The Status of Smokeless Tobacco Use and its Associated Factors Among the Business Guilds Population of Chabahar

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Abstract

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ABSTRACT
Purpose: Use of smokeless tobacco is a major preventable cause of premature death and diseases. It leads to over 5 million deaths annually worldwide. This study aimed to investigate the status of smokeless tobacco use and its associated factors among the business guilds population of Chabahar City, Iran. **Method:** The present descriptive cross-sectional study was conducted on 320 users of various types of smokeless tobacco selected by simple random sampling method. Data were collected using a researcher-made demographic questionnaire, smokeless tobacco inventory, attitude questionnaire, and behavior questionnaire. The validity and reliability of these tools were confirmed in the previous studies. Data were analyzed in SPSS using descriptive (mean, standard deviation, frequency, and %age) and inferential statistics (Kruskal-Wallis and Exact Fisher test). **Results:** Most of the participants used the chewing tobaccos Gutkha and Pan-Parag (24%, 95% CI= 28.7-19.4 and 23%, 95% CI= 27.7-18.5, respectively). The mean scores (standard deviations) of the participants' behavior and attitude were 7.71 (2.59) and 22.34 (7.60), respectively. The results of bivariate analysis indicated no significant difference among different smokeless tobacco groups regarding the attitude scores (P = 0.104). A significant association was observed among different groups of smokeless tobacco regarding the behavioral scores (P = 0.007). **Conclusion:** The scores of attitude and behavior were significantly low among the business guilds population of Chabahar City regarding consumption of smokeless tobacco. Therefore, effective steps should be taken urgently to launch social awareness programs to educate people about the consequences of tobacco use and effectiveness in curbing the problem.

Keywords: business guilds, Gutkha, Moist snuff, Pan, Pan-Parag, smokeless tobacco

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BACKGROUND
Tobacco is a product of dried nicotine-rich leaves of a native American plant used for production of smoking or smokeless drugs.[1] Smokeless tobacco refers to a variety of products made of tobacco that are not consumed by combustion.[2] None of the tobacco products are safe; all forms contain nicotine and can cause addiction or health problems.[2]

Typically, a variety of smokelss tobacco products exist in Chabahar, such as Pan, Pan-Parag, Gutkha, Moist Snuff, and Mava.[3] Pan is often made of a mixture of betel leaf, areca nut, slaked lime, catechu, and other flavoring agents such as menthol, camphor, sugar, rosewater, aniseed, cardamom, clove, mint, and spices.[4] It should be placed in the mouth and chewed.[4] Ingredients of Gutkha include areca nut, slaked lime, catechu, as well as sun-dried, roasted, and finely chopped tobacco with flavorings and sweeteners that can be held in the mouth, sucked, and chewed.[4] Mava is a mixture of thin shavings of the areca nut with some tobacco flakes and slaked lime that can be placed in the mouth and chewed for 10 to 20 minutes.[3] Moist Snuff contains tobacco, flavoring, inorganic salts, and humectants that is usually held in the mouth for about 30 minutes.[4] Pan-Parag is a combination of betel nuts, cardamom, lime, catechu, and natural perfumes, which should be placed in the mouth and chewed for 10 to 20 minutes.[4]

Use of smokeless tobacco is a major (but preventable) cause of premature death and diseases.[5] It leads to over 5 million deaths annually worldwide, and this rate is expected to rise to over 8 million by 2030.[5] Although consumption of smokeless tobacco is a significant health risk and cause of diseases, over 300 million people use smokeless tobacco worldwide.[3,6] More than 250 million adult smokeless tobacco users are in low- and middle-income countries, and the total burden of smokeless tobacco use is likely to be substantial.[6] The products of smokeless tobacco contain over 3000 chemicals, including 28 known carcinogens.[7] Furthermore, the nicotine absorbed while using smokeless tobacco is two to three times more than the nicotine received throughout smoking.[7] The absorption rate of nicotine in a person who consumes eight to ten dips or chews per day is the same as the one who smokes 30 to 40 cigarettes per day.[7]

Evidence supports the strong association between the use of smokeless tobacco and a wide range of oral cavity lesions, including oral cancer as the most prominent disease and other lesions, such as leukoplakia, fibrosis, leukoedema, hairy tongue, and tooth decay.[8] Misconceptions such as "smokeless tobacco is less dangerous than smoking tobacco" are the biggest challenge for controlling consumption of these substances. The ease of purchase, availability, and low prices of various smokeless tobacco products are among other problems in this regard.[9]

Guilds are particularly important for the economic growth and dynamism of Iran and act as the economic heart of the society because of their wide-range and direct contact with the public.[10] Yet few studies have focused on the status of smokeless tobacco use and its associated factors in a national representative sample.[11,12] Moreover, most studies on the prevalence of tobacco and its associated factors focused on cigarette smoking.[13-15] Given the limited number of studies conducted on this subject in Iran, the present study was conducted to examine the status of smokeless tobacco use and its associated factors among the business guilds of Chabahar City, Iran.

