

Oral Hygiene Practices and Choice of Oral Hygiene Products among Smokers and Betel leaf Chewers: A Comparative Study

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ABSTRACT

Background and Objectives: Globally, 1.1 billion people use tobacco for smoking and the use of nonsmokable tobacco products have also been increased over the couple of decades. This study was to assess the oral hygiene practices and choices of oral hygiene products among smokers and beetle nut chewers. This study also compares the oral hygiene practices among them.

Methods: A purposive sample of 389 subjects was recruited for this comparative cross-sectional study. Self-administered questionnaire including sociodemographic information, tobacco consumption, choice of oral hygiene practices and oral hygiene products was used. Descriptive statistics were calculated for comparison between non-smokers and smokers in terms of sociodemographic awareness regarding impact of smoking on oral health and Chi-square test was used to observe to compare oral hygiene practices among smokers, betel leaf chewers.

Results: The participants were consuming tobacco on daily basis and the unit consumption per day (Mean = 4.7, SD = 2.2) was also significantly high. Time spent on cleansing of teeth was sufficient (Mean = 1.5, SD = 0.7) but the brushing teeth at least two times a day was the only oral hygiene practice followed by meager (42.9%) but highest in number among the study participants. Use of oral hygiene products including toothbrush, miswak, dental floss and mouth wash were popular among the people. Oral hygiene practices were significantly different ($P < 0.05$) among smokers, betel leaf consumers.

Conclusion: Study concludes that oral hygiene practices among smokers are better than those who are betel leaf chewers. Moreover, most common use of oral hygiene products among people includes tooth-brush, miswak, dental floss and mouth wash.

KEYWORDS: Oral hygiene, Smokers, Areca, Tobacco use, Tobacco products.

INTRODUCTION

The sustained popularity of tobacco use seems to challenge rational explanation.¹ Generally, tobacco users admit the adverse effects of tobacco consumption on health and they also confirm the lack of pleasure – yet they continue to use it.² In case of cigarette smoking, a reason may be explained with the urge to smoke which is usually driven by the nicotine from cigarettes that weaken and devastated the concerns about the potential adverse impacts of smoking on oneself.¹ Other than smoking, the use of tobacco with betel leaf and areca nuts is also a common form of addiction especially in South Asian countries.³ Globally, efforts has been made to reduce the use of tobacco, but still it is one of the major causes of ill health.⁴

Nearly, 1.1 billion people use tobacco for smoking and the use of non-smokable tobacco products have also been increased over the couple of decades.^{5,6} This consumption is comparatively higher in elderly people

than their younger counterparts belonging to different socioeconomic status.⁷ Therefore, people having low education and income are more inclined towards the use of tobacco in developing countries contributing significant number of global deaths mainly due to consumption of substandard tobacco.⁸ Pakistan is the second most leading country after India for the consumption of smokeless tobacco products having prevalence rate of 7.1% among adult population.⁹ According to World Health Organization, the standardized prevalence of smoking among Pakistan's adult population is 5.8% and 31.8% among females and males, respectively.⁹

Use of tobacco is associated with multiple medical conditions including different types of cancers, respiratory and cardiovascular diseases.¹⁰ Not only this but tobacco use also has serious impact on the oral health which is not only associated with oral cancers but also with oral lesions, periodontal diseases,

adverse effects on oropharyngeal region, delayed wound healing and dental losses.^{11,12}

Rapid and consistent increase of tobacco use among adult population of Pakistan is alarming.⁹ Keeping in view the adverse effects of tobacco use on oral health, it is substantial to maintain good oral health to avoid any serious medical conditions. So, the objective of this study was to assess the oral hygiene practices and choices of oral hygiene products among smokers and beetle nut chewers. This study also compares the oral hygiene practices among them.

