# Betel Nut: an **addiction** you didn't know

**Shwe Win, BS[1] Edrisa Sanyang PhD, MPH, MS[1]; Gretchen Macy Ed.D, MPH[1]**

*[1]Center for Environmental and Workplace Health, College of Health and Human Services, Western Kentucky University*

## Background

**Areca n**ut (AN) often referred to as betel nut (BN), is a round nut consumed by immigrants from South Asia and several Pacific Islands. Betel nut is the **fourth most common psychoactive substance used globally behind caffeine, alcohol, and nicotine, with over 600 million global users** ( Zaman et al., 2020). Existing research has identified BN as a commonly consumed drug that contains a naturally occurring **psychoactive alkaloid**, specifically, arecoline with a content of 0.3-0.6% (Volgin et al., 2019). This product is also identified by the International Agency for Research on Cancer (IARC) as a **group 1 carcinogen** with or without the use of tobacco products (2012).

Despite these claims, as of 2020, the **United States is the largest importer** (59.39%) of AN (Tami-Maury et al., 2022,). These products have associations with the development of "**oral cancer and many other systemic effects, including oral submucous fibrosis"** (Zaman et al., 2020, p. 1). However, the practice of BN usage is heavily rooted in cultural practices and is a socially accepted behavior as seen in countries like Myanmar, Cambodia, and the Philippines (Aziz, 2010), making it hard for the population to believe the harmful effects. In other parts of the world, like India, BN is used in rituals and as a form of treatment for an appetite stimulant, flatus reliever, laxatives, etc. (Aziz, 2010; Volgin et al., 2019).

Furthermore, in the United States, according to Tami-Maury et al., within the last 25 years, only four reports about AN consumption in US mainland were found in scientific literature" (2022), which were in New York, Georgia, Virginia, and California. This goes to show **the lack of data and research** within this field. In fact, there is **no national data** that compiles betel nut prevalence or consumption in the United States of America. Locally, in Bowling Green, KY since the Refugee Resettlement Program, the usage of this product continues to expand, yet very little is done. This call for public health to discuss this cultural practice that must be controlled to stop the exacerbation of oral cancer and other health-related implications.

**Figure 4:** a man from Yangon, Myanmar smiling with stained teeth from chewing betel nut
https://www.cnn.com/2013/11/04/world/asia/myanmar-betel-nut-cancer/index.html


**Figure 3:** betel nut commercial product
https://www.dailybasket.net/dailybasket-supermarket/products/crane-sweet-betel-nut-powder-10rs-SKU-8939

## Current Knowledge

**Arecoline** produces cognition-enhancing effects, including euphoric, pro-arousal, and other systematic issues such as vertigo, hypertension, bradycardia, etc. (Moss, 2022; Volgin et al., 2019). Also, "**addiction** is commonly associated with arecoline use" (Volgin et al., 2019). Often the **withdrawal symptoms** are "mood swings, anxiety, irritability, and insomnia" (Giri et al., 2006, as cited in Volgin et al., 2019, p. 2178).

In clinical practice, the authors stated that "betel nut consumption is considered to be the **primary cause of OSF**" (Pindborg & Sirsat, 1966, as cited in Aziz, 2010, p. 423). Oral submucosal fibrosis (OSF) is a **precancerous oral disease** associated with excessive collagen deposition (Aziz, 2010). In fact, in 2002, a study conducted in **India**, a country with the highest BN consumption, indicated that **more than 5 million people have OSF**, and that number is so significant that OSF has been declared a **public health problem** in the Indian subcontinents (Aziz, 2010; Volgin et al., 2019).

BN continues to be **produced in mass quantity** from 200,000 metric tons in 1961 to 1,800,000 metric tons in 2020 (Moss, 2022). The United States imports and markets BN products with the industry worth reaching a hundred million dollars, and "as of 2020, the **United States is the largest importer** (59.39%), and **India is the largest exporter** (46.29%) of AN (Tami-Maury et al., 2022, p. 6). BN is increasingly available in Asian Markets in Western countries at a **low price** and generally with **no warning label** (Moss, 2022). A European doctor stated that the betel nut "current situation is reminiscent of the mid-20th century when the tobacco industry concealed irrefutable health risks to protect sales" (Moss, 2022). In Bowling, KY, there are about 9 Asian grocery stores, and of those, 8 sell BN or commercial BN products. These products are **sold** to anyone **regardless of age or gender**.

