

PREVALENCE OF BETEL CHEWING AMONG MALES IN COLOMBO AND POLONNARUWA DISTRICTS

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Abstract

Objectives

To assess the prevalence of betel chewing among adult males in a rural and urban district in Sri Lanka and describe the demographic characteristics of betel chewers.

Methods

Betel use among 2684 males aged >18 years resident in a rural (Polonnaruwa) and urban (Colombo) district in Sri Lanka was assessed using multistage cluster sampling. Data on quantity and frequency of use was obtained using an interviewer administered questionnaire.

Results

Prevalence of betel chewing was 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 districts 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.

Conclusions

There was a significant difference in prevalence of betel chewing between rural and urban areas. Betel chewing now remains mainly a habit of the elderly in rural areas.

Key words: Betel chewing, Sri Lanka, oral cancer

Introduction

Betel chewing has been practiced for many centuries by people in South Asian countries. The composition of the betel quid varies according to the region. The basic betel quid is made up of betel leaves, areca nut and lime (aqueous calcium hydroxide paste). Dried tobacco leaves may be added to the quid¹. Areca nut incorporated into betel quid is classified as a psychoactive substance. In India about 35-40% of tobacco consumption is in the form of smokeless tobacco which is mainly used in betel quid².

The prevalence of betel use according to the National Oral Health Survey of 1994/1995 was 33.78% among 35-44 year olds and 47.7% among 45-74 year olds with an overall prevalence of 40.5% among 35-74 year olds³. In 1982, a study among Sri Lankan villagers found 54% of males and 42% of females to use betel regularly⁴. A study among tea estate labourers found that 92% with oral mucosal lesions reported betel quid chewing⁵. Population based studies in India, Nepal and Pakistan over the past 25 years have found 20-40% of those aged 15 years and over were betel quid or areca nut chewers¹.

Association between betel chewing and oral cancer has been well established. Betel chewing also carries a high

risk for pre cancerous lesions. The areca nut used in the chew causes oral submucous fibrosis, a precancerous condition⁶. Betel quid, smoking and alcohol have a synergistic effect on the development of leukoplakia another pre cancerous condition. The risk for precancerous lesions were highest among betel chewers (OR 3.01) followed by smoking (OR 2.16) and alcohol (OR 1.41) among tea estate labourers⁵. Betel quid chewing is also associated with cancer of the pharynx and oesophagus⁷.

Since high rates of betel chewing have been reported in Sri Lanka previously and the association between betel chewing and poor oral health have been established we conducted a study to assess the prevalence of betel chewing and describe the characteristics of adult male betel chewers in a rural and an urban district.

Methods

The study was carried out as part of a baseline survey on psychoactive substance use. A multistage cluster sampling was carried out in four Medical Officer of Health (MOH) areas in the Colombo and Polonnaruwa districts. The MOH areas surveyed were Nugegoda, Moratuwa, Thamankaduwa and Elahara. The study was conducted from May-August 2007. The study sample consisted of 2684 males over 18 years of age.

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Data was collected using an interviewer administered questionnaire which recorded self reports of quantity and frequency of alcohol, tobacco and betel use during the last 30 days. Verbal informed consent was obtained from all selected participants. Ethical Clearance for the study was obtained from Ethics Committee, Faculty of Medicine, University of Colombo.

Statistical analysis

Association between variables were explored using chi-squared statistics. Univariate logistic regression was used to calculate odds ratios for betel chewing.

Results

Study population

The study population consisted of 2684 males over 18 years. There were 1318 in the urban and 1366 in the rural groups. There was no significant difference in mean age between urban (40.9 years) and rural males (40.3 years) ($t= 1.03$, $p=0.41$). The urban males had a significantly higher income ($p<0.001$). In the rural sample 36.5% earned <Rs. 5000, and in the urban sample 9.8% earned <Rs. 5000. The percentage distribution by ethnic group was Sinhalese 92.1, Tamils 2.7, Moor 4.5 and oth-

Table 1 Prevalence and odds ratio of betel chewing according to socio-demographic characteristics

	Number surveyed	Prevalence of betel chewing		Odds ratios (95% confidence intervals) for betel chewing
		Urban % (95% CI) n=1318	Rural % (95% CI) n=1366	
Race				
Sinhala	2474	1.6 (0.88-2.31)	18.2 (16.1-20.3)	1.0
Tamil	73	1.6 (-1.56-4.68)	0	0.14 (0.02-1.0)
Moor	121	2.0 (-1.98-5.9)	6.6 (0.17-12.9)	0.41 (0.17-1.0)
Burgher	16	0	0	0
Religion				
Buddhist	2215	1.8 (0.98-2.65)	18.4 (16.24-20.47)	1.0
Hindu	48	2.3 (-2.37-7.02)	0	0.19 (0.27-1.4)
Muslim	121	2.0 (-1.98-5.9)	6.6 (0.17-12.95)	0.37 (0.15-0.92)
Catholic	187	0.7 (-0.66-2.0)	0	0
Christian	113	0	0	0
Age				
18-24 yrs	442	0	2.7 (0.56-4.9)	1.0
25-34 yrs	639	0.4 (-0.35-1.0)	10.4 (7.3-13.6)	4.72 (1.98-11.25)
35-44 yrs	582	2.5 (0.8-4.2)	21.2 (16.3-26.1)	8.97 (3.85-20.93)
45-54 yrs	477	1.7 (0.04-3.4)	20.2 (15.1-25.3)	9.08 (3.86-21.35)
55-64 yrs	324	2.9 (0.37-5.5)	31.4 (23.9-38.8)	14.21 (6.03-33.5)
>65 yrs	220	3.9 (-0.4-6.6)	36.0 (27.4-44.7)	19.85 (8.34-47.29)
Income SLR				
<Rs. 5000	628	5.4 (1.5-9.4)	23.8 (20.1-27.6)	1.0
Rs.5000-7999	513	1.7 (0.4-3.3)	16.7 (12.3-21.2)	0.43 (0.31-0.61)
Rs.8000-14999	901	1.9 (0.7-3.0)	15.2 (11.5-19.0)	0.31 (0.23-0.43)
RS.15000-24999	406	0	8.6 (4.3-13.0)	0.14 (0.08-0.25)
>RS.25000	176	0	8.6 (1.2-16.1)	0.06 (0.02-0.24)
Not recorded	60			
Total		1.7 (0.92-2.27)	17.6 (15.6-19.7)	