METHODS

This study was approved by ethical committee and institutional review board (No. HM/18/ ERC/119) and also followed international ethical guidelines of research related to human beings.¹³ This comparative cross-sectional study was conducted for the period of three months from February 2019 to April 2019. The targeted area of the study was Lahore which is the provincial capital and densely inhabited with over 11.3 million population.¹⁴ The population of the area is belonging to different socioeconomic strata.

As of 2018, 26% of the population of the country uses tobacco in any of the form and majority consists of adults including males and females.¹⁵ Sample size of the study was calculated as 385 using Raosoft sample size calculator with 5% margin of error and 95% confidence interval.¹⁶ Non-probability purposive sampling technique was used to collect the data from the study participants using self-administered questionnaires.

Data collection team gathered the data from people visiting tobacco shops who were ages 18 years or older; consuming smokable tobacco or betel leaf (with or without areca nuts); and addicted to tobacco use in any form for the last three years at the time of data collection. However, participants were excluded from the study who couldn't provide written informed consent. The semi-structured questionnaire was developed by multidisciplinary team of professionals and academicians in line with the existing literature.^{17,18} Prior to use of drafted questionnaire, it was sent to field experts for their recommendations and was pretested on 30 respondents to assess the various aspects including acceptance, understanding and clarity. Little modifications were required.

Among participants of the study, 400 questionnaires were distributed. Survey questionnaire collected following information:

Socio-demographics: The respondents were asked to mention their age (in years), gender (female, male), marital status (married, unmarried), education (in years), occupation (employed, self-employed, unemployed), monthly household income (in PKR) and rural background (yes, no).

Tobacco Consumption: This section covered the types and extent of the usage of tobacco products among respondents. Respondents were asked to mention smoking status (yes, no), betel leaf consumption status (yes, no), duration of tobacco use (3 years, 3-5 years, more than 5 years), degree of tobacco use (daily, weekly, occasionally), if daily, frequency of tobacco use (in numbers), usage of any other tobacco products (yes, no). If yes, type of tobacco product (hukka, pipe, cigar, chew tobacco, shisha, naswar, others).

Oral Hygiene Products: Two questions assessed the information related to oral hygiene products including type of hygiene products used (tooth brush, miswak, herbs, dental picks, dental sticks, dental floss, mouth wash, tongue scrapers and teeth whiteners) and time spent on the cleansing of the teeth (in minutes).

Oral Hygiene Practices: Four survey items assessed the oral hygiene practices among study participants including brushing teeth at least two times a day (yes, no), use of mouth wash per day (yes, no), flossing teeth at least once a day (yes, no) and dental check-ups at least two times a year (yes, no).

STATISTICAL ANALYSIS

The statistical package for the Social Sciences (version 22) was used to analyze the data. Given the nature of the data, frequencies, percentages and measures of central tendencies were calculated. Chi-square test was used to compare oral hygiene practices among smokers, betel leaf chewers and those who were consuming both products and a *P-value* < 0.05 was considered as statistically significant.

RESULTS

Out of 400 questionnaires distributed, 389 were returned giving the response rate of 97.25%. Table-1 showed that mean age of the participants was 36.7 years ranged from 18 to 52 years. Majority of the participants were male (95.5%) as compared to their female counterpart (4.6%). Nearly half of the participants (51.2%) were addicted to smoking followed by betel leaf consumption (35.7%) and both (13.1%). Majority of the participants reported that they were addicted to tobacco use for 3-5 years (38.6%) or more than 5 years (45.2%). Of the 389 participants, 349 (89.7%) were consuming tobacco on daily basis where meager proportion were consuming tobacco on weekly (7.2%) or occasionally basis (3.1%).

Table-1 also shows that average time spent on teeth cleansing was 1.5 ± 0.7 minutes. Brushing teeth at least two times a day was the only oral hygiene practice followed by the major number of participants (42.9%) as compared to other practices of using mouth wash (6.9%), flossing teeth (12.3%) and visiting dentist for routine checkups (16.2%).

