Traditional Chewing and Smoking Habits from the Point of View of Northern Thai Betel Quid Vendors

Peter A Reichart[a]/Chayarop Supanchart[a,b]/Pathawee Khongkhunthian[b]

Purpose: To evaluate knowledge of betel quid (BQ) vendors in relation to traditional chewing and smoking habits in Northern Thailand.

Materials and Methods: Interviews of vendors selling BQ and other traditional chewing and smoking items were conducted. Questions related to side effects of BQ chewing were included, as well as questions focusing on why traditional chewing and smoking habits were on the decline.

Results: Nineteen stalls in 10 markets were visited and 18 vendors were interviewed (16 women, 2 men, average age 55.0 years, range 28–75 years). Vendors had been present for an average of 21.8 years (range 2–60 years). The number of customers buying BQ regularly was 2–3 per day. More elderly women than men bought BQ. Side effects of BQ on the oral mucosa were largely unknown to vendors. Most respondants thought BQ to be good for teeth. Reasons why young people have given up the BQ habit were black teeth. Miang (fermented tea leaves) and khi yo (traditional cigar) were rarely sold and were considered vanishing habits.

Conclusions: BQ vendors had poor knowledge of the side effects of BQ chewing. BQ vendors unanimously considered traditional habits such as chewing of BQ, miang and smoking of traditional cigars to be on the decline. Nowadays, most of these items are bought to be offered during ceremonies. Generally, traditional habits seem to be replaced by 'modern' lifestyle habits such as cigarette smoking and alcohol consumption. With these changes, general and oral disease patterns will eventually occur.

Key words: areca nut, betel quid chewing, oral cancer tobacco

Oral Health Prev Dent 2007; 5: 245-249. *Submitted for publication: 07.06.06; accepted for publication: 09.10.06.*

Areca nut, the seed of the fruit of the *Areca catechu* L. palm tree, is the fourth most commonly abused substance worldwide and only three addictive substances are used more widely: nicotine, ethanol and caffeine (Warnakulasuriya and Peters, 2002; Sullivan and Hagen, 2002). Areca nut in combination with components like the betel leaf, lime, catechu and tobacco constitutes the betel quid (BQ), which is chewed for its psychostimulatory effects, among a host of other effects (Norton, 1998; Chu, 2001, 2002). Habituation and addiction was reported by Burton-Bradley, in 1978, in Papua New Guineans. Generally, global reports estimate 600 million users of areca nut and BQ (Trivedy, 2001). Besides physiological and toxic effects (International Agency for Research on Cancer [IARC], 2004), a wide spectrum of oral side effects are known including oral cancer, oral leukoplakia, oral erythroplakia and oral submucous fibrosis (Reichart et al, 1987). A recent publication by the IARC (2004) has shown that chewing of areca nut or BQ with and without tobacco has to be considered carcinogenic. Recently, Gupta and Ray (2004) reviewed the epidemiology of BQ usage. While in some countries of South and Southeast Asia the habit appears to be on the decline

[a] *Charité Campus Virchow Klinikum, Center of Dental Medicine, Department of Oral Surgery and Dental Radiology, Berlin, Germany*

[b] *Faculty of Dentistry, Chiangmai University, 50 200 Chiangmai, Thailand*

Reprint requests: *Peter A. Reichart, Charité Campus Virchow Klinikum, Zentrum für Zahnmedizin, Abteilung Oralchirurgie und zahnärztliche Röntgenologie, Augustenburger Platz 1, 13353 Berlin. Tel: 0049-30-450 56 26 02. Fax: 0049-30-450 56 29 01. Email: peter-a.reichart@charite.de*

and seems to be confined to the elderly, in others like Taiwan an increase in consumption has been recorded, particularly in young adults (Ko et al, 1992; Lu et al, 1993). In Thailand, a decline of BQ usage was demonstrated several decades ago (de Young, 1955). In more recent years the decline in BQ chewing (BQC) in Thailand has been confirmed by Reichart and Philipsen (2005). This decline has resulted in a reduction in oral cancer prevalance in the province of Chiangmai between 1988 and 1999 and was interpreted as a possible consequence of the vanishing BQ usage (Reichart et al, 2003).

