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Smokeless tobacco consumption awareness, attitude and behavior among guilds of Chabahar, Iran

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***Introduction*: Smokeless Tobacco product consumption is associated with various types of oral diseases in terms of etiology, such as periodontal diseases, oral mucosal lesions, and ultimately leads to tooth loss. The present study was conducted to investigate smokeless tobacco consumption awareness, attitude and behavior among guilds of Chabahar, Iran. *Material-Method*: In this descriptive cross-sectional study, 250 merchants working in different guilds of Chabahar in 2018 were selected using simple random sampling. The data collection tools were a researcher-made questionnaire inquiring about demographic and background details, awareness, attitude and behavior, and was used after the verification of its validity and reliability. Data were analyzed in SPSS software using statistical tests including mean, standard deviation, Mann-Whitney's test, Pearson's test and cross tables. *Results*: The mean attitude score was 27.98 in the Smokeless Tobacco consumers and 31.06 in the non-consumers, and a significant difference was observed between the two groups based on Mann-Whitney's test (P<0.05). The mean awareness score was 11.21 in the consumers and 10.52 in the non-consumers, and no significant differences were observed between the two groups in terms of this variable (P>0.05). *Conclusion*: In general, due to the high prevalence of Smokeless Tobacco consumption, the poor awareness regarding this subject in the participants and the relationship between participants' attitude and the consuming and non-consuming groups, proper health promotion interventions should be adopted by national and local planners and policymakers to reduce the consumption of these products.**

INTRODUCTION

Tobacco is an agricultural product made up of the fresh leaves of the *Nicotiana* genus.[1] This product is commercially available in dry, pure and natural forms. In addition to its smoking form, tobacco is also used in chewable or inhalable forms.[1] The tobacco plant contains alkaloids called nicotine, and the amount of nicotine absorbed from tobacco by the body depends on many factors, including the type of tobacco, the form consumed (smokable or smokeless) and the presence of a filter or not. The amount of nicotine absorbed through Smokeless Tobacco (SLT) is more than that absorbed through cigarettes.[1,30] Tobacco product consumption is one of the major causes of preventable deaths and accounts for an annual of more than 6 million deaths in the world.[2] SLT consumption, in particular, has recently been estimated to be the cause of more than 250,000 deaths around the world, with the majority of them (85%) occurring in Southeast Asia.[3]

SLT consumption is potentially responsible for malignant lesions of the oral cavity and oral cancer.[4, 5] SLT product consumption is associated with various types of oral diseases in terms of etiology, such as periodontal diseases and oral mucosal lesions, and ultimately leads to tooth loss.[6, 7] SLT consumption also causes cancer of the respiratory organs, infertility, gastrointestinal cancer, acute hypertension, increased risk of cardiovascular diseases, diabetes, premature birth, low birth weight, iron deficiency anemia (congenital anemia), infertility and nicotine dependence.[8, 9]

SLT is smuggled into southeastern Iran through the Pakistan border. The low cost of SLT, the families' lack of control, the misconceptions about SLT consumption and the very low awareness in adolescents and youth about its adverse effects have increased the use of these substances.[10]

Guilds and merchants have always been known as part of the society that has a strong influence over and various functions in economic and social developments in different fields. In Iran, business guilds are crucial to the growth and dynamism of the economy as the last link in the economy chain, and act as the economic heart of the society through their extensive and direct contact with the public.[11]

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Table 1 The demographic and background information of the participants

Variable	Group	Number	Percentage
Age	20-30 years	121	48
	30-40 years	74	30
	40-50 years	55	22
Gender	Male	161	65
	Female	88	35
Guild type	Confectionery	23	9
	Textile store	17	7
	Grocery store	99	40
	Auto repair shop	26	10
	Hairdresser	24	10
	Tailoring and embroidery	21	8
	Hotel and restaurant	24	10
	Other (carpentry, wholesale)	16	6
Education level	Illiterate	18	7
	Primary school	32	13
	Junior high school	65	26
	High school	62	25
	University	73	29
Marital status	Single	49	20
	Married	193	77
	Divorced/widowed	8	3
Consumption among family members	No	110	44
	Father/mother	89	36
	Brother/sister	51	20
Consumption among five close friends	No	147	59
	Less than 3 friends	74	29
	All 5 friends	29	12

The researchers could not find any studies conducted on this subject in Iran. Due to the limited research on this research subject in Iran, the misconceptions among people and the adverse effects of using this psychoactive substance on the environment, the present study was conducted to investigate the SLT consumption awareness, attitude and behavior in the business guilds of Chabahar.

