

## RESEARCH ARTICLE

# Initiating Smokeless Tobacco Use across Reproductive Stages

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### Abstract

**Background:** The use of smokeless tobacco (SLT) among women is increasing in India, especially among those with limited education and resources. Preventing the initiation of SLT among women is critical since it has known negative consequences for oral and reproductive health. Most research on tobacco initiation in India focuses on adolescents. This paper addresses the unrecognized issues of post marital initiation among women of reproductive age, highlighting the importance of reproductive stages in women's tobacco initiation. The objective is to examine the correlates of SLT initiation among low income women in Mumbai from pre-marriage through early marriage, first pregnancy and beyond, using case examples to illustrate initiation during each of these stages. **Materials and Methods:** In 2011-2012, cross-sectional community level survey data were collected from a representative sample of 409 daily SLT-using married women aged 18-40 years in a low income community in Mumbai. Information on socio-demographics, initiation by reproductive stage, types of tobacco use, childhood exposure to tobacco, learning to use, and initiation influences and reasons were collected through a researcher-administered survey. Univariate and bivariate analysis assessed factors influencing initiation of SLT use by reproductive stage. In addition 42 narratives of tobacco use were collected from a purposive sample of pregnant and non-pregnant married women addressing the same questions in detail. Narratives were transcribed, translated, and coded for key concepts including initiation of tobacco use. **Results:** Thirty-two percent of women initiated SLT use before marriage, 44% initiated after marriage but before pregnancy, 18.1% initiated during their first pregnancy and the remainder started after their first pregnancy. Mean age of marriage among women in this study was 16 years. Younger women (i.e. age at time of the interview of less than 30 years) were 0.47 [95% CI (0.32, 0.87)] percent less likely to initiate after marriage than women aged more than 30 years. Women who got married before 18 years of age were 2.34 [95% CI (1.40, 3.93)] times more likely to initiate after marriage than their counterparts. Childhood exposure was a predictor for initiating SLT use prior to marriage but not after. Women reporting tooth and gum pain were 1.85 times more likely to initiate after marriage than their counterparts. Husband and neighbours were the most significant influences on post-marital initiation. Narratives highlighted differences in processes of initiation pre and post marriage and during pregnancy. **Conclusions:** Most tobacco prevention interventions are directed to adolescents in school. This study suggests that especially for low literate or illiterate women, school based interventions are ineffective. To be effective strategies to prevent SLT initiation must reach women in urban areas at or immediately after marriage and during their first pregnancy. Messages must negate culturally rooted beliefs about the health benefits of SLT in order to prevent initiation and onset of daily use.

**Keywords:** Smokeless tobacco - India - women - mishri - pan - gutka - marriage - pregnancy - reproductive career

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### Introduction

Worldwide, tobacco use is one of the most preventable causes of morbidity and mortality. India is among the world's largest producers of tobacco and tobacco products, and many different forms of smokeless tobacco are consumed within the country (Reddy and Gupta, 2004; Gupta et al., 2011; Mishra et al., 2012). The prevalence of all forms of tobacco use is increasing in India (Rani et al., 2003; Reddy and Gupta, 2004; Parasuraman et al., 2008) and the widespread use of SLT is highlighted in the 2010 GATS-India survey (International Institute

for Population Sciences, 2010). Indian women rarely smoke tobacco. Only 3% reported any form of smoked tobacco use in the GATS survey 2010 and low use rates even among urban female teenagers continues to be the norm (International Institute for Population Sciences, 2010). However, it is culturally and socially acceptable for women to use tobacco in smokeless form. Recent studies have pointed to worrisome increases in women's SLT use, especially low income women in both rural and urban areas (Gupta, 1996; Parasuraman, 2005). Women bear a double health burden resulting from use of SLT because it is a cause of oral and oesophageal cancer and

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is associated with reproductive health including placental health, anaemia, low birth weight and premature births (International Agency for Research on Cancer, 2004; Gupta and Sreevidya, 2004; Gupta and Subramoney, 2006; Subramoney and Gupta, 2008). Despite these concerns few detailed studies of women's use of tobacco have been conducted that address the women's elimination of the smokeless tobacco products for purposes of prevention.