METHODS
The present descriptive cross-sectional study was first approved at the school of public health's Ethics Committee (Code of Ethics Committee: IR.SSU.SPH.REC.2017.105) and then conducted on 320 people from Chabahar business guilds in 2017. The participants were selected using simple random sampling method. In this regard, the researchers referred to the Environmental and Occupational Health Department in the health centers of each region and received the list of business people who used smokeless tobacco (n =580). Ultimately, 320 eligible smokeless tobacco users were selected by simple random sampling. Later, these participants were asked to complete the questionnaires. The response rate for the present study was 94%.

The study inclusion criteria consisted of being in the age range of 20-50 years, being an smokeless tobacco user (Pan, Pan-Parag, Gutkha, Mava, Moist snuff), having the willingness to take part in the study, having the ability to answer the questionnaire items, and owning a registered business license at the guilds' office. Participants were visited at their workplace by trained interviewers to complete self-administered questionnaire. The tools used in this research included a demographic questionnaire, a smokeless tobacco use inventory, an attitude questionnaire, and a behavior questionnaire.

The demographic items were targeted at the participants' age, gender, type of guilds, education, and marital status. The smokeless tobacco use inventory inquired about the type of smokeless tobacco used, the onset age of smokeless tobacco use, the daily frequency of smokeless tobacco use, the use of smokeless tobacco by family members, and the use of smokeless tobacco by friends and peers. So, the questionnaires were completed using a self-report method.

The attitude questionnaire contained 8 items that were scored based on a 5-point Likert scale ranging from 1 to 5 (the scores ranged from 8 to 40). Furthermore, the behavior questionnaire included 4 items, which were scored based on a 3-point Likert scale from 1 to 3 (the scores ranged from 4 to 12).

The validity of the questionnaire was assessed by a panel of experts in health education and promotion as well as dentistry (n=10). The content validity for the attitude and behavior questionnaires were calculated as 0.91, and 0.85, respectively. Furthermore, the content validity index for attitude and behavior questionnaires were 0.92, and 0.98, respectively. Cronbach's alpha test results, used to calculate the reliability of the questionnaires, were 0.79, and 0.83 for attitude and behavior questionnaires, respectively.

The data were analyzed in SPSS-16 using the descriptive (mean, standard deviation, frequency, and percentage) and inferential statistics (Kruskal-Wallis and Exact Fisher test). The significance level was set at $P<0.05$.

Ethical Considerations
At all stages of this study, ethical principles were observed. After explanations about objectives and results of this study, all participants provided written consent.

RESULTS
A total of 320 people from different business guilds participated in this study. The majority of participants (69%) were in the age range of 20-30 years. A total of 63% of the participants were male and 37% were female. In terms of the business guilds, most participants were in the hairdressing and drapery business (19%), whereas, the least number of them (2%) were in the hotel and restaurant business. In terms of literacy, most participants had junior high school education (27%), while 16% were illiterate. Regarding the marital status, the married people made up the largest number of participants, and the divorced/widowed people consisted of the smallest group of the participants (60.5% and 2%, respectively). Regarding age at the onset of using smokeless tobacco, only 2% of the participants began using smokeless tobacco when they were below 10 years old, whereas the majority of individuals started using smokeless tobacco at ages of 15 to 20 years old. The daily consumption frequency of smokeless tobacco was 5 times less in 64% of the participants and 5 to 10 times less in 36%. A total of 36.6% of the participants had a history of smokeless tobacco use among their family members (father, mother, brother, and sister). Of the 320 participants, only 8.7% had close friends who did not use smokeless tobacco, while the rest had close friends who used at least one type of smokeless tobacco. The mean scores (standard deviation) of behavior and attitude of the participants in the study was 7.71 (2.59) and 22.34 (7.60), respectively and this scores were normally distributed (Table 1).