MATERIALS AND METHODS

The present descriptive cross-sectional study was conducted on 250 merchants in Chabahar, Iran, in 2018. Given the 11% prevalence of smokeless tobacco products reported in previous studies,[12] the alpha coefficient of 5% and error rate of 0.04, the sample size was obtained as 235, but 6% was added to this figure to make up for potential attrition, leading to a final sample size of 250. This study used simple random sampling to select the participants. For this purpose, the researchers visited the Environmental and Occupational Health Unit of the city's Health Center using a health inquiry book and extracted a list of participants from 18 comprehensive urban and rural health service centers in Chabahar using simple random sampling based on the inclusion criteria. The inclusion criteria consisted of age 20 to 50, consenting to participation in the study, being able to answer the questionnaire items and having a business license in the Guilds Office. The data collection tool was a researcher-made questionnaire with four parts, including a demographic information, an awareness questionnaire, an attitude questionnaire and a behavior questionnaire.

The demographic and background information consisted of seven items that inquired about age, gender, guild, level of education, marital status, SLT consumption among family members and SLT consumption among friends and peers.

The awareness and attitude questionnaires contained 18 items (nine items each). The items of the awareness questionnaire were about the complications of using different SLT products. Scoring was such that 2 points were given to the correct answer, 1 point to 'I don't know' and 0 to the wrong answer. The scores ranged from 0 to 18. Some of the items of the attitude questionnaire were "SLT consumption stops bad breath", "SLT consumption strengthens the teeth" and "SLT is not harmful since it is used orally" and were scored based on a 5-point Likert scale. The scores in the attitude questionnaire ranged from 9 to 45.

The behavior questionnaire consisted of five items, in which the subjects specified whether they did or did not use different SLT products by "Yes" or "No" answers. In case the respondent selected the YES answer, he was asked further questions, such as about "the type of SLT consumed", "the age at the beginning of consumption", "the daily frequency of consumption" and "the way of saliva discharge".

The face validity of the questionnaire was assessed by surveying ten experts from a panel of health education and health promotion and a dentist. The Content Validity Ratio (CVR) and Content Validity Index (CVI) were used to determine the quantitative content validity of the questionnaire. The CVR and CVI were 0.95 and 0.91 for the awareness questionnaire, 0.87 and 0.90 for the attitude questionnaire and 0.98 and 0.89 for the behavior questionnaire. Cronbach's alpha test was used to calculate the reliability of the questionnaire and this coefficient was obtained as 0.81. The data obtained from the questionnaires were analyzed in SPSS-16 using statistical tests, including mean and standard deviation, Mann-Whitney's test, Pearson's test and a cross table. The level of statistical significance was set at $P<0.05$.

Ethical consideration

At all stages of this study, ethical principles were observed. This study was approved by the Yazd Medical Sciences Ethics Committee (Ethics Code: IR.SSU.SPH.REC.1396.105). After explanations about objectives and results of this study, the participants have provided written consent.

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Table 2 The consumption and non-consumption of SLT behaviors

Variable	Group	Number	Percentage
Consumption/non-consumption of various SLT products	Consumers	164	66
	Non-consumers	86	34
Type of SLT	Paan	10	6
	Pan Parag	7	4
	Gutka	45	27
	Naswar and BT	36	22
	Gutka, Naswar, BT and Mawa	66	40
Age at the beginning of consumption	Less than 10 years old	49	30
	Between 10 and 20 years old	87	53
	More than 20 years old	28	17
Daily frequency of consumption	1 to 5 times	128	78
	5 to 10 times and higher	36	22
Saliva discharge	Hygienic	7	4
	Non-hygienic	157	96

Table 3 The frequency percentage of participants' awareness about SLT products

Item	Yes		No		I don't know	
	Number	Percentage	Number	Percentage	Number	Percentage
Does SLT lead to oral and esophageal cancer?	111	44	23	9	116	47
Is the absorption of nicotine from SLT more than that from cigarettes?	74	30	55	22	121	48
Does SLT consumption lead to hypertension and hyperlipidemia?	63	25	131	53	56	22
Does SLT consumption lead to dependence and addiction?	147	59	47	19	56	22

