

Chewing Pan Masala and/or Betel Quid—Fashionable Attributes and/or Cancer Menaces?

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ABSTRACT Use of tobacco and tobacco-related products has unfortunately pervaded the ordinary household from being only occasional fashionable attributes to chronic potential toxicants thereby compromising immensely the health of the consumers especially more so since the synergistic action of nicotine with other drugs, drink and chemical usage has been observed. Rather than curbing their usage, the statutory warnings are ignored even among those who are sentimentally religious. The results of the present study highlight the addiction to betel quid, pan masala and their nicotine-containing products in urban areas of Punjab where this socio-cultural habit was almost absent and rather frowned upon as far back as only the last decade. The upsurge towards this commemorates the image-driven life-styles from the media and promotional campaigns via showbiz and sports events. The onset of oral sub-mucous fibrosis (OSF) and cancer of the oral cavity are among the major fatal sequels to their usage and India already has the dubious rank of being globally first in this. Eliminating the use of pan and pan masala through control programmes and public education can go a long way in reducing the incidence of oral cancer.

INTRODUCTION

Use of tobacco and tobacco-related products is as old as the earliest records and oral cancer has been described in the Sushruta Samhita, a treatise on Indian surgery written in Sanskrit around 600 B.C. In addition, literary references to the habit of chewing betel quid (betel leaf, areca nut and lime) in India are at least 2,000 years old though tobacco was introduced around the sixteenth century (Chiba, 2001). In fact, there are several types of chewing habits featuring use of betel quid (fresh betel leaf, fresh areca nut, slaked lime, catechu and tobacco), pan masala (areca nut, slaked lime, catechu and condiments), mainpuri (tobacco, slaked lime, areca nut, camphor and cloves), mawa (areca nut, tobacco and slaked lime), khaini (tobacco and slaked lime), gutka (pan masala with tobacco) and other smokeless tobaccos (mishri, gudhaku, bajjar etc.). The two most important constituents of areca nut (misnamed as betel nut) are tannins (11-26%) and alkaloids (0.15-0.67%). Arecoline is the major alkaloid. Some of the minor ones are arecaidine, guacine, guvacoline and arecolidine. Other constituents of areca nut include fats, carbohydrates, proteins, etc. (Sharma et al.,2000). Areca nut and pan masala have cytotoxic and genotoxic properties (IARC,

1985; Wary and Sharan, 1988; Gandhi and Kaur, 2000; Yadav and Chadha, 2002). However, continuous areca nut use causes oral sub-mucous fibrosis causing a restricted mouth opening due to stiffening of the oral mucosa and development of fibrous bands. Oral sub-mucous fibrosis is not reversible and is pre-cancerous. The risk of developing oral cancer among individuals with oral sub-mucous fibrosis (OSF) has been demonstrated to be very high, especially if they also use tobacco, whether in smokeless or smoking form (Thomas and Kearsley, 1993; Gupta,1996; Zain et al., 1996). Lime causes irritation to mucosa which has been considered to play an important role in developing oral cancer (Tanaka et al.,1983; Agarwal et al., 1986). In fact, “The Indian Oral Cancer” refers to the area comprising buccal mucosa, Gingivum and the retromolar trigone (Gingivo-buccal, GB, complex) and has an aetiology in betel nut and / or tobacco usage. Therefore the objectives of this paper are to assess the addiction to betel quid, pan masala and their nicotine-containing products in urban areas of Punjab where this socio-cultural habit was almost absent and rather frowned upon as far back as only the last decade.

MATERIALS AND METHODS

Comprehensive informational inputs from volunteers frequenting Pan shops in Amritsar, Jalandhar and Pathankot were maintained on a self-designed questionnaire after informed

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consent. Details regarding occupations, religious beliefs/caste, socioeconomic status (SES), dietary patterns, preference of/ supplementation of Betel quid (BQ) with Pan masala (PM) and/or tobacco content, duration of the habit, frequency of daily usage, right/ left cheek preference, chewing time per quid/sachet, etc. were recorded individually.

