

Difference in Gender Perception Regarding Smokeless Tobacco; A Cross Sectional Survey from Karachi Pakistan

NOUSHEEN Iqbal (✉ nousheen.iqbal@aku.edu)

Aga Khan University Hospital; Jinnah medical and dental collage <https://orcid.org/0000-0001-5026-9874>

Muhammad Dawood Amir Sheikh

Aga Khan University Medical College Pakistan

Urooj Riaz

Jinnah Medical and Dental College

Muhammad Irfan

Aga Khan University Hospital

Safia Awan

Aga Khan University Hospital

Muhammad Waqas Khan

Jinnah Medical and Dental College

Sohail Bana

Jinnah Medical and Dental College

Javaid Khan

Aga Khan University Hospital

Research article

Keywords: Smokeless tobacco, gender difference, perception

Posted Date: November 24th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-113069/v1>

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Abstract

Background

Smokeless tobacco (SLT) consumption is high in south Asia where it is a leading cause of head and neck cancer. However, limited data available on the perception of SLT consumption among males and females.

Methods

A cross-sectional survey was conducted from October to December 2018 in five major hospitals of Karachi Pakistan. All male and female, using SLT were first identified through random convenient sampling and then interviewed, 500 participants were approached and 455 were consented to participate in the study.

Results

Out of 455, 286(61.9%) were male, the mean age was 36.8 ± 13.4 years. Among them 97(34%) males and 3(1.8%) females were also using cigarettes. Major reason for starting SLT among women was the norm of family 56(33%) followed by emotional stress relief 53(31%), while among male 69 (24%) started for emotional stress relief followed by the curiosity of trying something new in 59 (20.6%). Both male 205(71.7%) and female 130(76.9%) think it is less harmful than smoking while 44% (127) male and 63(37%) female think it's bad for health. Only 100(35%) of men and 71(42%) of women believed that SLT use could cause cancer.

Conclusion

Smokeless tobacco is considered as less harmful among males and females. Social acceptability was also found to be common. Awareness regarding the harmful effect of SLT is required among both males and females.

Background

With an annual death toll of 6 million, tobacco use is one of the leading causes of preventable deaths across the world (1). The majority of tobacco related illnesses are attributed to the use of smokeless tobacco (2). Smokeless tobacco (SLT) is a term that encompasses different tobacco products consumed orally or nasally in an unburned form. More than 300 million people use SLT worldwide. South Asia is the leading manufacturer of these products, responsible for 85% of the disease burden (3). Guthka, Pan Masala, Khaini, Zarda, and Gul are the most regularly used SLT products in South Asia (4). They are taken in the body via chewing, sucking, sniffing, or by applying them to the teeth and gums (5).

Studies have shown the strong association of these substances with head and neck malignancies (6). More than 30 different carcinogens have been identified in these products including nicotine,

nitrosamines, arsenic, beryllium, cadmium, and nitrates. (7). Patients addicted to tobacco products have an increased risk of cardiovascular disease. Other major side effects include dental cavities and tooth decay (8). Women bare additional side effects such as delivering low birth weight children and suffering from a greater risk of stillbirths (9).

Despite these proven side effects, SLT use remains prevalent in South Asia. Together, an estimated number of 100 million SLT users belong to India and Pakistan (10). In Pakistan 16.2% of men and 2.4% of women regularly indulge in SLT use (11). Meanwhile in India 33% of men and 18% of women consume SLT (12). On the other hand, in Bangladesh more women tend to use SLT than men. Around 28% of women are SLT users in Bangladesh compared to the 26% of men (12). There is a staggering difference in SLT consumption in South Asia compared to the European region. While in Sweden the overall prevalence of SLT use was about 20.7% in men and 3.5% in women, the majority of European countries had a combined estimate of 1.2% male and 1.1% female SLT users (13)

A 2006 study in Pakistan reported some of the common misconceptions regarding SLT use including the use SLT to relieve toothache, stomach aches, and headaches (14). Similarly, a study published in Bangladesh in 2015 also reported how many people consider SLT a cure for toothache despite its known side effects. This study also pointed out how people perceive SLT use as a part of their culture and how family dynamics play a role in the initiation of SLT use (15). Studies in India have also been conducted to understand the rising use of SLT in women. Even though traditionally the women of South Asia have been discouraged from smoking, there is no such taboo on SLT. In fact, it is encouraged. Women have been shown to use SLT to connect with their husbands via shared use and as a means to relieve stress (16).

