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Assessment of Awareness of Smokeless Tobacco Usage in Northern and Western Saudi Arabia

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Abstract: Reports from Saudi Arabia have showed a relationship between patients with oral cancer and a history of smokeless tobacco usage. Thus the aim of this study was to assess the levels of awareness of smokeless tobacco users towards the health effects of smokeless tobacco usage and find out, which are common smokeless products used in Northern and Western Saudi Arabia. This is a descriptive cross sectional study conducted in Northern and Western Saudi Arabia. The study included 420 smokeless tobacco users' volunteers living in three cities: Tabuk and Hail cities in Northern Saudi Arabia and Makkah in the Western Saudi Arabia. Out of 420 respondents, only 198 (47.2%) heard something about the health consequences of smokeless tobacco use and the remaining 222(52.8%) were completely ignored the health effects resulting from smokeless tobacco use. With regard to the smokeless tobacco type, the most common was Toombak followed by Shamma, Afdhal and Nashoog representing 127(3.2%), 65(15.5%), 64(15.2%), 44(10.4%) and 33(7.8%) in this order. Different forms of smokeless tobacco are prevalent in Saudi Arabia. Since most of the users were non-Saudi workers, work places may serve as an effective platform to deliver targeted strategies aimed at smokeless tobacco cessation.

Keywords: Smokeless tobacco, Saudi Arabia, Tobacco awareness, oral cancer

INTRODUCTION

Tobacco use in smokeless and smoked forms is preventable cause of mortality and morbidity worldwide [1]. The term "smokeless tobacco" refers to the consumption of unburned tobacco, in the form of chewing, spitting, dipping, and snuff. Consumers chew the tobacco in the mouth and spit out the juice that builds up.

Nicotine and other constituents are absorbed in the lining of oral cavity. People of many regions, including India, Pakistan, other Asian countries, and North America, have a long history of smokeless tobacco use. Approximately 28 chemical constituents present in smokeless tobacco are carcinogenic in nature, among which nitrosamine is the most prominent [2].

Smokeless tobacco use has been used since the ancient times but the ban on cigarette smoking in public buildings and avoidance of secondhand smoke effect has resulted in increasing use in modern times. As far back as 1986, the advisory committee to the Surgeon General concluded that the use of smokeless tobacco is not a safe substitute for smoking cigarettes. This is based on the fact that smokeless tobacco consumption causes a number of cancer and non-cancerous health problems [3].The use of smokeless tobacco products together with alcoholism and smoking increases the chance of oral cancer [4].

According to the National Report of Global Adult Tobacco Survey conducted in India and Bangladesh, the current prevalence of smokeless tobacco use is 25.9 and 27.2%, respectively. There are 30 different types of smokeless products available in these countries, including *zarda*, which contains dried and boiled tobacco leaves, limes, areca nut, additives, spices, and tannins [5]. After India, Pakistan is the second prominent country in which these smokeless tobacco products are consumed, with prevalence among Pakistani men and women of 21.3 and 19.3%, respectively. More than 90% of oral cancer cases have been reported to be associated with the use of tobacco products, indicating that they are vital factors triggering oral cancer [6].

Overall, 19.7% of the Egyptian population currently use some form of tobacco. Almost 96% of men, who use tobacco, do so daily. Men are more likely to use manufactured cigarettes (31.8% [95% CI 30.6-

33.1]) than shisha (6.2% [95% CI 5.6-6.9]) or smokeless tobacco (4.1% [95% CI 3.4-4.8]) [7]. Toombak is a form of smokeless tobacco, locally made and consumed in Sudan. It is associated with a number of health hazards, particularly oral cancer [8].

Shammah is a traditional form of chewing tobacco that is commonly used in the Middle East especially in Saudi Arabia, Yemen and Sudan [9]. Shammah, a moist form of smokeless tobacco is a major risk for oral cancer development in the Jazan region of Saudi Arabia [10]. In this study, our main focus was to assess the levels of awareness of smokeless tobacco users towards the health effects of smokeless tobacco usage and to find out, which are the common smokeless tobacco products used in Northern and Western Saudi Arabia.

MATERIALS AND METHODS

This is a descriptive cross sectional study conducted in Northern and Western Saudi Arabia. The study included 420 smokeless tobacco users' volunteers living in three cities: Tabuk and Hail cities in Northern Saudi Arabia and Makkah in the Western Saudi Arabia. Participants were randomly selected by simple random method regardless of their nationality, age, and gender and education level.