RESULTS AND DISCUSSION

Among the total respondents (n=235), there were only eight females. Smoking and alcohol drinking was a normal life-style in 120 and 109 male respondents respectively, along with the non-vegetarian dietary habits in 188 (Table 1). Occupational sub-groups of the respondents were mostly those falling in the low and middle economic groups, viz. autorickshaw drivers, shopkeepers, clerks and labourers, though there

were also a large number of college and university students. Most of the individuals were in the economically- productive group (n=154; 24-44 yrs.), followed by those between 14-23 years of age. This is unfortunate since betel nut and/or pan masala habits are addictive. An analysis of the habit in families (in male members) revealed single cases among five respondents and 5-9 male members among another six, signifying that family environment had also influenced this habit. The disease profile (29%) revealed more conditions with cardio-vascular disease, hypertension and respiratory problems; the reproductive performance was also affected in ~14% cases among the 165 married respondents.

There were equal numbers who preferred only betel quid to Pan Masala and vice versa (n=85, n=86) while another category used both (n=64). With respect to the betel quid varieties

Table 1: General features of betel quid and pan masala chewers

		Smokers			Alcohol drinkers		Non-vegetarians
		Beedis	Cigarettes	Both	Country liquor	Beer	
Male respondents	227	36	64	20	47	62	188
Female respondents	8						
Total	235						
Age – Profile (yrs.)							
14-23	53						
24-44	154						
45-52	28						
Married		Spontaneous abortions	Stillbirths	Impaired fertility	Infertility		
	165	4	5	3	11		
Disease Profile (overlaps included)	69	Respiratory problems	CVD	Diabetes	Hypertension	Dental problems	Chest pain
		14	18	11	20	3	6
Occupations							
Auto-rickshaw drivers	82						
Shopkeepers	56						
Students	40						
Maid servants	4						
Servicemen	4						
Rickshaw pullers	3						
Clerks	23						
Labourers	16						
Cycle/Auto mechanics	4						
Hawkers	3						
Betel Quid chewers	86	BQ+T		BQ-T		BQ±T	
		65		16		5	
Pan Masala chewers	85	PM+T		PM-T		PM±T	
		38		37		10	
Betel Quid & Pan Masala Chewers	64	BQ&PM+T		BQ&PM-T		BQ&PM±T	
		30		29		5	
		Total Tobacco users		Without T		With/without T	
		133		82		20	

Table 2a: Betel Quid chewing habits in the surveyed population

Chewing habit	Betel quid category**	Individuals	Number of quids chewed/day	Chewing habits (yrs.)	Betel quid (3.9g/quid)	Arecanut content (0.5g/quid)	Tobacco dust (0.4g/quid)	Total amount chewed/day(g)
Betel Quid Chewers								
Betel quid without tobacco (sada pan)		24*	10	4-28	39.0	5.0	-	44.0
Betel quid with tobacco		64	32	10	6-36	39.0	5.0	48.0
	120	7	7	5-30	27.3	35	2.8	33.6
	160	4	5	4-25	31.5	2.5	2.0	36.0
	300	31	10	6-42	39.0	5.0	4.0	48.0
	360	4	7	6-30	27.3	3.5	2.8	33.6
	420	8	11	10-36	42.9	5.5	4.4	52.8
	600	4	8	5-30	31.2	4.0	3.2	38.4
	64&120	3	6	6-28	23.4	3.0	2.4	28.8
	120&600	3	8	25-42	31.2	4.0	3.2	38.4
Betel quid with/without tobacco								
	Sada Pan & 64	3	3-7	5-10	11.7-27.3	1.5-3.5	1.2-2.8	14.4-33.6
	Sada Pan & 120	1	5	18	31.5	2.5	2.0	36.0
	Sada Pan & 300	4	10	15	39.0	5.0	4.0	48.0
	Sada Pan & 350	2	5	10-20	31.5	2.5	2.0	36.0

chewed (Table 2a), the tobacco-less (Sada pan) was not as common as the tobaccoed varieties (n= 100) and in the later category, varieties were numbered increasingly with respect to tobacco potency. The numbers 300 and 64 were more favoured. Pan masala with tobacco (Gutka) was also preferred (n=48) over the tobacco-less (Pan parag, Chutki). Furthermore, the Gutka brands Kuber, Ashiqui, Raja and Pan King were chewed more (Table 2b). The daily intake varied from 3-11 for the quid, 2-6 for Pan masala and 6-13 for both; chewing time/quid varied from almost 10-15' to up to an hour. The amounts of quid and PM chewed per day were in the ranges of 28.8-48.0g and 7.5-30.0g, respectively. The duration of the habit ranged from 1-29 yrs for PM and 1-52 yrs for the quid with more individuals having these habits for more than 10 yrs.