RESULTS

All the 250 merchants from different guilds participated in this study. Most of them (48%) were in the 20-30 age groups and the smallest minority was in the 40-50 age group (22%). A total of 65% were male and 35% were female. Grocers accounted for the largest guild in this study (40%). Hairdressers and restaurant workers each accounted for 24% of the study population. Carpenters and wholesalers accounted for the smallest guild group (6% for both). Most of the participants had university education (29%). The illiterate participants formed the smallest group in terms of education level (7%). A total of 77% of the participants were married and 3% were divorced or widowed. A total of 36% reported the consumption of one SLT product by their father or mother. Also, 12% of the participants reported the consumption of one SLT product by all their five close friends (Table 1).

According to this result, 66% of the participants reported the consumption of one SLT product and 34% claimed that they did not consume any SLT products. Gutka was the most frequently consumed SLT product (27%). A total of 36 participants (22%) consumed Naswar or BT. The majority of the SLT consumers (53%) had started consumption between the ages of 10 and 20 years. A total of 78% of the participants consumed one SLT product 1-5 times per day. A total of 96% discharged the saliva produced due to SLT product consumption by spitting in public pathways in an unhygienic manner (Table 2).

Only 44% of the participants were aware of the adverse effects of SLT consumption on oral and esophageal cancer. Also, only 30% of the participants were aware that nicotine absorption from SLT is greater than that from cigarettes. A total of 75% of the participants were not aware of the side-effects of SLT consumption on hypertension and hyperlipidemia and only 25% of them were aware of these complications (Table 3).

In the 40-50 age group, 71% of the participants reported consuming one form of SLT product, and there was no significant relationship between the consumption and non-consumption behavior of the participants (P=0.469). A total of 29% of the male and 43% of the female participants had never consumed any type of SLT product, and the rest reported the consumption of one form of SLT product. There was a statistically significant relationship between the consuming and non-consuming groups in terms of gender (P=0.033). In terms of guild type, only 16% of the carpenters and wholesalers reported SLT consumption. Also, 95% of the tailoring and embroidery guild merchants consumed SLT, and this guild had the highest level of consumption among the others. There was a significant relationship between the consuming and non-consuming groups in terms of guild type (P=0.001). A total of 97% of the participants reported that their parents consumed SLT products, and 90% reported that all their five close friends consumed SLT. There was a significant relationship between the consuming and non-consuming groups in terms of consumption among family members and five close friends (P=0.001) (Table 4).

With the maximum score of awareness being 18 in the study, the mean score of awareness was 11.21 in the consuming and 10.52 in the non-consuming groups, which suggests no significant differences between the two groups according to the Mann-Whitney test (P=0.285). Also, with the maximum Attitude score being 45, the mean score of Attitude was 27.98 in the consuming and 31.60 in the non-consuming groups, which suggests a significant difference between the two groups according to the Mann-Whitney test (P=0.002) (Table 5).

The lack of insurance coverage for drug addiction services (51%) was one of the most important reasons for not quitting SLT products (Table 6).

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Table 4 A comparison of the frequency of SLT consumption or non-consumption behavior in terms of the demographic variables

Variable		Consumption or Non-Consumption Behavior		Test Result
		Consumption (%)	Non-Consumption (%)	
Age group	20-30 years	62	38	*P-value=0.469 Df= 2*
	30-40 years	68	32	
	40-50 years	71	29	
Gender	Male	71	29	*P-value=0.033 Df= 2*
	Female	57	43	
Guild type	Confectionery	48	52	*P-value=0.001 Df= 8*
	Textile store	41	59	
	Grocery store	75	25	
	Auto repair shop	89	11	
	Hairdresser	25	75	
	Tailoring and embroidery	95	5	
	Hotel and restaurant	79	21	
	Other (carpentry, wholesale)	16	84	
Education level	Illiterate	89	11	*P-value=0.005 Df= 4*
	Primary school	59	41	
	Junior high school	74	26	
	High school	71	29	
	University	51	49	
Marital status	Single	61	39	*P-value=0.523 Df= 3*
	Married	66	34	
	Divorced/widowed	93	7	
Consumption among family members	No	32	68	*P-value=0.001 Df= 7*
	Father/mother	97	3	
	Brother/sister	89	11	
Consumption among five close friends	No	47	53	*P-value=0.001 Df= 2*
	Less than 3 friends	93	7	
	All 5 friends	90	10	