Thus, it is imperative to understand these different perceptions among men and women as they directly influence their decision to start SLT use. In Pakistan, limited data available on perceptions of SLT consumptions among men and women. Only by understanding these different perceptions can successful health strategies be employed to combat these rising trends.

Methods

This was a cross-sectional survey conducted at five different major hospitals of Karachi Pakistan which included Jinnah Medical and Dental collage (JMDC), Jinnah Postgraduate medical center (JPMC), Abbasi Shaheed hospital, Dow university health science affiliated Civil Hospital Karachi and Ojha institute of chest disease (OJHA). Data were collected from October to December 2018. A random Convenient sampling technique was used. Patient or attendants who were visiting the hospital outpatient department were randomly selected and asked whether they use SLT. If the answer was yes they were brief about the topic beforehand, invited to participate in the study and a written, informed consent was obtained.

Taking the frequency of 50% with 95% confidence interval and 5% (0.05) bound on error of estimation. A sample of 400 participants was needed in the study. A total of 500 participants were approached and 455 were consented to participate in the study. The study was approved by the ethical review board of JMDC.

Inclusion criteria were: Age 18 years and above, Current user of SLT, Willing to participate and give consent. Exclusion criteria were not using SLT and not willing to give consent for participation.

The data was gathered on predesigned pro forma (**Supplementary file**) by volunteers (which included Final year medical students). Questionnaire included basic demographics, duration, and types of SLT, age when it was started, reasons for starting SLT, whether they have tried to quit or not, their perceptions about SLT. Since there is a variable form of SLT it was difficult to name them so SLT was classified into two categories (1)Chewing tobacco is defined as tobacco that is placed in the mouth between cheeks and lower lip and can be chewed like pan ,gutka, and naswar. Pan masala is defined as a mixture of areca nut with slaked lime, catechu, and other flavoring agents.

We assessed and compared the degree of addiction by using The modified Fagerstorm scale adapted from previous studies (17, 18). The components of the modified Fagerstorm scale aim to assess the quantity of SLT consumed by the respondent and the compulsion to use smokeless tobacco. The questions are summed to yield a total score ranging from 0 to 10.The higher the score, the greater the dependence. All the collected data later were de-identified in order to maintain the confidentiality of study participants.

Statistical analysis

Descriptive statistics were used to summarize baseline characteristics of participants by sex. Quantitative data were expressed as mean and standard deviation (SD) and number of observations with percentage (%), respectively. To evaluate the association between sex and perception related to smokeless tobacco and each of factors, -test or Fisher's exact tests of independence were used to compare proportions where appropriate, and the Student's t-test was used to analyze continuous data. All p-values were based on two-sided tests and significance was set at a p-value less than 0.05. The analyses were performed using SPSS (Statistical Package of Social Sciences) version 19.

Results

Out of a total of 455 participants, 61.9% were male and 38.1% were female. The mean age of male and female participants was 36.8 ± 13 and 39.5 ± 12 respectively. In study 181(63.3%) of the men and 141(83.4%) of the women were married and engaged in SLT use ($p < 0.0001$). Among SLT user compared to 3(1.8%) of women, 97(33.9%) of men were also indulge in smoking cigarettes ($p < 0.0001$). The majority of men 176(61.5%) preferred using chewing tobacco compared to majority of the women 95(56.2%) who preferred pan masala ($p < 0.0001$). Both men 106(37.1%) and women 79(46.7%) started using SLT in the 21–30 years of age group. It was alarming to found that 8(2.8%) of males started SLT < 10 years of age and 94(32.9%) of males in the 10–20 years of age that signify the early use of SLT among males compared to women.