A Purposeful questionnaire was designed and used for collection of the required data. The following information was obtained from each participant: age, education level, resident, occupation, nationality and smokeless tobacco types (Toombak, Shammah, pan masala, Nashooq, Majun, Adani and Qat).

Data analysis

Statistical Package for Social Sciences (version 16) was used for analysis and to perform Pearson Chi-square test for statistical significance (P value). The 95% confidence level and confidence intervals were used. P value less than 0.05 was considered statistically significant.

Ethical consent

Each participant was asked to sign a written ethical consent during the questionnaire's interview. The informed ethical consent form was designed and approved by the ethical committee of the College of Medicine (University of Hail, Saudi Arabia) Research Board.

RESULTS

This study investigated 420 Smokeless tobacco users, their ages ranging from 19 to 57 years with a mean age of 33 years. All of the study subjects were males. The majority of the study subjects were at age group 26-30 years representing 106/420(25.2%) followed by <25 years, 31-35, 36-40 and 41+ years constituting 94/420(22.4%), 86/420(20.5%), 72/420(17.1%) and 62/420(14.8%), respectively, as indicated in Table 1. With regard to the level of education, most participants were at basic level of education followed by secondary, non-educated and university level, representing 146/420(34.7%), 140/420(33.3%), 73/420(17.4%) and 60(14.3%), respectively, as shown in Table 1.

Table 2, Fig1 summarized the description of the study population by demographical characteristics. In respect to the nationality, the majority of participants were Sudanese followed by Egyptian, Indian and Pakistani, representing 133(31.5%), 92(21.9%), 78(15.6%) and 55(13%), respectively. The majority of the study subjects are currently living in Hail city followed by Tabuk and Jeddah, constituting 243(57.8%), 96(22.9%) and 81(19.3%) in this order.

With regard to occupation, the great majority of the study subjects were labors followed by employee constituting 324/420(77%) and 42/420(10%), as indicated in Table 2, Fig1.

With regard to the smokeless tobacco type, the most common was Toombak followed by Shamma, Afdhal and Nashoog representing 127(3.2%), 65(15.5%), 64(15.2%), 44(10.4%) and 33(7.8%), in this order, as indicated in Table 2, Fig 2.

Table 1: Description of the study population by age and education

Variable	Category	<25 years	26-30	31-35	36-40	41+	Total
	Frequency	94	106	86	72	62	420
	Percentage	22.4%	25.2%	20.5%	17.1%	14.8%	100%
Education							
	Non-educated	14	15	9	15	20	73
	Basic	34	33	28	31	20	146
	Secondary	36	38	32	16	18	140
	University	9	20	17	10	4	60

Table 2: Description of the study population by demographical characteristics

Variable	Saudi	Egyptian	Sudanese	Indian	Yemeni	Pakistani	Total
Residence							
Hail	26	49	94	41	7	26	243
Tabuk	5	17	22	17	17	18	96
Jeddah	5	26	17	20	2	11	81
Total	36	92	133	78	26	55	420
Occupation							
Jobless	8	1	0	0	0	0	9
Student	20	1	0	0	0	0	21
Labor	0	83	103	71	17	50	324
Employee	1	2	23	5	8	3	42
Others	7	5	7	2	1	2	24
Type of smokeless tobacco							
Shamma	11	15	8	13	**8**	**10**	**65**
Must	7	4	1	26	**2**	**24**	**64**
Afdhal	10	11	10	6	**3**	**4**	**44**
Toombak	3	6	107	6	**0**	**5**	**127**
Qat	0	19	2	0	**0**	**0**	**21**
Maajoon	0	4	0	10	**3**	**4**	**21**
Adani	0	28	0	0	**3**	**1**	**32**
Nashoog	4	5	3	9	**7**	**5**	**33**
Other	1	0	2	8	**0**	**2**	**13**