Table 5 A comparison of the mean and standard deviation of awareness and attitude in terms of SLT consumption/non-consumption behavior

Variable	Score		Mean Consumption/Non-Consumption Behavior Score		Test Result (Mann-Whitney)
	Maximum	Minimum	Consumption	Non-Consumption	
Awareness	18	0	11/21±3/8	10/52±3/62	P=0.285 Z=-1.069
Attitude	45	9	27/98±7/17	31/06±5/59	P=0.002 Z=-3.03

Table 6 Frequency of reasons for not quitting SLT products among participants

Reasons for not quitting SLT	Number	Percentage
Lack of other amusements and fun	56	34
Lack of awareness about existence of addiction treatment centers	25	15
Lack of insurance coverage for addiction treatment services	83	51

DISCUSSION

This study was conducted to investigate the awareness, attitude and behavior of SLT consumption among business guilds of Chabahar and showed that the prevalence of SLT consumption is 66% in this group, as only 34% stated that they did not use any SLT products. The common border between Chabahar and Pakistan, the smuggling of SLT products into Iran through this region and the traditional production and processing of some forms of SLT in Chabahar have attributed to the increased consumption of these products among this target group. The lack of coordination and cooperation between the responsible organizations and the lack of a strong will to stop SLT retailers and manufacturers may be other reasons for this increased consumption. In a study by Wali et al.[13] 78% of the examined students in Karachi, Pakistan, used SLT, which suggests a higher prevalence than in the present study. The attractiveness of these products and their social acceptance were highlighted as the reasons for the prevalence of its use in various forms in their study.[14] This disparity of findings could also be due to the cultural differences between the populations examined in the two studies, such as differences in customs, traditions and norms governing the community. In a study by Multani et al.[15] the prevalence of different forms of SLT was 24% in the students of one of the colleges of Rajasthan, India, which is less than the figure reported in the present

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study. This disparity could be because the participants in that study were college students, who often have a greater awareness compared to other groups (i.e. merchants in the present study), and this awareness might be one of the factors causing their less SLT consumption.

Gutka was the most frequently consumed product in the present study (27%). A total of 36 (22%) of the participants consumed Naswar or BT in this study. The majority consumed several types of SLT at the same time, such as Gutka, Naswar, BT and Mawa (40%). Pan Parag (4%) and Paan (6%) were the least frequently consumed SLT products. Gutka is traditionally produced by local people in the region, is wrapped in newspaper and sold without any health warnings, which could be one of the reasons for the increased consumption of this type of SLT among the study population. In a study by Jalilvand et al.[12] 8% of the students in Sistan and Baluchistan universities consumed Paan and 3% consumed Naswar. In a study by Desalu et al.[1] 5.8% of the participants consumed Naswar, 0.9% smoked cigarettes and consumed Naswar, 0.7% consumed chewing tobacco, and 0.1% consumed Naswar and chewing tobacco. In a study by Reddy et al.[16] 59% of the participants used Betel quid (Paan) and 45% used chewing tobacco.

In the present study, 53% of the SLT consumers had started consumption between the ages of 10 and 20. Also, 78% of the participants consumed these products 1-5 times per day and 22% consumed them 5-10 times and even more. In a study by Myalil et al.[17] the age at the beginning of consumption was 13 years, and most of the participants consumed tobacco less than 10 times per day. In a study by Ravishankar et al.[18] the age at the beginning of SLT consumption was 14 to 15 years. In the study by Bhatsange et al.[19] 87% of the participants consumed SLT 1-5 times per day while 4% consumed more than 10 times per day.

In the present study, 36% of the participants reported SLT consumption by their father or mother and 12% reported SLT consumption by five close friends. There was a significant, strong and positive relationship between group (i.e. consumer or non-consumer) and consumption by father or mother and five close friends (P<0.001). In studies by Cooper et al.[20] and Dhanani et al.[21] 23% and 57% of the participants reported the consumption of one SLT product by their family members.