We found that 206(45.3%) of study participants were first introduced to SLT by family, which included 104(61.5%) women and 102(35.7%) men ($p < 0.001$). The major source of obtaining SLT was local vendor

324(71.2%), however, a large number of women 71(42.0%) also feel more comfortable getting SLT from family and friends ($p < 0.0001$). Major reasons for starting SLT among males was emotional stress relief 69(24.1%) followed by curiosity to try something new 60(21.0%) while among women major reasons were SLT as the norm of family and friends 56(33.1%) followed by emotional stress relief 53(31.4%) ($p < 0.0001$).It was interesting to note that 55(19.2%) of men were suing SLT for smoking cessation purposes. (Table 1)

Table 1
Baseline characteristics for study participants

Total n = 455	Male n = 286	Female n = 169	P value
Age	36.8 ± 13.4	39.3 ± 12.1	0.04
Marital Status			< .0001
Married 322 (70.8%)	181(63.3%)	141 (83.4%)	
Single 133(29.2%)	105(36.7%)	28 (16.6%)	
Education Status			0.12
Uneducated 170 (37.4%)	102 (35.7%)	68 (40.2%)	
Primary 84 (18.5%)	52 (18.2%)	32 (18.9%)	
Secondary 82 (18.0%)	61 (21.3%)	21 (12.4%)	
Higher secondary 119 (26.2%)	71 (24.8%)	48 (28.4%)	
Smoking Tobacco			< .0001
Yes 100 (22.0%)	97 (33.9%)	3 (1.8%)	
No 355 (78.0%)	189 (66.1%)	166 (98.2%)	
Type of smokeless tobacco			< .0001
Chewing tobacco 250 (54.9%)	176 (61.5%)	74(43.8%)	
Pan masala 205(45.1%)	110 (38.5%)	95(56.2%)	
Age of starting SLT use			0.001
< 10 yrs. 8 (1.8%)	8 (2.8%)	0	
10–20 yrs. 128 (28.1%)	94(32.9%)	34(20.1%)	
21–30 yrs. 185 (40.7%)	106(37.1%)	79(46.7%)	
31–40 yrs. 102 (22.4%)	54(18.9%)	48(28.4%)	
> 40 yrs. 32 (7.0%)	24(8.4%)	8(4.7%)	
First exposure to SLT use			< 0.0001
Family 206(45.3%)	102(35.7%)	104 (61.5%)	
Environment 57(12.5%)	49(17.1%)	8 (4.7%)	
Workplace 95(20.9%)	64(22.4%)	31(18.3%)	
Friends 97(21.3%)	71(24.8%)	26(15.4%)	
Source of obtaining SLT			< 0.0001

Total n = 455	Male n = 286	Female n = 169	P value
Local vendor 324(71.2%)	241(84.3%)	83(49.1%)	
Family/friends 100(22.0%)	29(10.1%)	71(42.0%)	
Workplace 31(6.8%)	16(5.6%)	15(8.9%)	
Major reasons of starting Smokeless tobacco			< 0.0001
Emotional stress relief 122 (26.8%)	69(24.1%)	53(31.4%)	
Norm of family/friends 105 (23.1%)	49(17.1%)	56(33.1%)	
To try something new 98 (21.5%)	60(21.0%)	38(22.5%)	
For smoking cessation 57 (12.5%)	55(19.2%)	2(1.2%)	
Peer pressure 35 (7.7%)	34(11.9%)	1(0.6%)	
Introduced by someone 38 (8.4%)	19(6.6%)	19(11.2%)	

Perception related to SLT shown in (Table 2). While assessing the awareness of the health consequences of using SLT 205 (71.7%) of men and 130(76.9%) of women identified SLT to be less harmful than smoking cigarettes. Overall 127(44.4%) of men and 63(37.3%) women were aware that SLT is deleterious to health. Among study participants, 175(61.2%) men and 89(52.7%) women were of the opinion that SLT is not harmful to pregnant women. It is alarming to note that only 100(35%) men and 71(42%) women believed that SLT use could cause cancer.

