Betel chewing among bus drivers in Jaffna district

S Selvananthan[1], S Sivaganesh[2], S Vairavanathan[1], R Surenthirakumaran[3], S Balakumar[2]

Abstract

Objective To assess the prevalence, pattern and sociocultural factors associated with betel chewing among bus drivers in Jaffna district.

Methodology Cross-sectional study was conducted among 423 registered drivers using an interviewer administered questionnaire from March to April 2014.

Results All were males. Mean age of the respondents was 41.42 years (SD=±10.3; range 20-65). The overall prevalence of betel chewing was 70.4%. Of the total 9.4% had chewed betel in the past. Of the current users 61% had chewed betel for more than 5 years. Betel was chewed daily by 89.2%. (of them 60.8% used ≤3 times). Almost all current chewers used areca nut. Fifty five percent of the drivers said they used betel to improve concentration while driving. Seventy five percent of those who used betel in the past said that staining of teeth was the reason for stopping the habit. Private bus drivers were more likely to chew betel while driving than SLTB drivers (p=0.002).

Conclusion The prevalence of betel chewing among bus drivers in Jaffna District was high. Majority had chewed betel for more than five years. Areca nut was a main ingredient of betel quid.

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Introduction

Betel and areca nut is chewed by approximately 600 million people worldwide [1]. Betel quid consist of betel leaf, areca nut which is the main psychoactive ingredient and slaked lime (calcium hydroxide). Areca nut is said to be the fourth most commonly used psychoactive substance in the world, after caffeine, nicotine and alcohol. Other ingredients and flavouring agents are added according to local preferences and practices [2].

Betel chewing is prevalent in India, Pakistan, Bangladesh, Sri Lanka, Malaysia, Myanmar, Indonesia, Singapore, Philippines, Papua New Guinea, Micronesia, Fiji, Maldives and Carolene Santa Cruz Islands. Asian migrants introduced betel to the Middle East, some African and European countries and the United States of America. Betel chewing was prevalent in many parts of China up to about the 19th Century when the use of opium took its place [3].

Use of 8-10g/day of areca nut may be lethal and will cause narcolepsy, sedation and death. Frequent use can stain teeth black and daily use is associated with increased risk of cancers of liver, mouth, stomach, prostate, cervix, lung, reduced sexual potency and dependence [4]. The adverse health effects associated with betel chewing (with areca nut) include oral and oropharyngeal cancer, oral pre-malignant lesions and some conditions such as oral leukoplakia, submucous fibrosis and dependence [10]. Betel chewing accounts for about 90% of oral cancer diagnosed in Sri Lanka. Areca nut is the main ingredient that causes oral cancers. Sri Lanka occupies fifth place in the prevalence of oral cancers [5].

The government spends about Rs. 1 million on the care of a cancer patient. About 600 million people, 20% of the world population chew betel. Nearly 53% of the rural community in Sri Lanka chew betel, specially estate workers, labourers, and drivers [5]. Betel chewing is thought to reduce hunger and relieve tiredness which perhaps is the reason why some manual workers chew betel while working [3].

A study conducted in Colombo and Polanaruwa Districts in 2006 reported a prevalence of betel chewing of 17.6% in the rural and 1.7% in the urban district. In the rural district prevalence was significantly associated with age (p<0.001). In both districts prevalence was lowest among males between 18-24 years of age (2.7%) and highest among those aged > 65 years (36%). In both urban and rural areas, prevalence was significantly associated with income (p<0.05). Prevalence was highest among those with a monthly income <Rs.5000. In rural areas 23.8% of those with an income <Rs. 5000/month chewed betel while only 4.7% of those earning >Rs. 25000 a month chewed betel [7].

Bus drivers use psychoactive substances including alcohol (3%), tobacco (53%) and betel chewing (80%).

[1]*Faculty of Medicine, University of Jaffna,* [2]*Regional Epidemiologist RDHS Office, Jaffna,* [3]*Lecturer in Community Medicine, Consultant Community Physician, Department of Community Medicine, Faculty of Medicine, University of Jaffna, Sri Lanka.*

Correspondence: SS, *e-mail: <suganja.info@gmail.com>.* *Received 18 April 2018 and revised version accepted 19 April 2018.*

About 25% of bus drivers chew betel without adding lime or chewing tobacco [5]. A recent survey conducted by the National Cancer Control Programme in Sri Lanka has revealed that 80% of bus drivers and conductors are vulnerable to oral cancer. Excessive chewing of betel and smoking cigarettes by drivers and conductors throughout the journey and while waiting for their next turn have been identified as main reasons for this vulnerability [6].

A survey conducted by the Institute of Oral Health, Maharagama, on 103 bus drivers and conductors working in buses in the Maharagama and Dehiwala areas revealed that more than 80% chew betel to keep themselves awake and improve concentration [8]. A study carried out in Pakistan showed that knowledge regarding carcinogenicity of betel, areca nut and tobacco among users are poor. [9].

According to the Tobacco and Alcohol Act of 2006 it is an offence to drive under the influence of drugs and therefore bus drivers should not use chew betel [5]. But we observed that betel chewing was common among bus drivers in Jaffna. The objective of the study was to assess the prevalence, pattern and sociocultural factors associated with betel chewing among bus drivers in the Jaffna District.