In the present study, 96% of the participants discharged the saliva produced due to SLT product consumption by spitting in public pathways in an unhygienic manner. The unhygienic discharge of saliva does not only have a very destructive effect on the environment or create a very ugly scene in public places, but can also lead to the transmission of contagious diseases such as hepatitis A and tuberculosis.[22]

According to the results, 89% of the illiterate participants, 59% of those with primary school education, 74% of those with junior high school education, 71% of those with high school education and 51% of those with university education consumed SLT. There was a significant relationship between the consuming and non-consuming groups in terms of education level (P=0.001). The illiterate tend to consume SLT because they have not received any information through schooling or other ways (the cyberspace, radio, television, etc.), and therefore have less awareness about the harms of SLT products compared to other people; these reasons could justify the higher rate of SLT consumption in this group. Also, due to the possibility of getting health education by different means (school, university, the community, cyberspace, etc.), people with university education have a greater chance of acquiring information and thus consume less SLT products than others. In a study by Mishra et al.[24] on SLT consuming and non-consuming Indian women, the largest SLT consuming group consisted of those with junior high school education (51.74%), which is not consistent with the results of the present study.

In that study, 38.92% of the SLT consumers were illiterate, 6.97% were literate but lacked formal education, 2.13% had high school education and 0.23% had university education. There was a strong and significant positive relationship between the level of education and group (P<0.001). In line with the present study, the participants with university education formed the smallest group of SLT consumers. In the study by Hossain et al.[23] most of the SLT consumers (29.7%) were illiterate, 26.4% had primary school education, 8.80% had secondary education and 8.22% had tertiary education and there was a significant relationship between the level of education and group (P<0.05), which confirms the results of the present study.

Considering that the minimum and maximum Awareness scores were 0 and 18 in this study, the mean and standard deviation of the Awareness score were 11.21±3.8 in the consuming and 10.52±3.62 in the non-consuming groups and there was no statistically significant differences between the consumers and non-consumers in this regard (P>0.05). According to the results obtained in this section, it appears that the participants of this study did not have a proper level of Awareness. For instance, only 44% of them were aware of the impact of SLT on oral and esophageal cancer. Also, 75% were not aware of the side-effects of SLT consumption on hypertension and hyperlipidemia. Studies done in India and Pakistan revealed that majority of the participants were aware of at least some of the harms of SLT,[13, 19, 25] which appears much higher than the Awareness reported in our study. One of the reasons for the high levels of SLT consumption in the present study appear to be the poor Awareness.

The mean and standard deviation of the attitude score was 27.98±7.17 in the consumers and 31.06±5.59 in the non-consumers, which observed a significant relationship between the consumers and non-consumers (P<0.05). The minimum and maximum scores of attitude were 9 and 45 in this study, which seems a moderate score overall. The participants who did not consume SLT had a higher attitude score than the consumers. One of the factors affecting the increase in SLT consumption is the negative attitude of the consumers toward the use of these products. Some of the participants believed that SLT consumption is a recreational activity. Others believed that it alleviates the stress of living, increases tooth strength, removes toothache and increases energy levels. In the study by Wali et al.[13] the mean and standard deviation of the attitude score were 0.9±1.181 in the students (maximum score =8), which shows that the students had a negative attitude toward SLT and there was no significant relationship between attitude and group in that study (P>0.05). Peer pressure is noted as one of the most important reasons for the students' negative attitude toward or, conversely, increased consumption of SLT.[13] In the study by Tiwari et al.[26] most of the participants believed that tobacco-related commercials have affected their consumption, and there was no significant relationship between attitude and consumers and non-consumers groups.

Due to the potential addiction caused by nicotine, implementation of tobacco withdrawal programs is very challenging.[27] In the present study, the majority of participants (51%) reported lack of insurance coverage for addiction treatment services as their most important reason for not quitting these products. In the study of Giuliani et al.[28] participants mentioned the defect in insurance coverage as the most important reason for not quitting their addiction, which is consistent with our findings. Norregaard et al.[29] also showed that participants' most important reason for failure to quit smoking was the presence of smokers in their living and working environment.

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One of the limitations of this study is the use of questionnaires as the only tool for collecting information and their completion in a self-report form. The collected data may thus not reflect all the truth and these issues should be considered in generalizing the results of the study to the whole society.

CONCLUSION

In general, due to the high prevalence of SLT consumption, the poor awareness of the participants in the study and the relationship between attitude and groups (i.e. consuming or non-consuming groups), proper health promotion interventions should be adopted by national and local planners and policymakers to reduce the consumption of these products.

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Awareness, Attitude, Behavior, Smokeless Tobacco

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Conflict of interest

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