Table 1: Participants' demographic and background information

Variable	Group	Number	%
Business guild	Confectionery	13	4
	Drapery	62	19
	Grocery	46	15
	Mechanic	37	12
	Hairdressing	61	19
	Tailory and embroidery	25	8
	Hotel and restaurant	7	2
	Carpentry	9	3
	Wholesaling	33	10
	Other (jeweler's, household appliance sellers, haberdashery)	27	8
Marital status	Single	120	37.5
	Married	193	60.5
	Divorced/widowed	7	2
Age at the onset of use	Less than 10	6	2
	Between 10 and 15	67	21
	Between 15 and 20	247	77
Daily consumption frequency	Less than 5 times	206	64
	5 to 10 times	114	36
	None	203	63
	Father/mother	32	10

History of smokeless tobacco use among family members	Brother/sister	85	27
Behavior Score		7.71*	2.59**
Attitude Score		22.34*	7.60**

*Mean **Standard Deviation

Nineteen (19)% of the participants used 2 items or more of smokeless tobacco products. The majority used Gutkha (24%, 95% CI=28.7-19.4) and Pan-Parag (23%, 95% CI=27.7-18.5), and 21% (95% CI= 26.1-17.1) used Moist snuff (Table 2).

Table 2: The Frequency of Smokeless tobacco use among the participants

Variable	Group	Number	%	95% CI
Type of smokeless tobacco used	Pan	22	7	10.2-4.5
	Pan-Parag	73	23	27.7-18.5
	Gutkha	76	24	28.7-19.4
	Moist snuff	68	21	26.1-17.1
	Mava	19	6	9.1-3.8
	2 items or more	62	19	28.1-7.9

A significant association was observed among behavior scores, participants age, marital status, education level, household income, history of consumption among family members, history of consumption among friends, age of consumption, frequency of daily use, and type of smokeless tobacco ($p<0/05$). However, we did not find any significant association among attitude scores, gender, and the type of smokeless tobacco ($p>0/05$) Considering the attitude questions, low scores showed healthy attitudes and lower behavior scores indicated healthy behaviors (Table 3).

Table 3: Relationship of Various Variables with the type of Smokeless tobacco (N = 320)

Independent variable	Categories	Type of test	P value
Behavior Score	---	Kruskal Wallis	<0.01
Attitude Score	---	Kruskal Wallis	0.104
Participants Age	20-30	Exact Fisher	<0.001
	30-40		
	40-50		
Gender	Male	Exact Fisher	0.331
	Female		
Marital Status	Single	Exact Fisher	<0.05
	Married		
	Divorced		
	Widow		
Education	Illiturate	Exact Fisher	<0.001
	Reading and writing		
	Primary		
	Guidance		
	High school		
	Diploma		
	Bachelor		
	Upper bachelor		
Household income	Less than 500,000	Exact Fisher	<0.001
	500,000-1,000,000		

	1,000,000-2,000,000			
	More than 2,000,000			
History of use among family members	None	Exact Fisher	<0.001	
	Father/mother			
	Brother/sister			
Use by close friends	None	Exact Fisher	<0.001	
	2 friends			
	4 friends			
	All friends			
Age at the onset of use	Less than 10	Exact Fisher	<0.001	
	Between 10 and 15			
	Between 15 and 20			
Daily frequency of use	Less than 5 times	Exact Fisher	<0.001	
	5 to 10 times			

Table 3 shows that the mean scores of smokeless tobacco product type has a significant difference with participants age, frequency of consumption, history of consumption among intimate friends, and history of consumption among family members. To determine that the significant difference was attributed to which type of the smokeless tobacco products, the Tukey's post-hoc test was used. The results of this test are presented in Tables 4, 5, 6, and 7.

Table 4: Post-hoc results for comparing the mean scores of smokeless tobacco product types

		Pan	Pan-Parag	Gutkha	Moist snuff	Mava	2 items or more
Pan	Mean difference	-	-0.15	-0.27	-0.42	-0.12	-0.23
	Sig (Tukey)	-	0.908	0.432	0.043*	0.985	0.623
Pan-Parag	Mean difference	0.15	-	-0.12	-0.27	0.02	-0.08
	Sig (Tukey)	0.908	-	0.830	0.086	1.000	0.968
Gutkha	Mean difference	0.27	0.12	-	-0.15	0.14	0.03
	Sig (Tukey)	0.432	0.830	-	0.668	0.938	0.999
Moist snuff	Mean difference	0.42	0.27	0.15	-	0.29	0.18
	Sig (Tukey)	0.043*	0.086	0.668	-	0.414	0.478
Mava	Mean difference	0.12	-0.02	-0.14	-0.29	-	-0.1
	Sig (Tukey)	0.985	1.000	0.938	0.444	-	0.984
2 items or more	Mean difference	0.23	0.08	-0.03	-0.18	-0.12	-
	Sig (Tukey)	0.623	0.968	0.999	0.478	0.985	-