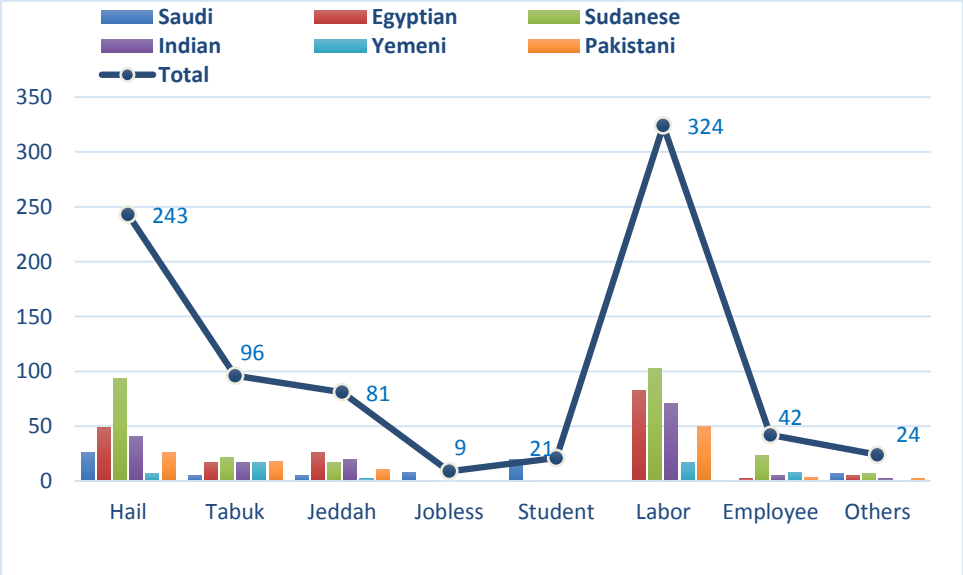

Fig-1: Description of the study population by nationality, residence and occupation

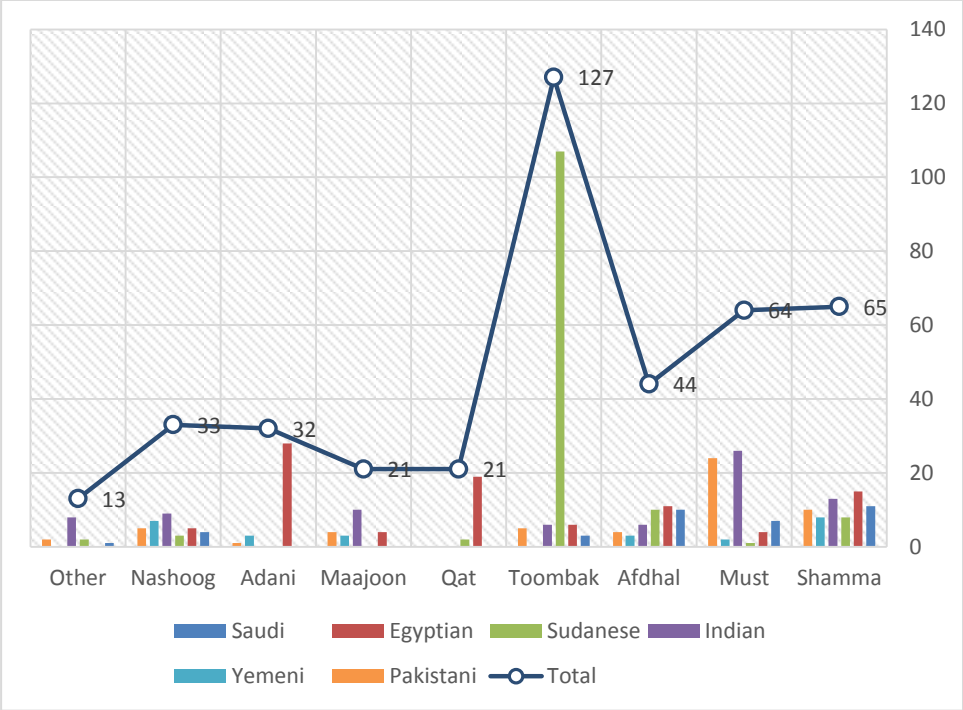

Fig-2: Description of the study population by age and smokeless tobacco type

Table 3: Distribution of the study population by perception toward beginning of tobacco use