In Northern Thailand, BQC was often associated with the chewing of miang and of smoking traditional cigars (khi yo). Miang is fermented tea leaves, which are chewed usually after meals (Reichart et al, 1988). The khi yo is a hand rolled cigar with a banana leaf binder. Formerly, these traditional BQ and miang chewing and khi yo smoking habits were often practised together. BQ, miang and khi yo cigars are sold on markets of Northern Thailand by vendors who have often been selling these items for decades.

Few studies on knowledge of the general public about effects and side effects of BQC and other traditional chewing or smoking habits have been conducted. Reichart et al (1999) interviewed dental students at Chiangmai University, Thailand, on BQ chewing habits. None of these students chewed BQ, about 3% of their parents did, whereas 39% of their grandparents still indulged in this habit. The students' knowledge of the composition of the BQ, general and oral side effects as well as the socio-cultural aspects of BQC was poor. Seventy per cent of the students were convinced that the habit eventually would totally disappear. A similar study was conducted among Cambodian dental and medical students, with similar results (Reichart et al, 1997).

The purpose of the present study was to obtain information about the knowledge of Northern Thai BQ vendors on the habits of BQC, miang and khi yo in the city of Chiangmai, adjoining suburbs and the city of Nan.

MATERIALS AND METHODS

Main markets in and around the city of Chiangmai, Northern Thailand, were visited (Table 1). The central market in the city of Nan was also included. Stalls selling BQ, miang and khi yo cigars were visited and their respective proprietors were interviewed. A questionnaire had been prepared focusing on the following questions:

Table 1 Selected markets for interviews with 18 stall vendors (one vendor had two stalls in two different markets)

Markets	No. of stalls
†Wororot	1
†Don Lamjai	5
†Chang Phuak (Siri Wattana)	3
†Prathu Chiangmai	2
†Don Payom	1
#Mae Rim	1
#Mae Taeng	3
#Hang Dong*	3
#San Pa Tong (Ma Jun Rong)*	2
§ *	3
Total: 10 markets	24

† Markets in the city of Chiangmai
# Markets in Chiangmai suburbs
§ Central market in the city of Nan
* one interview only

1. What is the number of stalls per respective market selling BQ, miang and khi yo at the time of interview?
2. Gender and age of vendor
3. For how many years have vendors been present on the respective market?
4. Why do (did) people chew BQ?
5. Do you know about any general or oral side effects of BQC?
6. Do you know that BQC may cause cancer of the mouth?
7. Do you think that BQC is good for the teeth and the gums?
8. Why do you think young people have given up the BQC habit?
9. Why do people still buy BQ, miang and khi yo these days, if not for chewing and smoking?
10. In what type of ceremonies is BQ, miang or khi yo still used these days?
12. Do people still buy miang for chewing?
13. Are young people chewing miang?
14. Do men/women still buy khi yo for smoking?

Questions were asked in Thai or Northern Thai dialect (C.S.) and translated into English. Due to the small number of stalls and respective vendors a statistical evaluation was not feasible.

RESULTS

A total of 19 of 24 stalls in 10 markets were visited and interviews with 18 vendors were conducted. The average number of stalls per market was two (range 1–5) (Table 1). Sixteen of the vendors were women and two were men. The mean age of vendors was 55 years (range 28–75 years). Vendors had been present on markets on an average of 21.8 years (range 2–60 years).

The number of customers buying BQ regularly was: 2–3 (n = 2), about 5 (n = 2), about 10 (n = 5), about 20 (n = 2), none (n = 6), no answer (n = 1).

When asked about gender and age of BQ-chewing customers (several answers possible) the following answers were given: elderly women (n = 12), elderly men (n = 2), women and men (n = 2), hill tribes (n = 4).

When asked about why did (do) people chew BQ several answers were given, e.g. people chew BQ for fun, for good breath, BQ tastes delicious, BQC is a tradition, people become addicted to BQ, people chew BQ to spend their free time, I don't know.