ers 0.6. The percentage distribution of the sample by religion was Buddhists 82.5, Christian 11.2, Muslim 4.5 and Hindu 1.8.

Betel chewing

Prevalence of betel chewing in urban and rural areas is given in Table 1. Prevalence in the rural area (17.6 %) was significantly higher than in the urban areas (1.6%) ($\chi^2=195.3$, $df=1$, $p<0.001$).

In rural areas prevalence of betel chewing was 18.2% among Sinhalese and 6.6% among Moors. In the rural areas prevalence of betel chewing was significantly associated with age ($\chi^2=28.9$, $df=6$, $p<0.001$). Prevalence was lowest among males between 18-24 years of age (2.7%) and highest among over 65 years (36%). This increase in the prevalence with age was seen in the urban area too though the prevalence in all age categories was lower than in rural areas.

In both rural and urban areas prevalence was significantly associated with income ($p<0.05$). In both study areas prevalence was highest among those with a monthly income < Rs.5000. In rural areas 23.8% of those with a monthly income <Rs. 5000 chewed betel while only 4.7% of those earning >Rs. 25000 a month chewed betel.

The odds of being a betel chewer increased with age, with the odds for those aged > 65 years being 19.85 compared to the reference group 18-24 years. Among income categories odds were highest for those with monthly income of <Rs. 5000.

Of the betel chewers 93.8% used it daily while only 5% used it less than 10 days a month. The mean number of betel quid used per day was 5.9 (SD 4.06).

Association with tobacco and alcohol use

Alcohol consumption was more prevalent among betel users (32.4%) as compared to those who do not use betel (26.3%) (OR 1.35). Odds ratio of a smoker being a betel user was 0.71.

Economic impact

Rural betel users spent significantly more on betel monthly (mean=Rs. 883) than urban users (mean=Rs.371) ($t=3.75$ $p<0.001$). The highest mean expenditure on betel quid of Rs. 962 was by users in the rural areas earning < Rs. 5000 (Table 2). This accounts for 19.2% of their income. The amount spent by urban user in the same income category was only Rs. 307 a month.

Discussion

Betel chewing was more prevalent in the rural compared to the urban district and prevalence increased with age. Highest prevalence was among the lowest income earners. In rural areas betel users with the lowest income spent a substantial proportion of their earnings on betel.

The prevalence of betel chewing in the current study is less than that reported in the National Oral Health Survey in 1994/1995 where 40.5% of those aged between 35-74 years chewed betel³. There could be many reasons for the lower prevalence in urban areas. Perceiving betel use as a habit of rural people and as an unfashionable habit as well as increased awareness of its association with oral cancer may be some of them. Low prevalence among the younger age group indicates that the habit is on the decline even in the rural areas.

The odds of a smoker being betel chewer (OR 0.71) indicates that smokers are less likely to use betel than non smokers. This could be because some males use betel instead of smoking. But betel chewing does not appear to replace the habit of alcohol use.

A limitation of the current study is that it did not record data about betel chewing among females. Previous studies have shown that usage among females was only slightly lower (42% vs. 54%)⁴.

Although betel chewing is lower now compared to

Table 2 Mean expenditure on betel among users according to monthly income

Income	Urban Rs.(SD)	Rural Rs.(SD)
<Rs. 5000	307 (239.9)	962 (720)
Rs.5000-7999	265 (141.1)	791 (497.3)
Rs.8000-14999	458 (311.9)	800 (511.5)
Rs.15000-24999	0	900 (617.1)
Rs.25000-39999	0	600 (212.1)
> Rs.40000	0	850 (86.6)
Mean	371 (267.4)	883 (622.5)

those from studies carried out 15 years ago it is still prevalent in rural areas. Oral cancer is one of the commonest cancers in South Asia where the habit of betel chewing is common. The primary risk factors for oral cancer are betel chewing, tobacco and alcohol⁴. All three are modifiable lifestyle risk factors. Population screening for oral cancer and pre-cancer could be more efficient if opportunistic screening of high-risk groups attending primary care services is carried out. Since betel chewing carries the highest risk for pre cancerous lesions and is a significant risk factor for oral carcinoma the current study helps identify groups with high rates of betel chewing where targeted screening programs could be carried out.

Amongst the poorest in rural areas betel chewing also contributes to poverty. It also underscores the need to incorporate betel chewing into substance use prevention programmes carried out in rural areas.

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