*: $P<0.05$

Table 5: post-hoc results for comparing the mean scores of smokeless tobacco product types according to frequency of use

		Pan	Pan-Parag	Gutkha	Moist snuff	Mava	2 items or more
Pan	Mean difference	-	0.16	-0.25	-0.61	-0.46	-1.35
	Sig (Tukey)	-	0.997	0.937	0.451	0.890	0.001*
Pan-Parag	Mean difference	-0.16	-	-0.41	-0.77	-0.62	-1.51
	Sig (Tukey)	0.997	-	0.444	0.012*	0.493	0.000*
Gutkha	Mean difference	0.25	0.41	-	-0.36	-0.21	-1.09

	Sig (Tukey)	0.937	0.444	-	0.617	0.991	0.000*
Moist snuff	Mean difference	0.61	0.77	0.36	-	0.15	-0.73
	Sig (Tukey)	0.451	0.012	0.617	-	0.998	0.032*
Mava	Mean difference	0.46	0.62	0.21	-0.15	-	-0.88
	Sig (Tukey)	0.890	0.493	0.991	0.998	-	0.145
2 items or more	Mean difference	1.35	1.51	1.09	0.73	0.88	-
	Sig (Tukey)	0.001*	0.000*	0.000*	0.032*	0.145	-

*: P<0.05

Table 6: Post-hoc results for comparing the mean scores of smokeless tobacco product types according to history of consumption among intimate friends

		Pan	Pan-Parag	Gutkha	Moist snuff	Mava	2 items or more
Pan	Mean difference	-	0.20	-0.16	-0.43	-0.29	-0.45
	Sig (Tukey)	-	0.942	0.979	0.407	0.913	0.346
Pan-Parag	Mean difference	-0.20	-	-0.36	-0.63	-0.50	-0.66
	Sig (Tukey)	0.942	-	0.149	0.001*	0.291	0.001*
Gutkha	Mean difference	0.16	0.36	-	-0.26	-0.13	-0.29
	Sig (Tukey)	0.979	0.1149	-	0.511	0.994	0.423
Moist snuff	Mean difference	0.43	0.63	0.26	-	0.13	-0.02
	Sig (Tukey)	0.407	0.001*	0.511	-	0.993	1.000
Mava	Mean difference	0.29	0.50	0.13	-0.13	-	-0.16
	Sig (Tukey)	0.913	0.291	0.994	0.993	-	0.984
2 items or more	Mean difference	0.45	0.66	0.29	0.02	0.016	-
	Sig (Tukey)	0.345	0.001*	0.423	1.000	0.984	-

*: P<0.05

Table 7: Post-hoc results for comparing the mean scores of smokeless tobacco product types according to history of consumption among family members

		Pan	Pan-Parag	Gutkha	Moist snuff	Mava	2 items or more
Pan	Mean difference	-	-0.33	-0.12	-0.21	-0.04	-0.74
	Sig (Tukey)	-	0.445	0.984	0.850	1.000	0.001*
Pan-Parag	Mean difference	0.33	-	0.20	0.11	0.28	-0.01
	Sig (Tukey)	0.445	-	0.522	0.935	0.661	1.000
Gutkha	Mean difference	0.12	-0.20	-	-0.09	0.07	-0.21
	Sig (Tukey)	0.984	0.522	-	0.978	0.998	0.517
Moist snuff	Mean difference	0.21	-0.11	0.09	-	0.17	-0.12
	Sig (Tukey)	0.850	0.935	0.978	-	0.950	0.923
Mava	Mean difference	0.04	-0.28	-0.07	-0.17	-	-0.29

		1.000	0.661	0.998	0.950	-	0.644
	Sig (Tukey)	1.000	0.661	0.998	0.950	-	0.644
2 items or more	Mean difference	0.74	0.01	0.21	0.12	0.29	-
	Sig (Tukey)	0.001*	1.000	0.517	0.923	0.644	-

*: P<0.05

DISCUSSION

Almost all the studies conducted in Iran have focused on the pattern of cigarette consumption, and they have never addressed the use of smokeless tobacco. The present findings showed that 8.4% of the participants used all types of SLT products. Among the various smokeless tobacco products, the predominant form of smokeless tobacco was Gutkha (24%), Pan Prag (23%), and Moist snuff (21%), respectively. In a study by Rafique et al most of the participants used Moist snuff (65%) and Gutkha (12%).[16] Considering the common border of Pakistan with Chabahar and the relatively close socio-demographic factors between the peoples of these societies, the consumption prevalence of Moist snuff products seems similar between the two communities. Furthermore, the low prices of Gutkha, Moist snuff, and Pan-Prag compared to other forms of smokeless tobacco (such as Mava, JM, etc.) and their easy access make these materials more prevalent than other forms of smokeless tobacco.