Table 2
Perception related to smokeless tobacco

Total n (%)	Male n (%)	Female n (%)	P value
Do you think	205(71.7%)	130(76.9%)	0.29
It is less harmful then smoking?	20 (7.0%)	13(7.7%)	
Yes 335(73.6%)	61(21.3%)	26(15.4%)	
No 33(7.3%) Maybe 87(19.1%)			
More harmful then smoking?	60(21.1)	13(7.7)	0.01
Yes 73(16.0%)	226(78.9%)	156(92.3)	
No 382(83.95%)			
Is smokeless tobacco bad for health?	127(44.4)	63(37.3)	0.13
Yes 190 (41.7%)	159(55.6)	106(62.7)	
No 265 (58.2%)			
Is it harmful for pregnant women?	111(38.8%)	80(47.3%)	0.07
Yes 191(42.0%)	175(61.2%)	89(52.7%)	
No 264(58.0%)			
Does Smokeless tobacco cause cancer?	100 (34.9%)	71(42.0%)	0.13
Yes 171 (37.58%)	186 (65.0%)	98(57.9%)	
No 284 (62.41%)			

We found a dependency score of 8/10 in 101(35.3%) of men while 52(30.8%) of women reported a dependency score of 7/10. Among men 31(10.8%) and among female 7(4.1%) had a 10/10 dependency score. Men generally admitted to consuming more pouches of SLT compared to women. More men reported using SLT as an eye-opener in the mornings. Hence our study showed that men had a stronger addiction than women (p value 0.002). We also found that only 95(33%) of males and 53(31%) of females tried to quit but failed. (Table 3)

Table 3
Dependency scale* of smokeless tobacco (p value 0.002)

Dependency scale(1–10)	sex		Total
	male	female	
2	2	3	5
	.7%	1.8%	1.1%
3	1	1	2
	.3%	.6%	.4%
4	2	4	6
	.7%	2.4%	1.3%
5	11	5	16
	3.8%	3.0%	3.5%
6	25	25	50
	8.7%	14.8%	11.0%
7	54	52	106
	18.9%	30.8%	23.3%
8	101	50	151
	35.3%	29.6%	33.2%
9	59	22	81
	20.6%	13.0%	17.8%
10	31	7	38
	10.8%	4.1%	8.4%
Modified Fagerstorm scale *			

Discussion

This study has addressed the gender perception related to SLT which was not studied before from our country. Around 8.6% of Pakistan's population uses SLT in the 2014 survey (19). Our study revealed that marital status, age of initiation, source of SLT, concurrent smoking, first exposure, and reasons for starting SLT use were positively correlated among men and women. While previous studies (14, 20) on SLT use in South Asia have directly linked low educational status to the prevalence of SLT in the region, our research did not find a significant correlation between educational status with SLT. Our respondents

comprised of varying educational statuses (uneducated, primary, secondary, and higher secondary levels) and SLT appeared to be prevalent in all of them. This necessitates the need for anti-tobacco campaigns to target not only the uneducated sector but also reinforce the harmful repercussions of using SLT products in the educated sector of the country.

The age at which participants started using SLT was an alarming concern. While most of the participants were in the 21 to 30-year age group, a significant number of people, mostly men had also started using SLT products in the 10–20 years age group and even in the less than 10 years age group. These findings are also supported by a 2013 Global Youth Tobacco Survey which revealed that 7.3% of Pakistani youth from ages 13 to 15 years of age indulge in SLT (21).