Irrespective of religion and caste, both betel quid and pan masala habits were prevalent in almost all groups with Khatri and Brahmins more inculcated over more time period (~26 yrs.) followed by Rajputs (~17 yrs.). The S.C., Mahajans and Sikhs were almost bracketed for duration of habit and number. The habit was almost absent among Aggarwals (Table 3).

The results obtained from the present study in all probability reflect the scenario in the rest of urban Punjab and probably the rural sector too. This inculcation is a recent infiltration among the Punjabis as it was virtually non-existent in early nineties and was rather regarded as derogatory, especially by the women and the

Table2b : Pan masala habits in the surveyed population

Pan masala users	Brands	Individuals	No. of sachets chewed/day	Chewing Habit (yrs.)	Wt. of sachet (g.)	Total amount chewed/day (g.)
Pan Masala without tobacco	Pan Parag	22*	5	1-20	5	25.0
	Chutki	26	4	2-32	5	20.0
Pan Masala with tobacco (Gutka)	Rajdarbar	4	6	4-30	2	12.0
	Pan-King	7	4	8-24	2	8.0
	Kuber	11	5	3-29	5	25.0
	Aashiqui	10	3	6-10	2.5	7.5
	Raja	10	4	10-16	6	24.0
	Pan Parag	3	6	5-10	5	30.0
	Chutki	4	4	12-22	5	20.0
	Zannat	2	3	3-9	2.5	7.5
	Kisan	3	2	4-11	2	4.0
	Pan Masala with/without tobacco	Pan Parag & Chutki	6	4	2-7	5&5
Pan Parag & Kuber		3	5	8-18	5&5	25.0
Chutki & Kuber		2	6	7-18	5&5	30.0
Pan Parag & Zannat		1	2	3	5&2.5	7.5
Kuber, Zannat & Chutki		1	6	13	5&2.5 %5	25.0

* include 4 females in each category ; ** increase in number with increased tobacco content

elderly. The widespread consumption among those in which it was considered a religious taboo bespeaks either flaunting of tobacco-use in an

Table 3 : Chewing habits in the sample population studied: religion/caste-wise

Chewing habit (yrs.)	Individuals	Age range (yrs.)	Religion /Caste										Betel quid chewers	Betel quid and Pan masala chewers	Alcohol drinkers	Smokers								
			Sikhs			Rajpputs			Yad-avris			Khat-mins					S.C. Mahajans			Pan Masala users				
			With- Tob- acco	With- out Tob- acco	Over- lapp- ing acco	With- Tob- acco	With- out Tob- acco	Over- lapp- ing acco	With- Tob- acco	With- out Tob- acco	Over- lapp- ing acco	With- Tob- acco					With- out Tob- acco	Over- lapp- ing acco	With- Tob- acco	With- out Tob- acco	Over- lapp- ing acco			
1-5	51	16-39	4	8	1	11	20	3	3	7	23	3	3	-	3	1	5	6	3	15	16			
6-10	55	22-32	5	10	3	20	13	3	1	10	8	3	3	11	7	2	7	5	2	27	25			
11-15	32	26-42	2	10	4	4	5	2	5	7	5	-	9	9	1	1	3	6	-	15	17			
16-20	40	30-52	2	4	1	11	10	7	5	10	1	3	11	2	2	1	4	8	-	20	22			
21-25	35	33-46	2	2	3	11	7	4	6	3	-	23	2	23	2	-	6	1	-	18	24			
26-30	13	44-52	3	3	-	3	4	-	-	1	-	-	5	5	-	-	4	3	-	8	9			
31-35	6	46-52	1	3	-	1	-	-	1	-	-	-	4	4	1	-	1	-	-	4	5			
36-40	3	46-52	-	-	-	1	1	1	-	-	-	-	2	2	-	-	1	-	-	2	2			
Total	235	-	19	40	12	62	60	20	2	38	37	9	65	16	5	31	28	5	109	120				

image-driven locale and ignorance to the cataclysmic aftermath. Even in the west, the knowledge of oral cancer risks was found to be variable, with first generation Sikhs knowing least (Vora et al., 2000).