Variable	Saudi	Egyptian	Sudanese	Indian	Yemeni	Pakistani	Total
Increases activity	2	9	3	9	3	8	34
Improves mood	10	11	32	16	8	8	85
Decreases stress	4	9	12	7	1	7	40
Relax with friends	9	31	58	23	7	18	146
Customs &traditions	2	6	5	4	2	3	22
Alternative to smoking	5	18	13	8	0	5	49
Idleness	4	8	10	11	5	6	44
Total	36	92	133	78	26	55	420
Are you satisfied to use it							
Yes	10	40	56	37	12	21	176
No	26	52	77	41	14	34	244
Do you think that it enhances the job performance							
Yes	8	32	41	25	8	19	133
No	27	60	92	53	18	36	286
Do you get any awareness about the risk of tobacco use							
Yes	15	43	74	31	4	31	198
No	21	49	59	47	22	24	222

Table 3, defines the study population by perception toward beginning of smokeless tobacco use. On asking the participants what was motivated them to begin using smokeless tobacco, the majority of participants indicated friends' influence (Relax with friends), followed by "improves mood", "alternative to smoking", "Idleness", "Decreases stress", "Increases activity" and "customsc & traditions", constituting 146(34.7%), 85(20.2%), 49(11.7%), 44(10.4%). 34(8%) and 22(5.2%), correspondingly, as indicated in Table 3, Fig 3.

When asking the question "Are you satisfied to use it", Out of 420 respondents, 176 (41.9%) answered yes and the remaining 244(58.1%) stated as unsatisfied, as indicated Table 3, Fig4.

When asking the question "Do you think that it enhances the job performance", Out of 420 respondents, 133 (31.7%) answered yes and the remaining 286(68.3%) stated as unsatisfied, as shown in Table 3, Fig 4.

When asking the question "Do you get any awareness about the risk of smokeless tobacco use", Out of 420 respondents, 198 (47.2%) answered yes and the remaining 222(52.8%) stated no, as shown in Table 3, Fig 4.

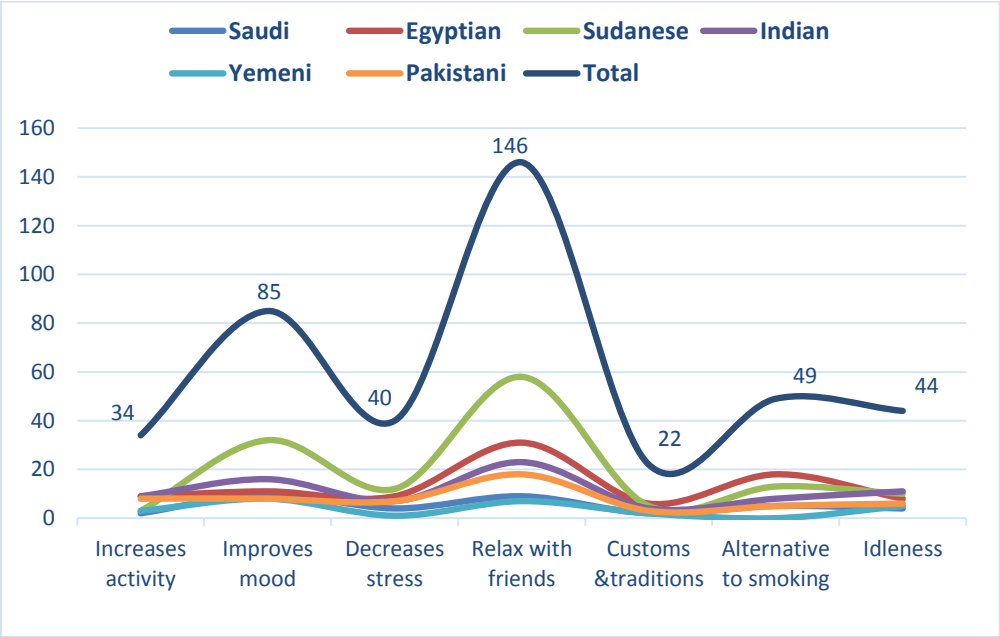

Fig-3: Description of the study population by perception toward beginning of smokeless tobacco use

