 19-29.
- Shah, S.M., Merchant, A.T., Luby, S.P. & Chotani, R.A., (2002). Addicted schoolchildren: prevalence and characteristics of areca quid chewers among primary school children in Karachi, Pakistan. *J Paediatr Child Health* 38, 507-510.
- Warnakulasuriya, S., (2002). Areca quid use following migration and its consequences. *Addict Biol* 7, 127-132.
- Winstock, A. (2002). Areca quid-abuse liability, dependence and public health. *Addict Biol* 7, 133-138.