When asked about a possible association of BQC and oral cancer, one vendor reported that he had heard that lime might cause oral cancer. Another reported about a customer, an elderly woman, who suffered from an oral ulceration and was encouraged to give up BQC by her physician, but did not. All the other vendors had never heard that BQC might cause oral cancer. When asked whether BQC is good for the teeth and the gums 11 vendors answered that BQC makes the teeth strong ('tam fan kaeng raeng' [Thai language]), two stated that BQC causes the teeth to become black, and five vendors did not know. The reason why BQC has been given up by the younger generation was explained with the following reasons: BQC makes teeth black and ugly and the mouth red (n = 11), BQC is old-fashioned (n = 1), people have no time (n = 1), there is not enough supply (n = 1), don't know (n = 4).

The question whether people still buy miang for chewing was answered yes by five vendors. An average of five to six individuals, exclusively people over 50 years old, buy miang for chewing daily. Three vendors did not sell miang and a further three answered no (miang only bought for ceremonies). One vendor answered that miang was sold only in very small quantities.

Khi yo cigars were only sold to people over 50 years old. The number of customers was between four and five per day. Four vendors answered that mainly men were smoking khi yo. Two vendors also had female customers who bought khi yo cigars. One vendor indicated that khi yo was only bought for ceremonies. Two further vendors did not sell khi yo cigars.

Fig 1 From left to right: banana leaf basket containing local cigars, matches and small packages of miang, seven green areca nuts, plastic bag containing sliced areca nuts and other ingredients for the betel quid, another banana leaf container with local cigars and betel quid ingredients. Khi yo cigars in the foreground.

Of particular interest were the answers to questions 9 and 10: why do people still buy BQ, miang or khi yo cigars these days if they don't use these for chewing or smoking? The unanimous answer was that BQ, miang and khi yo are bought to be used as offerings in a variety of ceremonies, such as for weddings, birth and death to propitiate the Lord of land (san phra phum) or for wan phra (a special holy day). For the purpose of an offering, a set arranged in folded banana leaves is available at BQ-selling stalls, including BQ (pieces of the areca nut, betel leaf, lime, tobacco, cutch), 3–4 traditional cigars (khi yo), and 3–4 small packages of miang, as well as a box of matches to light candles and incense during the ceremony (Fig 1).

DISCUSSION

Interviews of vendors selling BQ, miang and khi yo showed that the number of stalls on markets was small (on average two). While there are no similar studies of the number of BQ-selling stalls in former times, historical documents, books and reports by travellers to former Siam (Thailand) stated that until the middle of the 20th century BQC was extremely widespread in the country (Reichart and Philipsen, 2005). In the early 1950s, de Young (1955) observed a decline of the BQC habits in rural Northern Thailand. In fact, in the Act of National Culture of 1942, it was stated that the Thai people should stop BQC ('consumption culture') and were forbidden to spit saliva and betel fluid on

roads and public places ('society culture'). This was part of an overall modernisation drive but was not based on public healthcare issues (de Young, 1955). In 1973, Pindborg reported that urban people and particularly the Bangkokians had almost given up the use of BQC and that it was difficult to locate more than one or two stalls in large markets (Pindborg, 1973), an observation confirmed by the present study. An epidemiological study among rural Northern Thai in the mid 1980s supported this trend in that there were no BQ chewers below the age of 50 years (Reichart et al, 1987).

Traditionally, BQ vendors are women, as confirmed by the present study. The average age of vendors was high (55 years); the presence on markets (average of 21.8 years) was long. Over this long period of time, vendors were able to follow the steady decrease of sales of BQs. In general, the number of customers buying BQ regularly was small (between 2 and 5). As reported previously (Reichart et al, 1987), the regular customers were elderly women and hill tribes.

Of interest were answers relating to the question of why people indulge in BQC. Characteristically answers described positive aspects of the BQC habit such as the psychostimulatory effects of BQ. When asked about possible side effects of BQC, two vendors reported that they heard about some negative effects of BQC on the mouth. All the other vendors had no knowledge about the association of BQC and oral cancer, indicating an almost complete lack of information about the side effects of BQC. Interviews of dental students in Thailand and Cambodia also revealed poor knowledge of side effects, indicating that they were unfamiliar with the BQC habit. Of interest, however, was that medical students compared with dental students had even less knowledge about side effects of BQC on oral structures (Reichart et al, 1997; Reichart et al, 1999). BQC was considered to be good for teeth and gums by the BQ vendors. Traditionally, BQC has been considered to be positive for teeth and gums, a misconception, which even led to the production of areca nut-containing toothpaste in England in the 19th Century (Reichart, 1984).