Fig: 1. shows that use of toothbrush was more common as oral hygiene products among tobacco

consumers including smokers (137), betel leaf consumers (127) and both (51) followed by mouth wash, miswak and dental floss. Usage of other products was less common including herbs, dental picks, dental sticks, teeth whiteners and tongue scrappers.

Table-2 compares the smokers, betel leaf consumers and both oral hygiene practices regarding brushing teeth at least two times a day; smokers (55.8%) adhered oral hygiene practice more often than did betel leaf consumers (33.8%) and

Table-1: Information related to sociodemographics, tobacco consumption and oral health practices.

Variables		N (%)	Mean±SD
Age (in years)		-	36.7 ± 6.1
Education (in years)		-	12.4 ± 3.9
Monthly family income (in PKR)		-	33774.2 ± 14270.5
Gender	Male	371 (95.4)	-
	Female	18 (4.6)	-
Marital status	Married	324 (83.3)	-
	Unmarried	65 (16.7)	-
Occupation	Employed	197 (50.6)	-
	Business	163 (41.9)	-
	Unemployed	29 (7.5)	-
Rural background	Yes	232 (59.6)	-
	No	157 (40.4)	-
Tobacco usage status	Smokable tobacco	199 (51.2)	-
	Betel leaf user	139 (35.7)	-
	Both	51 (13.1)	-
Duration of tobacco use	3 years	63 (16.2)	-
	3-5 years	150 (38.6)	-
	More than 5 years	176 (45.2)	-
Degree of tobacco use	Daily	349 (89.7)	-
	Weekly	28 (7.2)	-
	Occasionally	12 (3.1)	-
Daily tobacco consumption		-	4.7 ± 2.2
Consumption of other tobacco products	Yes	72 (18.5)	-
Type of other tobacco product used	Hukka	11 (2.8)	-
	Pipe	5 (1.3)	-
	Cigar	2 (0.5)	-
	Chew tobacco	9 (2.3)	-
	Shisha	17 (4.4)	-
	Naswar	16 (4.1)	-
	Others	12 (3.1)	-
Time spent on cleansing of teeth		-	1.5 ± 0.7
Brushing teeth at least two times a day		167 (42.9)	-
Use of mouth wash per day		27 (6.9)	-
Flossing teeth at least once a day		48 (12.3)	-
Dental check-ups at least two times a year		63 (16.2)	-