Methods

Design and setting

We conducted a cross sectional analytical study from October 2013 to May 2014 among registered bus drivers of the Sri Lanka Transport Board (SLTB) and private bus services in the Jaffna District.

We recruited 423 (113 SLTB and 310 private bus drivers) out of 777 drivers (177 SLTB and 600 private bus drivers) by non-proportionate stratified sampling. Sample size was calculated using the standard formula with the following parameters: preliminary estimation of proportion- 50%; alpha error- 0.05 and level of precision- 5%. Data was collected using an interviewer-administered questionnaire.

Ethical clearance was obtained from the Ethics Review Committee of the Faculty of Medicine, University of Jaffna. Written informed consent was obtained from all participants.

Data was analyzed using SPSS 21. Descriptive statistics, chi-squared test and odds ratio were used to describe the results.

Results

There were 423 completed questionnaires. All were males. Of 423 respondents, 310 (73.3%) were private bus drivers. Mean age of the respondents was 41.42 years (±SD=10.3; range 20-65). Majority of the respondents 226 (53.4%) were aged between 20-40 years and 21 (5%) were aged more than 60 years (Table 1).

Table 1. Description of the sample

	Number (%)
Age	
20-40 years	226 (53.4)
41-60 years	176 (41.6)
>60 years	21 (5.0)
Employer	
SLTB	113 (26.7)
Private bus	310 (73.3)

Prevalence of betel chewing

Of the 423 drivers, 298 chewed betel quid. Current prevalence was 70.4% (95% CI 66.4-74.7%). Forty one (9.7%) had chewed betel in the past. Eighty seven (76.9%) SLTB drivers and 211 (68.1%) private bus drivers chewed betel (chi sq 3.17, p=0.08).

Pattern of betel chewing

Among current users 183 (61.4%) drivers had chewed betel for more than 5 years and 115 (38.6 had used for less than 5 years. Among current users 265 (89.2%) chewed betel daily. Of the 265 daily users 161 (60.8%) chewed betel ≤3 times a day. One hundred and two (38.5%) used 4-10 times a day. Only two (0.7%) drivers reported using more than 10 times a day. Out of 298 users, 296 (99.3%) used areca nut, 254 (85.2%) used lime, and 179 (60.1%) used tobacco with betel. Cinnamon and cloves were used by a few. None of them used drugs.

Sociocultural factors

Out of 339 users (past and present), 188 reported that the main reason for use was to help concentration while driving. The reasons for betel chewing are described in Table 2. One hundred and sixty one (38.1%) thought it prevented them falling asleep while driving; 112 (26.5%) thought it prevented bad breath; 91(21.5%) thought it increased concentration. Hundred and twenty four (29.3%) chewed betel while driving. Of 41 past chewers, 31 (75.6%) stopped chewing because it stained their teeth. Private bus drivers (n=86; 35.5%) were more likely than SLTB drivers (n=16; 16.3%) to identify peer-pressure as the reason for betel chewing (Chi sq=12.3; p<0.001). Private bus drivers were also more likely to chew betel while driving (n=99 68.2%) than SLTB drivers (n=25; 44.6%) (chi sq 9.5; p=0.002).

Table 2. Pattern of betel chewing

	Number	*%*
Time of use		
While driving	124	29.3
Only before driving	12	2.8
After driving only	12	2.8
Before or after driving	78	18.4
At home after finishing work	36	8.5
At night	33	7.8
Reasons for use		
Cultural	53	15.5
Others in the family use	102	29.9
Peer pressure	102	29.9
Feelings of craving	28	8.2
Helps concentration	188	55.1
Because of depression or sadness	62	18.2
To prevent bad breath	123	36.1
To prevent hunger	49	14.3
To refresh breath	75	22.0
To look mature	2	0.6
Because it is easily available	16	4.7
Reasons for cessation of the habit		
Offensive breath	9	22
Staining of teeth	31	75.6
Awareness of harmful effects	23	56.1
Family members didn't approve	12	29.2
Burned the mouth	13	31.7
Other reasons	1	2.4

Discussion

Our study reports the prevalence of current betel chewing of 70.4% among bus drivers in the Jaffna District and 9.4% were past users. Sixty one percent of current chewers had chewed betel for more than 5 years. Of the users 89.2% said they chewed betel daily. Almost all current users also used areca nut. Fifty five percent of the drivers said they chewed betel to improve concentration while driving. Of the past users 75% said that staining of teeth was the reason for stopping use.

A study done in Taiwan reported that betel chewers were mostly in their 30s and 40s, similar to findings from our study [11]. A study carried out in Bangladesh showed that overall, 33.2% of the study population chewed betel quid currently and an additional 1.7% had chewed betel in the past [12]. Prevalence of betel chewing was higher among our populations possibly because it consisted of bus drivers.

A study conducted in Karachi reports very high rates of daily use of betel and areca (74% and 35%) among primary school children, with frequency increasing from lower to higher grades [13]. Another study reported that the lowest mean frequency of use per day for any substance was 6.5, which indicates the addictive potential of these substances [14].

A study conducted in Bangladesh reported that areca nut was the commonest added ingredient with 67% of both men and women adding this to the betel quid. Women were more likely to add tobacco [15]. We too found that areca nut was the commonest added ingredient.

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Conflict of Interests

Authors declare that there are no conflicts of interest.

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