While it is not quite clear why the BQC habit is vanishing in Thailand, the interviews with the vendors gave some explanations that relate to oral aesthetics and behavioural aspects. BQC causes black teeth and a red mouth. It is considered an old-fashioned custom and unacceptable in modern Thai society. In this context it is of interest that unlike in India and neighbouring countries, areca nut- and tobacco-containing products like Pan Masala or Guthka (Gupta and Ray, 2004) have never been introduced to the Thai market. While these appear to be much 'cleaner' and easier to handle, their deleterious effects are the same as the traditional BQ (Reichart and Philipsen, 2006).

Alongside the disappearance of the BQC habit, the disappearance of the miang chewing habit and the habit of smoking khi yo are noteworthy. The interviews have shown that only elderly people still buy miang for chewing and khi yo for smoking. By the mid 1970s, Keen (1978) observed a decline in per capita consumption of miang. A field study in the mid 1980s showed that miang was only chewed by the elderly (Reichart et al, 1988). Since khi yo cigars are usually smoked while chewing miang, their disappearance is easily explained (Reichart and Philipsen, 2005).

With the disappearance of the traditional habits that led to some kind of addiction (BQC habit, khi yo) or habituation (miang), the ubiquitous smoking and alcohol drinking habits have been adopted in modern Thailand and have changed lifestyle patterns during the last 40 years. In 2001, 39.3% of males over the age of 11 were smokers (females 2.2%) (Shafey et al, 2003). In 1970, the per capita cigarette stick consumption was 768, in 1995 it was 1075 and in 2000 it was 802 (Shafey et al, 2003). The total consumption in millions of cigarette sticks was 15,306 in 1970 and 36,964 in 2000, indicating more than a doubling of consumption in a 30-year period (Shafey et al, 2003). Alcohol consumption has become a serious health threat during the last three decades (Ritthiphakdee, 2001/2002). The total quantity of all alcoholic beverages produced in Thailand in 1987 was 361.6 million litres, which increased to 1599.8 million litres in 1998. Eleven million litres of wine were consumed in 1997, a commodity that in the 1970s was hardly available in Thailand. The increase of alcohol consumption in Thailand (1993–1998) for beer was +129.7%, for wine +173.0% and for spirits +8.3%. In 2001 the percentage of those drinking alcohol aged 15 years and over for males was 55.9% and 9.8% for females (World Health Organization, 2007). These few figures on cigarette and alcohol consumption clearly illustrate the changes from traditional habits and customs to 'modern' lifestyle habits, which eventually will have an effect on disease patterns, including oral cancer.

While the changes of addiction or habituation habits are obvious, it is remarkable that in socio-ritual contexts paraphernalia and ingredients of the BQ, especially the areca nut, as well as miang and khi yo, seem to survive. All vendors unanimously replied to the question, 'why do people still buy BQ, miang and khi yo if they don't use these for chewing or smoking?' that these were used as part of offerings in different ceremonies of daily life. Reichart and Philipsen (2005)

predicted that the habit of BQC, while entirely disappearing in a few years, will influence Thai colloquial language for many years to come. Also, it was considered likely that the use of BQ ingredients as therapeutics will survive. However, these authors did not anticipate that areca nut and BQ, as well as miang and khi yo, will play a future role in socio-cultural aspects of daily life.

