Challenges of Tobacco Control Program in Iran

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Abstract

Background: This study assessed the status of cigarette marketing in Iran as well as the attitude of smokers toward smoking and the policies and tobacco control programs in the country.

Methods: This cross-sectional study was conducted on 3480 volunteer smokers in six provinces, using a stratified cluster random sampling method. The study population consisted of smokers who used at least one cigarette per day. The data collection tool was an anonymous self-administered questionnaire including basic information and 20 five-choice questions related to participants' attitude toward smoking habits (Cronbach's alpha; 79.73%.).

Results: The majority (66.9%) of participants started smoking at the age of 10 to 19 years and 61.1% used foreign cigarettes. Of 160 marketed brands, 38 (23.8%) were domestic and 122 (76.2%) were foreign, including 63 (39.3%) imported and 59 (36.9%) smuggled brands. Being tempted (25.0%), getting nervous (24.1%), and seeking euphoria (24.1%) were the most common reasons for restarting cigarette smoking after cessation. The majority of participants believed that smoking in public places was a violation of the rights of others and smoking should be avoided in such places.

Conclusion: Smoking prevention programs should focus on adolescents as the most vulnerable age group. Raising the retail price of tobacco products through increasing taxes can reduce consumption, particularly among first starters and youth. However, increasing taxes and prices of tobacco products may be effective when simultaneous effective measures are implemented to eliminate all kinds of illicit trade in all forms of tobacco products.

Keywords: Attitude, Health Policy, Iran, Smoking, Smoking Cessation, Tobacco

Introduction

Tobacco smoking is one of the four main behavioral risk factors of cardiovascular diseases.[1] Risks of mortality and morbidity from tobacco consumption result not only from direct tobacco use, but also from exposure to second-hand tobacco smoke.[2–4] The spread of the tobacco epidemic is a serious public health problem worldwide,[5,6] which is facilitated through a wide variety of complex factors such as trade liberalization, global marketing, direct foreign investment, and tobacco advertising promotion and sponsorship.[5]

The WHO Framework Convention on Tobacco Control (FCTC) was developed in 2005 in response to the globalization of the tobacco epidemic.[5] In the same year, the parliament of the Islamic Republic of Iran legislated the accession of Iran to the WHO FCTC.[7] In 2013, the WHO provided an action plan for prevention and control of noncommunicable diseases. A 30% relative reduction in prevalence of current tobacco use in persons aged 15+ years was one of the nine voluntary targets that were suggested in this guideline.[1] Several policy options have been suggested to reduce tobacco use and exposure to tobacco smoke.

However, there is no single and comprehensive formulation of an action plan that fits all countries, because socioeconomic levels of countries are different and their progress in the prevention and control of noncommunicable diseases is not similar. Therefore, each country should adopt policies according to its own conditions and facilities.

The age-standardized estimated prevalence of smoking among people aged 15 years or more in Iran is 11.7% (22.4% in males and 0.8% in females).[8] National tobacco control program was started in Iran on December 31, 2014. Specific national government objectives were determined in tobacco control and a national agency was formed for tobacco control.[8] Despite these measures, self-perception of tobacco consumption in the general population has not been properly investigated. Furthermore, the information about cigarette marketing in Iran is limited. Unless reliable information about self-perceptions of tobacco consumption and cigarette marketing is collected, it would be difficult to design effective tobacco control strategies.

This study was conducted on a large population in different provinces in Iran to assess the status of cigarette marketing in Iran and to understand the attitude of the smokers toward smoking and the policies and tobacco control programs.

Materials and Methods

The Research Council of the Hamadan University of Medical Sciences approved this study. This cross-sectional study was conducted on voluntary smokers in six provinces of Iran, including Tehran (capital city), Hamadan, Markazi, Isfahan, Lorestan, and Kurdistan. According to the results of an epidemiological study conducted by Heydari *et al.*[9] in Iran, about 60.1% of the smokers

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preferred foreign cigarettes. On the basis of this result, assuming *P* to be 0.399, we arrived at a sample size of 2315 at 95% significance level and 0.05 error level. Due to stratified cluster random sampling, we increased the sample size to one and a half times and arrived at a maximum of 3480.

We used a stratified cluster random sampling method. We considered each province as a stratum and allocated 580 persons to each province. We tried to select a sample as similar as possible to the general population. For this purpose, we selected voluntary participants from the general population who were in drugstores, malls, banks, gyms, bus stations, healthcare centers, parks, arrival/departure terminals, subway, dormitory, book fair, factories, workshops, mosque, university, government office, hospitals, clinics, barber shops, addiction cessation center, and street passers-by.

The study population included smokers who smoked at least one cigarette per day, regardless of sex and age. The volunteers filled out an anonymous self-administered questionnaire. The data collection tool consisted of two parts. The first part of the questionnaire included basic information and demographic characteristics such as gender, marital status, educational level, age of starting smoking, duration of cigarette smoking, the number of cigarettes smoked per day, type of cigarette (domestic, foreign), model of cigarette (light, regular), income per month, and paying for cigarettes per month.