At the global level, "arecoline and areca nut is not generally controlled…**Australia prohibits their sales, and the United Arab Emirates outlaw them**…" (Volgin et al., 2019). In the United States, the "Food and Drug Administration (FDA) **does not** have regulations specific to areca nut but does regulate areca nut as an imported food or, when mixed with tobacco, as a tobacco product" (Public Health Law Center, 2022, p. 4). **In Kentucky, there are only laws regarding tobacco products that do not include betel nut products**, and in places like **New York**, there are laws that prohibit the sale of betel nut-containing products like Gutkha to minors (Public Health Law Center, 2022).

The immigrant population in **1960 was 491,000 to 14,099,000 in 2019**, and the largest growing immigrant population is from **Southeastern Asia**, making up 31.1% of the total immigrant population (Hanna & Batalova, 2021). In the United States, according to Tami-Maury et al., within the last 25 years**, only four reports** about AN consumption in the **US mainland** were found in the scientific literature" (2022), which were in New York, Georgia, Virginia, and California. Locally, there is a large immigrant population from various parts of Asia in Bowling Green, KY.

A study conducted in Houston, Texas, found major consumption patterns among Vietnamese, Indian/Pakistani, Chinese/Taiwanese, Filipino, and Korean in Harris County (Tami-Maury et al., 2022). Of 275 participants, **247 recognized** at least one **BN product**, and **115 participants were unaware of the health consequences of BN** (Tami-Maury et al., 2022). Also, of 147 individuals that completed the BN consumption survey, **17.1%** reported **ever use of AN products**, and **a mean age of AN initiation was 15** (Tami-Maury et al., 2022).

**Figure 1**: dried betel nut in halves https://namvanlong.com/p/cau-kho-che-doi.html


**Figure 2**: ingredients used to make betel quid
https://www.sciencedirect.com/science/article/abs/pii/S0304384941100269X

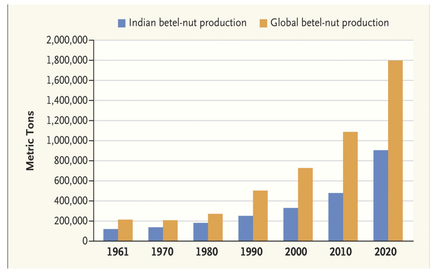


**Figure 5:** betel nut production in the world
https://www.nejm.org/doi/full/10.1056/NEJMp2203571

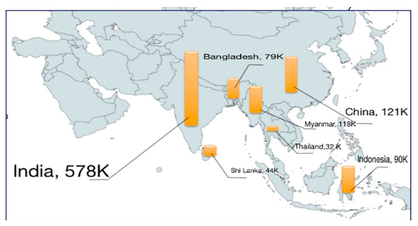


**Figure 6:** global consumption of betel nut
Cited in Volgin et al., 2019,p. 2181.

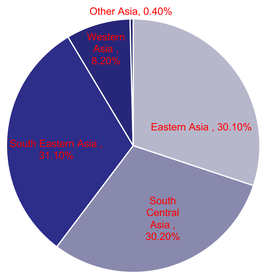


**Figure 7:** distribution of Immigrants from Asia in the United States by region and top country of origin, 2019
https://www.migrationpolicy.org/article/immigrants-asia-united-states-2020

## Conclusion

**Immigration** continues to **expand** in the United States, with many of them from countries that have declared betel nut and betel nut products as the causing agent for many oral and systematic health problems. Overall, the United States **lacks regulations** on these products, and consumers have easy access to BN or BN products regardless of age which will cause more problems in the future. Locally, **5.8%** of Bowling Green population is Asian (World Population Review, 2023), originating from countries like **Myanmar, Thailand, Nepal, and other South Asian.**

## Recommendations, and Future Directions

- Primary Education to Teach Community Members the Health Consequences of BN Usage
- Cessation Program Targeting BN Users in a Culturally Competent Method.
- Regulation of BN or BN Products to Control Underage Usage and Inform Consumers of Potential Health Hazard on Packaging.
- Generate Local, State, and National Surveillance Data to Track Prevalence Usage of BN.

Community Risk Assessment is needed in Bowling Green, KY, to identify the current BN usage and develop a plan to address these public health concerns based on the population's needs.

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## Contact Information

Shwe Win, BS
Public Health
Western Kentucky University
College of Health & Human Services
Department of Public Health
270-790-1462
Shwe.Win437@topper.wku.edu

Gretchen Macy, Ed.D
Center for Environmental & Workplace Health
Western Kentucky University
College of Health & Human Services
Department of Public Health
(270) 745-5870
Gretchen.Macy@wku.edu

Edrisa Sanyang, Ph.D.
Center for Environmental & Workplace Health
Western Kentucky University
College of Health & Human Services
Department of Public Health
270-745-3500
Edrisa.Sanyang@wku.edu

WKU Department of Public Health