In this study, the majority of tobacco chewers started smokeless tobacco products from the age of 15-20 years, and a significant correlation was observed between the age of first use and the type of smokeless tobacco (P <0.05). In a study by Azam et al in Bangladesh, the onset age of tobacco consumption was higher than our findings.[17] However, they reported no significant relationship between the onset age of use and type of smokeless tobacco (Zarda), which is different from the results of our study. The difference in the type of smokeless tobacco or the variation in the social norms between the two communities is most likely the reason for this difference.

In our study, 64% of participants used smokeless tobacco less than five times per day, and a strong correlation was found between the daily frequency of tobacco consumption and the type of smokeless tobacco (P <0.001). In a study by Al Agili et al, the majority of participants used smokeless tobacco products less than five times daily.[18]These results are in the same line with the results of our study. Other studies are also consistent with the results of our study in this regard.[19,20]

In the present study, about 37% of the participants reported other smokeless tobacco users in their family and 40 % reported smokeless tobacco -using friends. The history of consumption among family members and intimate friends had a significant correlation with the type of smokeless tobacco (P <0/001). Accordingly, people who had a history of using different forms of smokeless tobacco in their family and friends had a higher chance of taking these products. Majidpour et al indicated that 17% of the participants mentioned use of smokeless tobacco by their family members as the main reason for their own use, which disagrees with our findings.[21] Although both studies were conducted in Iran, the disparity of results may be due to the differences in the study populations and the type of tobacco (cigarette tobacco vs. chewing tobacco).

The mean and standard deviation of the participants' attitude score was 22.34 ± 7.60 and no significant relationship was observed between attitude scores and type of smokeless tobacco. Given that the maximum score of attitude was 40, it seems that almost half of people had negative attitudes. This suggests participants' positive beliefs about the benefits of smokeless tobacco: smokeless tobacco strengthens the gum and teeth and eases digestion, smokeless tobacco relieves stress, or smokeless tobacco is not addictive since it is consumed orally, etc. In a study by Bhatsange et al, the majority of consumers believed that tobacco helped them to concentrate on work and relieved their psychologically.[19] The results of a study by the Mumbai Institute of Dentistry[2]are consistent with our findings.[22] Furthermore, a study in New Delhi showed that the majority of participants had low attitude scores and believed that tobacco use relieved their stress and increased their confidence.[23]

The mean and standard deviation of the behavior score of the participants was 7.71 ± 2. 59, and a significant relationship was reported between the behavior scores of individuals and type of smokeless tobacco. Given that the maximum score of behavior in this study was 12, only about half of the conducted behaviors were healthy and the rest were unhealthy, including spit throwing and tobacco use in public places. In our country (Iran), similar to India, the tobacco control policies are mostly focused on smoking forms only.[27]

Parashar et al reported that the majority of workers used smokeless tobacco products in worksites.[25] In the same vein, another study showed a lower observance of restrictive tobacco rules among formally employed workers.[26] Regarding quitting smoking, less assistance was reported from employers than coworkers.

Limitations
Although our study provided useful information, it also had some limitations. The study was carried out on users of smokeless tobacco who are registered tradespeople with the Chabahar chamber of guilds; hence, the results are only generalizable to the sampled population. Our research was cross sectional and the data were collected using the self-report method. Therefore, some participants may have under-reported or may have over-reported their chewing habits. In spite of these limitations, we believe that our findings were not significantly affected by these limitations.

CONCLUSIONS AND RECOMMENDATIONS
The present study indicated that the business guilds population of Chabahar lacked the required attitude and behavior regarding the consumption of smokeless tobacco. Therefore, an urgent need exists to take effective steps. Community awareness programs should be conducted for the business guilds and public to give them awareness about the consequences of tobacco use.

Conflicts of Interest
There are no conflicts of interest reported for this study.

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