Women in India use different forms of smokeless tobacco. Among the most common are pan with tobacco, toasted and powdered tobaccos (gul, mishri, gudakhu), various forms of loose and packaged chewed tobacco flavoured with lime, supari (betelnut) and other spices and sweeteners and specialized tobaccos such as gutka, a highly addictive form of tobacco with added flavours and chemicals (Gupta and Ray, 2003; Reddy and Gupta, 2004; National Cancer Institute-Centers for Disease Control and Prevention, 2014). Epidemiologic studies consistently show that women initiate SLT later than men. A 1996 cohort study of tobacco use in Mumbai showed that the mean initiation age of nonsmoked tobacco was approximately 20 years (Gupta, 1996). Of 35529 women included in the GATS data, 2010, 4405 (18.5%) reported any current use of SLT and 14.2% were daily users; the mean age of initiation of daily use was 22.6 years. In a subsample of 1219 urban women from Maharashtra, 14% reported use and 12.4% reported using SLT daily. Mean age of initiation was 24.4 years (International Institute for Population Sciences, 2010) indicating a typical pattern of initiation in adulthood.

Tobacco initiation during adulthood especially for women has been seriously overlooked in the tobacco research and control literature where the primary emphasis has been on children and teenagers (Parasuraman, 2005; Sinha et al., 2008; Verma et al., 2015). The goal of preventing early initiation of SLT as well as other forms of tobacco, has led to school-based prevention efforts during early adolescent years (Arora et al., 2011; Verma et al., 2015). However the national surveys mentioned above show that later initiation of SLT use among women is not a recent phenomenon. Further, there is good reason to be concerned about later initiation of SLT because it may coincides with marriage and pregnancy. Despite strong evidence of late initiation a few number of researchers have reported tobacco initiation in adulthood (Ali, et al., 2009) and none has addressed initiation in women of reproductive age. Hence the present paper focuses on the initiation of smokeless tobacco among women by examining SLT initiation within the different stages of women's reproductive career i.e. premarital, post marital but prior to pregnancy, during first pregnancy, and afterward.

## Materials and Methods

### *Study design and sample*

Cross-sectional community level data were collected from 409 SLT-using married women between the ages of 18 and 40 years residing in one slum area in Mumbai during 2010-12. Data on socio-demographics, patterns of tobacco use, age at initiation, reproductive stage at

initiation, learning to use, reasons to use, and exposure to SLT during childhood were collected using a structured questionnaire, through administered face-to-face interview after obtaining written consent. In addition the study collected 42 in-depth interviews from a purposive sample of married female SLT users, half of whom were pregnant at the time of the interview. The study was carried out by an Indo-US partnership of the National Institute for Research in Reproductive Health (NIRRH, ICMR), Mumbai and the Institute for Community Research (ICR), Hartford, CT, with approval by NIRRH and ICR Institute's Ethical Review Boards. The methodology and details relating to sampling are provided elsewhere (Nair et al., 2015).

### *Study variables*

The study dependent variable is reproductive stages of initiation categorized as SLT use before marriage, after marriage but prior to first pregnancy, during first pregnancy and between pregnancies. For logistic regression analysis the variable were dichotomized as initiation of SLT use before and after marriage.

Independent variables included current age (<30/≥30) years, education (illiterate/ literate i.e. ability to read and write); native place (Uttar Pradesh/ Maharashtra/other States); source of learning to use SLT products (husband/ parent/ neighbour/friend/ relatives/by observation/others); type of tobacco used to initiate (mishri/ pan or betel quid with tobacco/ gutka/ chewed tobacco loose or in packets/ gul); current status of SLT use (user of only one product daily or polyuser i.e. using more than one product daily); place of initiation of SLT product (in Mumbai/ outside of Mumbai); childhood exposure to SLT (women exposed to SLT environment prior to 15 years of age from any closely associated users of SLT i.e. mother, father brother, sister, female friend, or neighbour using SLT; Yes/No), age at marriage (<18/≥18) husband's current use of SLT (Yes/ No) and reason for initiation (oral health/ other).