REFERENCES

1. Burton-Bradley BG. Betel chewing in retrospect. Papua New Guinea Med 1978;21:236-241.
2. Chu NS. Effects of betel chewing on the central and autonomic nervous systems. J Biomed Sci 2001;8:229-236.
3. Chu NS. Neurological aspects of areca and betel chewing. Addict Biol 2002;7:111-114.
4. de Young JE. Village life in modern Thailand. Los Angeles: Berkeley, University of California, 1955.
5. Gupta PC, Ray CS. Epidemiology of betel quid usage. Ann Acad Med Singapore 2004;33(Suppl):31S-36S.
6. International Agency for Research on Cancer (2004) IARC Monograph on the evaluation of carcinogenic risks to humans. Vol. 85. Betel quid and areca-nut chewing and some areca-nut derived nitrosamines. Lyon, France: International Agency for Research on Cancer, 2004.
7. Keen FGB. The fermented tea (miang) economy of Northern Thailand. In: Kunstadter P, Chapman EC, Sabhasri (eds). Farmers in the Forest. Economic Development and marginal agriculture in Northern Thailand. Honolulu: University Press of Hawaii, 1978;255-270.
8. Ko YC, Chiang TA, Chang SJ, Hsieh SF. Prevalence of betel quid chewing habit in Taiwan and related sociodemographic factors. J Oral Pathol Med 1992;21:261-264.
9. Lu CT, Lan SJ, Hsieh CC, Yang MJ, Ko YC, Tsai CC, Yen YY. Prevalence and characteristics of areca nut chewers among junior high school students in Changhua county, Taiwan. Community Dent Oral Epidemiol 1993;21:370-373.
10. Norton SA. Betel: consumption and consequences. J Am Acad Dermatol 1998;38:81-88.
11. Pindborg JJ. Illustration of betel (Areca) nut chewing in Sawankhalok celadon figurines from Thailand. J Hist Med 1973;28:46-47.
12. Reichart P, Mohr U, Srisuwan S, Geerlings H, Theetranont C, Kangwanpong T. Precancerous and other oral mucosal lesions related to chewing, smoking and drinking habits in Thailand. Community Dent Oral Epidemiol 1987;15:152-160.
13. Reichart PA, Dietrich T, Khongkhunthian P, Srisuwan S. Decline of oropharyngeal cancer in Chiangmai province, Thailand, between 1988 and 1999. Oral Oncol 2003;39:569-573.
14. Reichart PA, Khongkhunthian P, Scheifele C, Lohsuwan P. Thai dental students' knowledge of the betel quid chewing habit in Thailand. Eur J Dent Educ 1999;3:126-132.
15. Reichart PA, Philipsen HP, Mohr U, Geerlings H, Srisuwan S. Miang chewing in Northern Thai villagers. Trop Geogr Med 1988;40:39-44.
16. Reichart PA, Philipsen HP. Betel and Miang: Vanishing Thai Habits. 2nd Edn. Bangkok: White Lotus Co. 2005.
17. Reichart PA, Philipsen HP. Orale submuköse Fibrose bei einer 31-jährigen Inderin. Erster Fallbericht aus Deutschland. Mund Kiefer GesichtsChir 2006;10:192-196.
18. Reichart PA, Schmidtberg W, Scheifele Ch. Khmer dental and medical student's knowledge about the betel quid chewing habit in Cambodia. Eur J Dent Educ 1997;1:129-132.
19. Reichart PA. Toothpastes containing betel nut (*Areca catechu L.*) from England of the Nineteenth Century. J Hist Med Allied Sci 1984;39:65-68.
20. Ritthiphakdee B. Alcohol consumption and control in Thailand. The Globe, Special Issue 2001–2002;4;16-17.
21. Shafey O, Dolwick S, Guindon GE. Tobacco control country profiles. 2nd Edn. The 12th World Conference on Tobacco or Health. Atlanta: American Cancer Society 2003.
22. Sullivan RJ, Hagen EH. Psychotropic substance-seeking: evolutionary pathology or adaptation? Addiction 2002;97:389-400.
23. Trivedy CR. The legislative issues related to the sale and consumption of areca (betel) nut products in the UK: current status and objectives for the future. J Indian Med Assoc 2001;1:10-16.
24. Warnakulasuriya S, Peters TP. Special section: Areca nut symposium. Introduction: Biology, medical and socio-economic aspects of areca nut use. Addict Biol 2002;7:75-76.
25. World Health Organization, Regional Office for South-East Asia. www.searo.who.int/. Accessed 18.05.2007.