SLT is a part of Pakistani Culture. It is widely used in public occasions and celebrations in a form of a dish called 'Paan'.(22). Paandan are passed on to women as part of their dowry (23). Both men and women have identified using SLT to relieve emotional stress. The turbulent relationship of Nicotine in tobacco and the human stress response has been extensively studied in the literature. Nicotine cessation is known to aggravate anxiety and stress, resulting in nicotine dependence (24, 25). A majority of women revealed using SLT because it was the norm among family and friends. Therefore, this greater social acceptability allows women to casually indulge in SLT use in their households. More men have identified using SLT as an alternative to cigarette smoking. The perception that SLT is less harmful than cigarette smoke attributes to their decision to start using SLT. There is an existing ethical debate regarding the use of SLT as an alternative to cigarette smoking as a harm reduction strategy despite its known side effects (26, 27).

Our study also revealed that a majority of both men and women are not aware of the carcinogenic properties of SLT. The world health organization (WHO) has identified SLT as the leading cause of oral cancer (28). A systemic review of Indian studies on SLT found a significant association between SLT and oral, pharyngeal, laryngeal, esophageal and stomach cancers. Further analysis on the bases of gender revealed that women using SLT had a higher risk of oral but lower risk of esophageal cancer compared to men (29). Both male and female participants were generally unaware of the effects of SLT and pregnancy too like low birth weight, preterm birth, still birth and long for gestational age (30).

Pakistan is part of the WHO's Framework Convention for Tobacco Control (FCTC)- (31). One of the aims of the FCTC is to use effective government policy to ban the sale of tobacco products to minors. However there seems to be a mismatch between Pakistan's stance on SLT and implementation of policy on a local level. While the government has made strides in combatting tobacco use, the focus of its efforts has primarily been on cigarette smoke rather than tobacco as a whole (32, 33). SLT is widely sold and relatively accessible to adults and adolescents in the country. There is no check on SLT products, which are being sold without any health warnings (34). Therefore, effective measures need to be taken to address the burden of SLT use in the nation. There is a dire need for anti-Smokeless tobacco campaigns to target not only adults but also adolescents of various socioeconomic backgrounds.

Limitations

To our best knowledge this was the first study that have seen difference in gender perception but it has few limitations, (1) We relied on self-reported estimates of SLT misreporting of tobacco through self-report cannot be ruled out. (2)We did not use biochemical verification techniques due to financial limitations. Further studies should incorporate a broader study population and use biochemical validation measures.

Conclusion

SLT is considered as less harmful among males and females. Social acceptability was also found to be common. It is imperative for men and women to be educated regarding the health consequences of SLT because of its high prevalence and social acceptability in South Asia. Health strategies and awareness campaigns need to be employed to combat this rising burden. Further, follow-up studies are required to monitor the awareness program regarding tobacco both smoking and smokeless.

List Of Abbreviations

Smokeless tobacco (SLT)

Jinnah Medical and Dental collage (JMDC)

Ojha institute of chest disease (OJHA)

World health organization (WHO)

Framework Convention for Tobacco Control (FCTC)

Declarations

• Ethics approval and consent to participate:

The study was approved by the ethical review board of JMDC. Informed written consent was obtained from the patient or attendant next of kin for participation in the study.

• Consent for publication :

Not applicable

• Availability of data and materials:

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

• **Competing interests:**

None to declare

• **Funding :**

None

Authors' contributions

NI has made contributions in has made contributions to conception and design, interpretation of data, drafting the manuscript and revising it critically for important intellectual content.

MDAS has made contributions in conception and design, interpretation of data, drafting the manuscript and revising it critically for important intellectual content.

UR has made contributions to conception and design, interpretation of data, drafting the manuscript and revising it critically for important intellectual content.

MI has made contributions in conception and design, interpretation of data, drafting the manuscript and revising it critically for important intellectual content.

SA has made a contribution in statistical analysis and interpretation of data.

WK has made contributions in conception and design, interpretation of data, drafting the manuscript.

SB has made contributions in conception and design, interpretation of data, drafting the manuscript.

JAK has made contributions in conception and design and revising it critically for important intellectual content.

All authors read and approved the final manuscript.

• **Acknowledgements:**

None

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