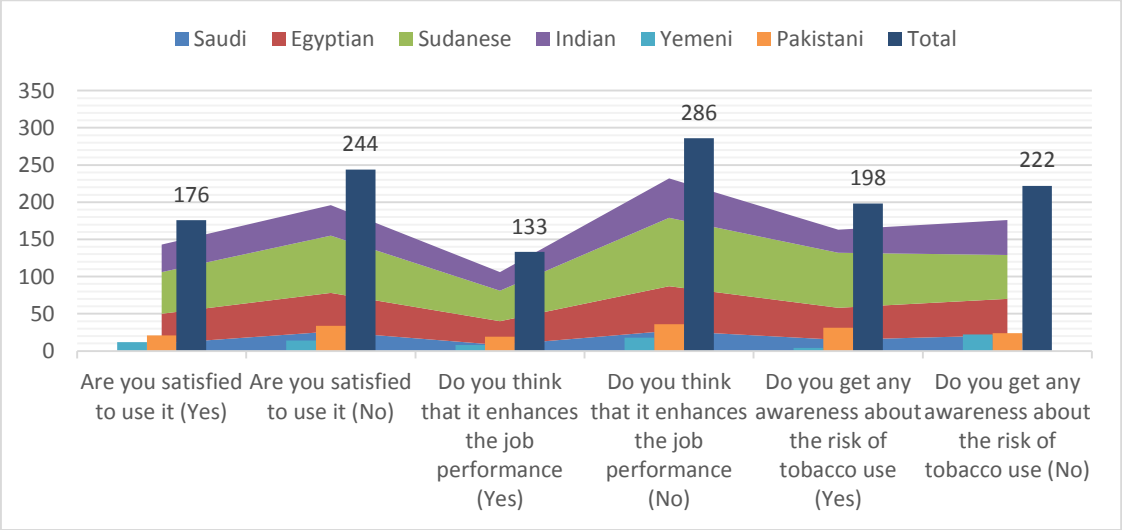

Fig-4: Description of the study population by perception toward beginning of smokeless tobacco use

Table 4: Distribution of the study population by perception toward harmful effects of smokelesstobacco use

Variable	Saudi	Egyptian	Sudanese	Indian	Yemeni	Pakistani	Total
	36	92	133	78	26	55	420
Tobacco causes chronic diseases							
Yes	3	14	19	14	5	15	70
No	33	75	111	63	21	39	342
Smokeless tobacco affects teeth and gum							
Yes	29	62	91	51	19	37	289
No	7	30	42	27	7	18	131
Smokeless tobacco causes oral cancer							
Yes	19	40	74	34	8	26	201
No	17	52	59	44	18	29	219

Table 4 summarizes the distribution of the study population by perception toward harmful effects of smokeless tobacco use. When we asked them the question "Is smokeless tobacco usage causes chronic diseases" Out of 420 participants, 70(16.6%) answered "Yes" and the remaining 342(81.4%) answered "No". When asking them the question **"**Smokeless tobacco affects teeth and gum" Out of 420 participants, 289(68.8%) answered "Yes" and the remaining 131(312%) answered "No". When asking them the question **"**Smokeless tobacco causes oral cancer" Out of 420 participants, 201(47.8%) answered "Yes" and the remaining 219(52.2%) answered "No", as indicated in Fig 5.

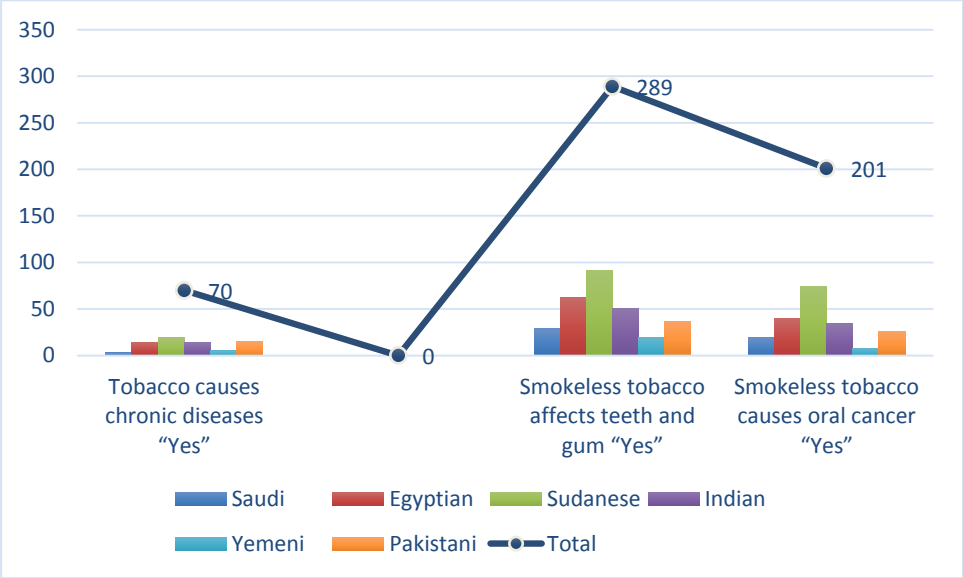

Fig-5: Description of the study population by perception toward harmful effects of smokeless tobacco use