### *Analytic procedures*

Descriptive information about the study sample was generated based on frequencies and percentages. Bivariate analysis was carried out by examining the association of the dependent variable with each of the independent variables; percentage and chi-square test of association was performed and  $p < 0.05$  was considered as significant. Logistic regression analysis was carried out to examine predictors of SLT use after marriage with reference to before marriage. For qualitative analysis, interviews were grouped by initiation before marriage, after marriage and during first pregnancy. Blocks of text were coded for initiation, checked and extracted. All examples of initiation were reviewed, and typical descriptions of initiation before marriage, after marriage and during first pregnancy were selected for illustrative purposes in the paper.

## Results

### *Demographic and SLT related characteristics*

The mean age of women at the time of the interview

was 30.1 ( $\pm 6.2$ ) years and mean age at marriage was 16.2 ( $\pm 2.9$ ) years. Fifty four percent of women were Muslim and most (74%) resided in nuclear families. The overall mean age at initiation of any SLT product was 20.1 ( $\pm 7.5$ ) years. Thirty two percent of women initiated SLT use before marriage and 68% after marriage. Out of the total 44.5% initiated after marriage but before first pregnancy, 18.1% during their first pregnancy, and another 5.1% between pregnancies (Table 1). There was a significant association between current age and initiation of SLT

use by reproductive stages ( $p=0.01$ ). Further analysis showed that those who initiated prior to marriage were younger and those who initiated after marriage were older by a mean of three years. More literate women (39.8%) initiated use of SLT before marriage than illiterate women (26.0%). Woman's native place makes a difference in terms of initiation at any stage; those who initiated prior to marriage were from Maharashtra, and those who initiated immediately post marriage were from Uttar Pradesh ( $p<0.001$ ). Childhood exposure to SLT was found to be

**Table 1. Percentage of Women initiating SLT According to Reproductive Stage by Selected Background Characteristics**

Background Characteristics	Reproductive stage				Total N=409	p- value
	Before marriage N=132	After marriage but before first pregnancy N=182	During first pregnancy N=74	Between pregnancy N=21		
Current age (years)						
18-22	51.7	26.7	20	1.7	60	0.01
23-27	36.8	41.1	16.8	5.3	95	
28-32	28.7	43.7	19.5	8	87	
33-40	24.6	53.3	17.4	4.8	167	
Education						
Illiterate	26	50.7	16.6	6.7	223	0.16
Literate	39.8	37.1	19.9	3.2	186	
Native place						
Maharashtra	54.3	27.2	16	2	81	0.001
Uttar Pradesh	27.9	49.7	16.6	5.9	290	
Other States	18.4	42.1	34.2	5.3	38	
Initiated with type of SLT						
Mishri	54	25	17	4	100	0.001
Pan with tobacco	21.2	51.4	21.9	5.5	146	
Gutka	36.4	38.6	15.9	9.1	44	
Chew tobacco	27.6	53.4	15.5	3.4	58	
Gul	24.6	55.7	14.8	4.9	61	
Childhood exposure						
No	11.1	61.1	20.8	6.9	72	0.0001
Yes	36.8	40.9	17.5	4.7	337	
Age at marriage						
<18	24.4	49.3	20	6.3	270	0.0001
$\geq 18$	47.7	35.3	14.4	2.9	139	
Place of initiation						
In Mumbai	17.5	52.8	21.4	8.3	180	0.0001
Out of Mumbai	51.1	33.9	13.9	1.1	229	
Husband use SLT						
No	34.8	40	20.2	5.2	115	0.71
Yes	31.3	46.3	17.3	5.1	294	
Current status						
Single user	65.2	55.5	77	85.7	261	0.001
Poly user	34.8	44.5	23	14.3	149	
Total	32.3	44.5	18.1	5.1	409	

significantly associated with initiation of SLT use prior to marriage ( $p < 0.0001$ ).