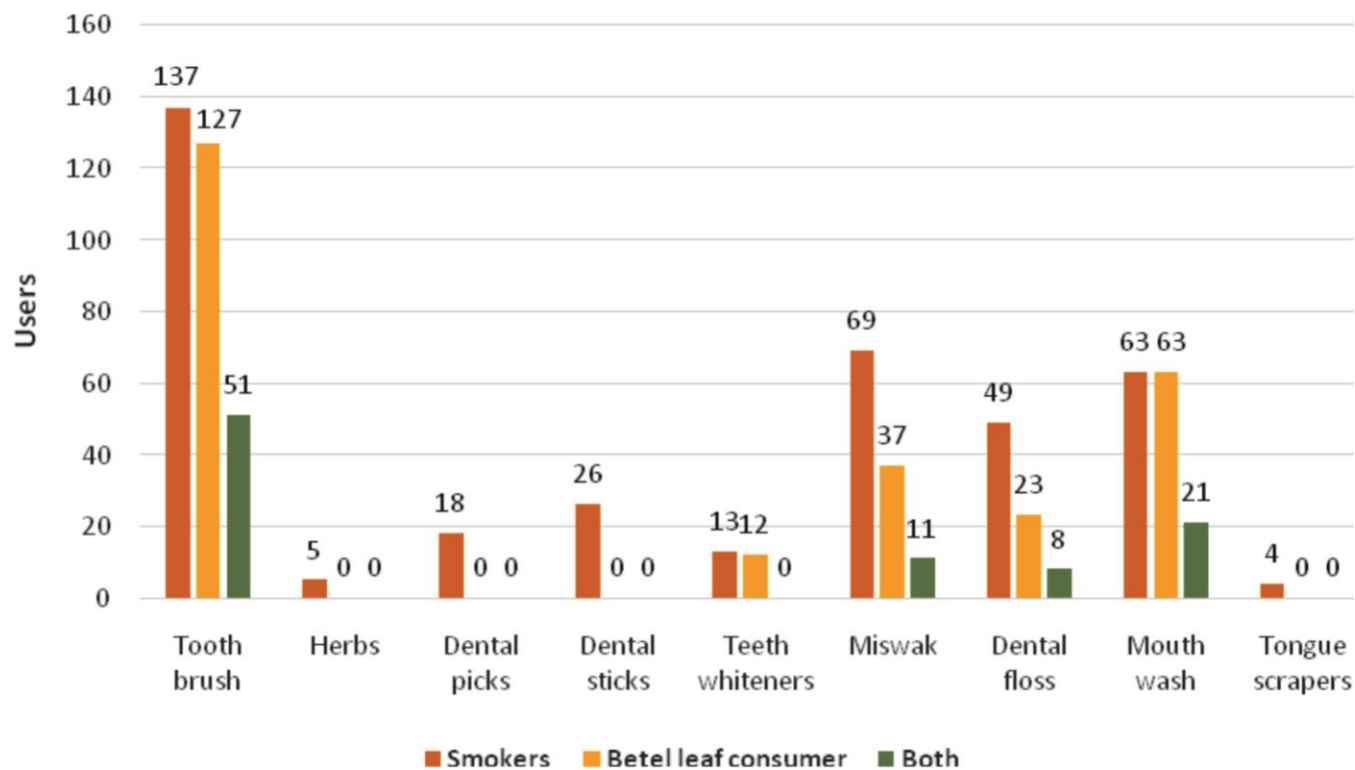


Fig. 1. Use of oral hygiene products among smokers, betel leaf consumers and both (N = 389).

Table-2: Differences of oral hygiene practices among smokers, betel leaf consumers and both (N = 389).

Variables	No (%)	Yes (%)	Chi-square	P-value
<i>Brushing teeth at least two times a day</i>				
Smokers	88 (44.2)	111 (55.8)	31.432	0.001*
Betel leaf consumer	92 (66.2)	47 (33.8)		
Both	42 (82.4)	9 (17.6)		
<i>Use of mouth wash per day</i>				
Smokers	178 (89.4)	21 (10.6)	8.292	0.016*
Betel leaf consumer	135 (97.1)	4 (2.9)		
Both	49 (96.1)	2 (3.9)		
<i>Flossing teeth at least once a day</i>				
Smokers	165 (82.9)	34 (17.1)	8.627	0.013*
Betel leaf consumer	128 (92.1)	11 (7.9)		
Both	48 (94.1)	3 (5.9)		
<i>Dental check-ups at least two times a year</i>				
Smokers	156 (78.4)	43 (21.6)	9.164	0.010*
Betel leaf consumer	123 (88.5)	16 (11.5)		
Both	47 (92.2)	4 (7.8)		

^aChi-square

consumer of both products (17.6%). Statistically significant association was found among these tobacco consumers related to follow teeth brushing practice twice a day, (P= 0.001).

Table-2 further shows that in total followed oral hygiene practices by tobacco consumers in terms of using mouth wash, teeth flossing and regular visits to dentist for routine checkups.

DISCUSSION

The results of the study showed that the people were consuming tobacco on daily basis and the unit consumption per day was also significantly high. Tobacco addiction was not only limited to the smoking or betel leaf consumption but accompanied with the usage of other related tobacco products, simultaneously. Though, time spent on cleansing of teeth was sufficient but the brushing teeth at least two times a day was the only oral hygiene practice followed by meagre but highest in number among the study participants. Use of oral hygiene products including toothbrush, miswak, dental floss and mouth wash were popular among the people. Oral hygiene practices were significantly different among smokers, betel leaf consumers and both in terms of brushing teeth twice a day, use of mouth wash, flossing teeth and manage to visit dentists for routine checkups.