DISCUSSION

Smokeless tobacco products, such as moist snuff or chewing tobacco, contain many of the same carcinogens as tobacco smoke [11]; however the impact of many unknown or locally used types of smokeless tobacco on health is unknown. Foreign workers in Saudi Arabia, estimated to number about 9 million as of April 2013, began migrating to the country soon after oil was discovered in the late 1930s [12]. Most of these workers came with their local tobacco habits, which acquired by others, including Saudi and Non-Saudi inhabitants in Saudi Arabia. Therefore, there are different types of smokeless tobacco used in Saudi Arabia with diverse health effects. Thus the aim of the present study was to assess the levels of knowledge and awareness among users towards these smokeless tobacco products.

In the present study most of smokeless tobacco users with low level of awareness were none educated or with low level of education. It was previously reported that irrespective of gender, with increasing years of education, people are less inclined to use tobacco [13].

The great majority of smokeless tobacco with low level of awareness in this study were labors. A previous study has identified four categories in this regard: older chew users (17.2%); younger poly-tobacco users (28.7%); skilled laborers with a high school diploma (27.5%); and educated professionals (26.6%). External validation of these classes indicated that older chew users and younger poly-tobacco users were more likely than the educated professionals to be former and current smokers, respectively [14]. Another study has reported that tobacco consumption is highest among labor classes and low socioeconomic status, with inclination toward smokeless tobacco [15].

The highest frequency of smokeless tobacco users in the current study were Sudanese and most of them were using Toombak, which is tobacco-specific nitrose amine (TSN) rich tobacco [16]. Several studies have reported that toombak has a major role in etiology of oral cancer in the Sudan, particularly in the recent years with dramatic increase in incidence rates of oral cancer in Sudan [17-20].

The frequency of Egyptian smokeless tobacco users were after the Sudanese in the present study and most of them were found using Qat. Some reports suggest that 20 million people worldwide are regularly using Qat as a stimulant, even though the habit of chewing Qat is known to cause serious health problems. The World Health Organization considers Qat a drug of abuse since it causes a range of health complications. The main component of Qat is cathinone, which is structurally and functionally similar to amphetamine and cocaine. Several studies have demonstrated that Qat chewing has unfavorable cardiovascular effects [21].

Qat chewing is highly prevalent in Africa, Yemen and Jazan region, Southwest of Saudi Arabia [22].

With regard to perception toward beginning of smokeless tobacco use, the majority of users acquired the habit from friends. Many studies have shown that tobacco user who inhabit social contexts with a greater number of tobacco users may be exposed to more positive norms toward tobacco use and more cues to smoke [23, 24].

Many factors motivated the study subjects to initiate smokeless tobacco use were disclosed in the present study were previously investigated in a number of reports [25,26]. However, these factors are not fur from those influencing tobacco smoking.

The findings of the present study showed that most of those tobacco users didn't receive any sort of awareness towards smokeless tobacco consequences. There is need of understanding all-inclusive roles of multiple factors responsible for smokeless tobacco initiation and the role of barriers in cessation for developing impactful customized interventions to decrease burden of Smokeless tobacco [27]. The commonest form of known incentive for cessation of tobacco use is quit and wins competition [28], in addition to application of continuous educational program in different settings.

The limitations of this study included its cross sectional settings and only male gender due to the fact that tobacco use among females is considered as social stigma in Saudi Arabia.

CONCLUSION

Different forms of smokeless tobacco are prevalent in Saudi Arabia. Since most of the users were non-Saudi workers, work places may serve as an effective platform to deliver targeted strategies aimed at smokeless tobacco cessation. Such strategies should include motivations, periodic health education informing the risks to them and their families and awareness about harmful health consequences that may be caused by smokeless tobacco.

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