Overall the main reason for initiating SLT use was alleviation of teeth and gum problems. The primary reason for initiating before marriage was pleasure (feel fresh, feel happy, like the smell and taste, and for passing time). The main reason for initiating post marriage but prior to first pregnancy was tooth and gum problems, while for initiating during first pregnancy the main reasons were to avoid symptoms of pregnancy (vomiting, nausea, morning sickness and gastric problems).

Survey data showed that the most common means of learning to use SLT before marriage was through friends (31.1%) and parents (25%) whereas for those who initiated after marriage but before pregnancy neighbours, (22.5%), relatives (22%) and by observing (21.4%) were the most commonly mentioned. During first pregnancy women mentioned learning to use SLT on their own by observation (32.4%) followed by neighbour (20.3%). About 12% of women learned to use SLT from their SLT - consuming husbands at different points in their post marital reproductive stages.

Of women who initiated prior to marriage, the largest percentage (40%) initiated with mishri. The highest percentage of initiators post marriage (41.2%) and during pregnancy (43.2%) began their tobacco use with pan with tobacco but 23% did so with mishri. The largest proportion of gutka users initiated between pregnancies though 12% did start their use before marriage. Among those who initiated SLT use before marriage 35.6% became poly users at the time of interview, whereas among those who initiated after marriage but prior to first pregnancy, 44% were became poly users (Table 1), a statistically significant difference ( $p < 0.001$ ).

*Predictors of initiation of SLT use during post marriage as compared to pre marriage*

Younger women (i.e. age at time of the interview of less than 30 years) were 47% [95% CI (0.32, 0.87)] less likely to initiate after marriage than women aged more

than 30 years. Women who got married before 18 years of age were 2.34 [95% CI (1.40, 3.93)] times more likely to initiate after marriage than their counterparts. Childhood exposure was a predictor for initiating SLT use prior to marriage but not after. Women who reported oral health problem were 85% more likely to initiate after marriage than their counterparts. Mumbai was the place of initiation of SLT use after marriage.

**Narratives of SLT Initiation**

The following narratives, extracted from SLT in the in-depth interviews, illustrate how and why initiation of SLT begins before marriage, immediately after marriage and during first pregnancy. They highlight some of the main predictors of initiation and illustrate the contexts, processes and influences by which women try or experiment with different forms of SLT and ultimately decide to continue using it.

*Prior to marriage*

*“When I was 6 year old, I started eating pan. My father was eating pan. So I learnt from my father. The other thing is we had a general store in my native place. In that shop we would keep pan and gutka. My whole family (my mother, my father and sister) eats pan. The first time my father had given me supari (beetle nut) and pan, and I liked that pan and the taste of supari (beetle nut). So from then I started to eat. At that time I was eating 3 to 4 pan in a day. I was 13 year old. My mother would say “Will you eat pan after your marriage” And I always thought that the “red colour” (of pan) doesn’t look good. So when I was 13 year old I started eating gutka. And my brother’s wife was eating Pukar gutka and gutka. So I took one packet and I ate it. I very much liked the taste of gutka that time, but I again started pan with surti tobacco. When I added surti (Tobacco) it would give me the same taste like gutka. So I was eating both the products pan and gutka. But after 3 years we (sister-in-law) separated, after that I started eating pan again. I am eating up till this pregnancy. [P*

**Table 2. Reasons for Initiating Smokeless Tobacco by Reproductive Stage**

Main Reasons for initiating SLT use	Before marriage	After marriage before first pregnancy	During first pregnancy	Between pregnancies	Total
	N=132	N=182	N=74	N=21	
<b>Health problems</b>					
Teeth and gum related problem	28.8	54.9	27	57.1	41.6
Stomach problem (gas)	9.1	7.1	19	9.5	9.1
Pregnancy related problems	0	0	32.4	0.0	6.8
To reduce tension	11.4	4.9	0	0	5.9
<b>Pleasure</b>					
To feel fresh, happy	18.9	9.3	2.7	23.8	12
Like smell and taste	14.4	7.7	1.4	0	8.3
Time pass	14.4	9.3	13.5	4.8	11.5
Curiosity	3	6.6	4.1	4.8	4.9

2: pregnant woman, born in UP, 15 years in Mumbai, 22 years old, one 5 year old child, Line 142].