High-level consumption of tobacco in various forms can be attributed not only to the availability of several ready to use tobacco brands in the market but also to their easy accessibility to the public in various price ranges.¹⁹ The density and distribution of tobacco shops in the markets as well as in the streets of residential areas are also a key factor contributing to high rate of tobacco consumption as well as its prevalence.^{20,21} In line with our study results, a study from US showed that cigarette alone or in combination with other tobacco products was the most prevalent form of tobacco consumed by the people (ranged from 15% to 3%).²² The reason of excessive use of tobacco might be owing to the multiple reasons including pleasure, maintaining focus, stress coping strategies etc. and ultimately dependence of tobacco increases the use of related products intake per day.²³

In line with our results, other studies also showed that brushing of teeth was commonly used method for oral hygiene among tobacco consumers which may be due to the enhanced level of awareness regarding oral health and dental hygiene practices.^{24,25} As a result, tobacco consumers consider it as one of the useful methods of maintaining oral hygiene with great sense of satisfaction as compared to use of other oral hygiene products.^{24,25} Contrary to the results of present study, Asad et al.²⁶ observed that oral hygiene practices among the population were comparatively better as brushing teeth twice a day (52.50%), flossing teeth at least once a day (55.50%) and maintaining dental checkups at least twice a day (50.50%) were significantly high.

Generally, more smokers make regular visits to dentists for their oral health might be due to their level of knowledge regarding hazardous effects of smoking on oral health.²⁷ It is also observed that tobacco consumers visiting dentist also follow instructions of dentists for oral hygiene and hence results in better oral hygiene practices.²⁸ Another aspect may also be

related according to which poor hygiene practices prevail in the lower socioeconomic strata of the tobacco consumers because they do not spend much on their oral health and dental hygiene.²⁹ Moreover, the use of cheaper quality tobacco or substandard chewable tobacco with betel leaf and areca nuts which puts them at a higher risk of poor oral hygiene.²⁹

Significant difference in the oral healthcare and hygiene practices among tobacco consumers can be attributed to the fact that smokers take a good care of their oral health as compared to those who use non-smokable form of tobacco because it is generally assumed that consumption of tobacco in the form of cigarette causes more harm to oral health than consumption of tobacco in chewable form.³⁰ Consumption of tobacco as a cigarette or cigar is considered as component for change in lip color, changes in oral epithelial linings and scars of teeth as well as it is believed that smoking is more associated with the risk of development of oral cancers.³¹ In contrast to the tobacco consumers' assumptions and myths, both forms of tobacco are harmful for oral health. Moreover, consumption of chewable tobacco with betel leaf and areca nut and naswar is more dangerous than smoking tobacco.^{32,33} It might be the reason that people who smoke tobacco have better oral hygiene practices than those who chew tobacco and hence they also use multiple products for their oral hygiene and also frequently visit dentists for the oral checkups.^{34,35}

CONCLUSION

Oral hygiene practices among smokers are better than those who are betel leaf chewers. Moreover, most common use of oral hygiene products among people includes toothbrush, miswak, dental floss and mouth wash.

LIMITATIONS OF STUDY

This study provides valuable insight into the topic but also bears some limitations. Firstly, data was collected from the market irrespective of area-wise socioeconomic division. Secondly, sample size of the study was limited. Finally, owing to the lack of resources self-administered questionnaire was used for data collection which might be replaced with in-depth interview for future studies. It is also recommended that forthcoming studies may be supplemented with the shortcomings of this study.

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AUTHOR'S CONTRIBUTION

QA: Substantial contribution to conception and design.

RA: Acquisition of data and study design.

FD: Acquisition of data and study design.

SMO: Drafting the article.

HAM: Revising it critically for important intellectual content.

FH: Final approval of the version to be published.

FB: Final approval of the version to be published.

CONFLICT OF INTEREST

None to declare.

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None to disclose.

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