The habit of using BQ/PM has insidiously formed a part of life-style of almost all the sub-populations in diverse religious/caste and occupational settings especially in the economically-productive group and in teenagers. The presence of nicotine and the potent alkaloids (arecoline, arecaidine, guacine, guvacoline and arecolidine) in the areca nut and in the various ingredients and condiments of the dry varieties present the addiction factors. Evidence from Gujarati areca users in London showed their degree of dependency as equivalent to that of cocaine users especially if there is tobacco in the pan masala that areca products induce a true dependency syndrome (Winstock et al., 2000). Typical dependency symptoms described included difficulty in abstaining, withdrawal symptoms including headache and sweating, need for a morning pan to relieve these symptoms and queuing outside the pan shops waiting for them to open and continuing sequential use, analogous to chain smoking.

The role of the media (subsequent to advertisement of macho and hep images) and of the government in promoting Pan substitutes because of good economic returns are major factors for the rising trend of their usage. Of more concerns are the Pan pasand candy and PM sachets easily available outside schools targeting the still younger age-groups. The seriousness of the problem is underscored by the fact that the oral cavity is the most common cancer site for males and the third most common site for females in Kerala, and oral cancer ranks among the top three cancers in most areas of India (Trock, 2000). This is bound to rise in Punjab where earlier oral cancer due to tobacco use was ignoble. Betel quid ingredients and tobacco supplementation along with areca nut constituents, smoking and alcohol all tend to promote OSF. The risk of oral cancer is increased in those who chew tobacco (in the form of pan, jarda etc.) as compared with non-chewers. Both men and women who consume tobacco face increased risks of developing one or more of nearly 25 diseases caused by tobacco consumption including various cancers and lung and circulatory diseases. Dr S C Kundu of the Indian Society of Tobacco and Health quoted that

as per the latest Indian Council of Medical Research (ICMR) study, every year over 1.6 lakh new oral cancer cases, 4.5 million cardio-vascular diseases cases and 3.9 million cases of chronic obstructive pulmonary disease (COPD) were identified as a result of tobacco use (Anon-ymous, 2001). Miscarriages, stillbirths, low-birth-weight babies and early neonatal deaths have also been associated with tobacco chewing among pregnant women (WHO, 1999). The observations of the present study also mime these consequences of PM/betel quid use as evidenced in terms of tobacco-supplementation, alcohol use, chewing time of the quid, presence of a disease profile and aberrant reproductive performance.

In order to subvert an epidemic of this cancer and since it can be preventable just by avoidance, the sale of PM/quid should be restricted/banned and campaigns made to educate the public, school and college students. Another study in south Asian communities of London revealed a general lack of awareness about the risks and signs of oral cancer, irrespective of community sub-group, gender, age or social class (Shetty et al., 1999). Times call for the strict implementation of the Indian Tobacco Products Bill 2001 enacted in May 2003 to regulate the promotion and sale of all tobacco products. There is also an imminent need to contact educationists, social workers and NGOs so that the younger generations do not develop this debilitating habit and become aware about the dire consequences of betel quid and/or pan masala usage. Education should especially include the short-term health consequences (tooth loss, destructive oral lesions, and so forth) as well as the disfiguring consequences of surgery because long-term health consequences are often not a strong motivator for adolescents and young adults (Tomer and Giovino, 1998). In two such large-scale educational interventions in India (Gupta and Ray, 2003), sizable proportions of tobacco users quit during 5-10 years of follow-up and incidence rates of oral leukoplakia measured in one study fell in the intervention cohort. There is a dire need for such measures throughout the country so that an oral cancer epidemic is avoided.

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