"I never got a chance to go to school, because my mother was always outside the home for work. So I had to look after my brothers and sisters and I even started to cook at the age of 7-8 years. Poverty is very bad so this is the story. There only I learnt to use Mishri. My aunty used to rub Mishri. One day I had toothache. So my aunty advised me to put mishri in the mouth. Then I felt relief, from then slowly I got habituated to it" [P 5: non pregnant woman, born in rural Maharashtra, 20 years in Mumbai, 32 years old, 2 children. Lines 32-35].

#### After marriage but before pregnancy

"After coming to Mumbai I learnt to eat. See my husband brings pan, for toothache I ate pan. When my husband comes in the evening that time he brings, from one year he is bringing. My husband only suggested me to eat and nobody else suggested. He said that it is good to eat for toothache; [P 1: pregnant woman, first child, born in UP, 6 years in Mumbai, 22 years old, started using SLT one year ago for toothache: L 132]

"Before marriage I never tried because in my maternal home nobody in my family ate. But after marriage, means, within three -four months, when we went for shopping, marketing that time my husband saw one other women who was eating pan and he liked that. So one day he brought pan for me and I ate that. After eating pan I felt good. Since then I started eating pan. He always tells me that when we eat pan, we feel good, there is no bad smell

**Table 3. Predictors of SLT Use after marriage**

Background characteristics	Adjusted odds ratio (95% CI)
Current age (years)	
<30	0.53 (0.32, 0.87)
≥30	1.00
Education	
Illiterate	0.90 (0.53, 1.52)
Literate	1.00
Native place	
Maharashtra	0.22 (0.08, 0.62)
Uttar Pradesh	0.51 (0.19, 1.33)
Other States	1.00
Childhood exposure	
No	1.00
Yes	0.34 (0.15, 0.77)
Age at marriage (years)	
<18	2.34 (1.40, 3.93)
≥18	1.00
Reason for initiation	
Oral problem	1.85 (1.13, 3.02)
Other	1.00
Place of initiation	
In Mumbai	4.03 (2.47, 6.58)
Out of Mumbai	1.00

in the mouth, it helps in good digestion, our desires are also fulfilled and there is some change of flavour in the mouth. [P20. Non pregnant woman, born in UP, 20 years in Mumbai, 35 years old, 19 year old daughter: L 064]

"For one year (after marriage) my husband was very loving and after that he started abusing me, hitting me probably they have done black magic on him. But I never complained about him to my maternal family. For 8 years I kept it to myself. I come from a very good family. I really didn't know life would be so traumatic after getting married. My parents and my brothers loved me a lot. But I can't leave him (husband), because once a girl is married she has to be with her husband in any circumstances. Madam but where can I go leaving my husband. After beating me he would go out of the house, after that I use to start sobbing and then I had the urge to eat something, so that time I started using tobacco to reduce my stress. But since 3 years by the grace of God he is better and he treats me well" (P24, Nonpregnant woman, born in UP, 12 years in Mumbai, 28 years, 4 children, L38)

"Madam after my marriage I went to my native place to stay with my in-laws. May be I was 13 year old that time. See at my in-laws place everyone eats pan and tobacco like my father in -law, my mother in-law, brother in-law and my husband also eats tobacco and pan with 'bhola' tobacco. Everyone uses 'bhola' tobacco with pan, so I was observing them and I got tempted to eat pan. So when no one was at home I had seen my mother in-law keeping a small "Pan Box" and I ate without letting anyone know. My mother in-law's pan box is quite big. There are many items because many small sections were there in that box. It had pan, supari (beetle nut), tobacco, chuna (Lime) and katha (catechu). I tried all the content in small amount. On the very first day I chewed only two pan one in the morning and one in the evening because in the afternoon, all the family members were present at home for lunch. In the morning and evening time no one was there, so when no one was around that time I ate, but one day my mother in-law caught me. At that time my mother in-law said "you can eat how does it matter to us, eat how much ever you want". After that I really increased my intake of eating pan, after that I didn't have any count. Per day I was eating 10 pan and soon everyone came to know about it. So I didn't have any fear. I had started chewing "om pudi tobacco" at the same time". [P42, non-pregnant woman, born in Ulhasnagar, Maharashtra (near Mumbai) 15 years in Mumbai, 40 years old, 5 children: L201]

"I have habit of eating pan since my second delivery. After my second delivery on that day my teeth was paining very badly so I went to the nearest doctor and I told him then he told me I had a problem of pyorrhea so he suggested me to eat pan and said that then I would get relief. When I started eating pan after that one year later my teeth fell off. After that I became habituated. When I ate first time I had taken half pan and pakki supari (beetle nut), and Jagat surti tobacco, lime (the first time). I was eating little bit and I got relief from toothache. The first day I ate two times means half pan then the second day I tried whole pan, then third day I tried two pan when I ate for the first time I liked the taste so I tried and chewed it again and again. Means after one week or after fifteen

days I have started eating 4 to 5 times". [P26. Pregnant woman, born in UP, 3 years in Maharashtra, 30 years, 4 children: L 65]

#### *During pregnancy*

"I never used it before, but in this pregnancy I started getting some kind of watery sensation in my mouth. I was talking to my aunty about it and she told me to apply. I applied it and washed my mouth, because when I had for the first time I felt giddy". [P 12 Pregnant woman, born in UP, 23 years old: L 128]

"See after the 3rd delivery I started having pan, because doctor told me to eat pan. When I went to the doctor for toothache, means when I had pain in my tooth, he (doctor) asked me did you eat pan after the delivery. I said no, that time he suggested me to eat one or two pan in a day, after I came here my neighbour also told me to eat pan because after delivery whole body becomes weak and even teeth becomes weak and in the future teeth will fall. So it is very necessary to eat pan after delivery". [P 39 Non-pregnant woman, born in Mumbai, 26 years old, 4 children: L 84]

"I started pan after my 1st delivery. May be my child was 3 year old that time. One day I had a serious stomach pain and I went to the doctor in my native place. Doctor said that I have gas problem and because of indigestion I had severe pain. He didn't give me any medicine, he told me to smoke hookah, but I didn't do that. My mother-in-law told me to eat pan with tobacco, so I started to eat pan". [P30. Pregnant woman, born in UP, 10 years in Mumbai, 35 years old, 4 children].

## Discussion

The present study shows that the majority of women initiated SLT use after marriage. The pattern of later initiation of SLT among women appears to be widespread both in India and elsewhere in the SEAR region (WHO, 2010). Though overall mean age of marriage in India is rising, 31% of urban compared to instead of and 66% of rural women marry at the mean age of 16 (Division-of-Statistics, 2011) and this is true for present study as well. Since mean age at marriage is low and the mean age of initiation of any tobacco use among women in this study was approximate 21 years of age targeting prevention messages to adolescent girls is unlikely to have an impact upon adult married women.

The likelihood of initiating tobacco use before marriage was greater for women exposed to parents' and relatives' use of SLT in childhood. Other studies have also shown that tobacco consumption is common in those unmarried adolescents whose parents consumed SLT (Ravishankar and Nagarajappa, 2009; Nitin et al., 2010).

The present study showed that women who start their tobacco use prior to marriage, tend to initiate with mishri, a toasted and powdered tobacco, traditionally prepared at home and available in prepared packets. Mishri is widely used as a tooth cleanser throughout Maharashtra by children and adults and parents justify children's use as a mouth freshener or digestive aid (Gupta and Ray, 2003;

Rani et al., 2003). Girls learn to use SLT by observing and through parental oral hygiene instructions and continue over time (Nair et al., 2015). The strongest motivating factors for women's initiation of SLT in other Indian studies were curiosity, finding the product at home, liking the smell and taste (Ravishankar and Nagarajappa, 2009), relief from stomach problem or abdominal pain, feeling better and easing abdominal pain during menstruation (Narayan et al., 2011). In the present study relief of health related symptoms including teeth pain was more commonly reported after marriage, relief from pregnancy symptoms cited during pregnancy and pleasure (taste and smell, boredom relief etc.) were and the primary reason for initiation prior to marriage.

Pan with tobacco was the most popular form of tobacco initiated after marriage as well as during first pregnancy. Chewing pan or betel quid is a widespread cultural practice and social norm in India. Betel leaf or pan is known to aid digestion, ease inflammation, sooth stomach problems and strengthen teeth, and is demonstrated to have multiple healing properties (Khan et al., 2011; Sazwi et al., 2013; Gundala and Aneja, 2014). Mishri is used as a tooth cleanser. These beliefs help to explain why mishri users tend to initiate early and before marriage, and pan with tobacco and chewed tobacco users tend to initiate later post marriage and during pregnancy. Any initiation immediately prior to or during pregnancy is of concern because SLT had been shown clearly to have adverse effect on both maternal and child health.

Place of initiation also is a significant factor. The majority of premarital initiators were native to Maharashtra where use of mishri is common and begins early, and they began their use in Mumbai. Post-marriage initiators were long term migrants to Mumbai (10 years of residence or more) from Uttar Pradesh and other areas of the country where gul and chewed tobaccos were used and most post marriage initiators also started their use in Mumbai after marriage, and before their first pregnancy. A small percentage (10-14%) started their use after marriage and/or during pregnancy while staying with their in-laws. These patterns help to illustrate how SLT is embedded in the culture, daily lives and reproductive careers of low income women. In this study more than 10% of initiators began their SLT uses with gutkha, an especially addictive and carcinogenic type of packaged tobacco. The current ban on gutka in most states in India may prevent women from initiating their SLT use with this addictive and carcinogenic form of tobacco, but it is still available although expensive and more difficult to purchase in shops or on the black market (Nair et al., 2012; Dhumal and Gupta, 2013). Further, various replacements for gutka (tobacco with flavours, and chemicals in separate packets) can be purchased and used as replacements for gutka. More research is required to evaluate the efficacy of the gutka/pan masala ban in preventing both adult initiation and continued use.

Contextual factors influence SLT initiation. A common reason for initiating SLT use at an early age was peer pressure. The present study showed that approximately 23.8% of women who initiated SLT prior to marriage

were motivated by their friends. On the other hand, married women overwhelmingly initiate their SLT use after marriage and attribute their post marital initiation to their husbands, friends and neighbours and to observation of others' use. The densely inhabited environment that typifies urban slum communities provides a setting in which women rub powdered tobacco and chew pan and loose/packaged tobacco in public, with their families and with neighbours without fear of criticism or disapproval. Further, tobacco products are easily accessible, available and cheap and social norms support women's freedom especially post-marriage, to purchase and use SLT products in private and in the public sphere (Schensul et al., 2013).

Most prevention programs for youth focus on school settings but this may be too late for late initiators and those out of school. Effective prevention for premarital initiation could begin with parental avoidance of SLT use especially in the presence of children, and contextual monitoring to prevent early exposure to use. Finally, intervention and tobacco control researchers have generally taken the position that that early initiation which includes the premarital period is more likely to result in higher levels of tobacco use later on. Our study shows that, to the contrary, a significantly higher proportion of women who initiate after marriage but before pregnancy become poly SLT users. This suggests that prevention programs must be directed to women after, as well as before marriage and must dispel myths about the value of tobacco use for health especially during pregnancy.

This study shows that the majority of women SLT initiators are older and married when they initiate their use and that they continue to initiate during first pregnancies and later. Women who initiate after marriage and during their first pregnancy are a very important and overlooked risk group that consumes as much or more tobacco over time as their unmarried counterparts and runs a high risk of reproductive health problems. Distinctly different motivating factors and social influences characterize women's initiation at different stages of their reproductive careers. Families of unmarried female children and teens who are early initiators of SLT and women who are newly married and first time pregnant should be targeted with tailored education programs and campaigns to delay or prevent initiation, and to avoid the long term effects of SLT use among women of reproductive age.

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