The second part of the questionnaire included 20 five-choice questions (perfectly disagree/ disagree, no opinion, agree, perfectly agree) related to the participants' attitude toward smoking habits. Each question was scored from one to five, yielding a total score that ranged from a minimum of 20 to a maximum of 100 for each volunteer. The reliability of the questionnaire was evaluated through a pilot study including 50 individuals. The value of Cronbach's alpha was 79.73%.

Stata version 11 (StataCorp, College Station, TX, USA) was employed for data analysis. We also used Microsoft Excel 2013 for drawing figures.

Results

We identified 3971 eligible participants, 421 persons refused to fill out questionnaires, 24 participants did not return questionnaires, and 46 participants were excluded from the analysis because they did not complete questionnaires. The analysis was based on data from the remaining 3480 participants. The acceptance rate was 88%. The mean (SD) age of the participants was 32.14 (13.34) with a range of 12 to 85 years.

The characteristics of the participants are given in Table 1. Of 3480 participants, 3303 (94.9%) were male, 1856 (53.3%) were single, 1336 (38.4%) were highly educated, 2328 (66.9 %) started smoking at the age of 10 to 19 years, 1990 (52.7%) smoked for less than 10 years, 920 (26.4%) used 16 to 20 cigarettes per day, 2127 (61.1%) used foreign cigarettes, 1565 (45.1%) used light cigarettes, 1196 (40.4%) had a monthly income between $150 to $299, and 1058 (30.4%) spent $10 to 19.9$ per month for tobacco consumption.

According to our results, 160 kinds of cigarettes were marketed in Iran, including 38 (23.8%) domestic brands and 122 (76.2%) foreign brands. Sixty-three (39.3%) of the foreign brands were imported (with holograms) and 59 (36.9%) were smuggled (without holograms). All (100%) domestic brands had health warning labels whereas only 28 out 63 (44.4%) imported brands and only one out of 59 (1.7%) smuggled brands had health warning labels (Figure 1). The most commonly used domestic brands were Bahman (32.9%), Bistoon (24.8%), G1 (12.4%), Cima (6.5%), and SATER (4.4%); the most common foreign brands were Winston (25.5%), KENT (18.5%), Magna (15.6%), Marlboro (8.1%), and Montana (5.2%) (Figure 2).

Table 1. The characteristics of the study population (*n* = 3480).

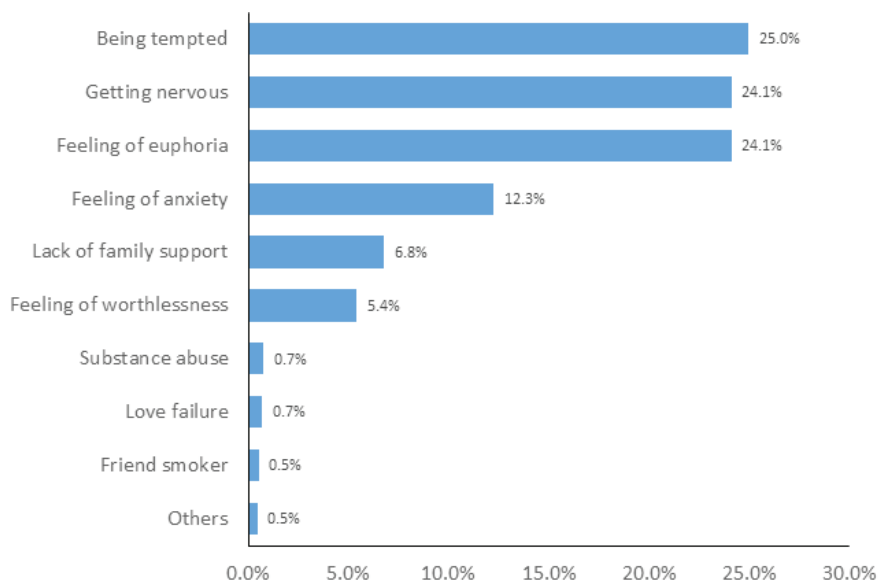| Variables	Number	Percentage
Gender		
Male	3303	94.9
Female	177	5.1
Marital status		
Single	1856	53.3
Married	1490	42.8
Divorced	93	2.7
Widow	41	1.2
Educational level		
Primary school	446	12.9
Secondary school	529	15.2
High school	1166	33.5
Academic	1336	38.4
Age of start smoking (yr)		
1-9	73	2.1
10-19	2328	66.9
20-29	950	27.3
30-39	93	2.7
≥40	36	1.0
Duration of cigarette smoking (yr)		
1–9	1990	57.2
10–19	765	22.0
20–29	359	10.3
30–39	182	5.2
≥40	184	5.3
Number of cigarette smoking/day		
1–5	834	24.0
6–10	898	25.8
11–15	357	10.3
16–20	920	26.4
21–30	207	5.9
≥31	264	7.6
Type of cigarette		
Domestic	663	19.1
Foreign	2127	61.1
Both	690	19.8
Model of cigarette		
Light	1565	45.1
Regular	976	28.1
Both	930	26.8
Income per month ($)		
<150	597	20.1
150–299	1196	40.4
300–449	590	19.9
450–599	356	12.0
≥600	224	7.6
Payment for cigarette per month ($)		
<10	874	25.2
10–19.9	1058	30.4
20–29.9	687	19.8
30–39.9	418	12.0
≥40	439	12.6

Figure 1. The frequency of domestic and foreign cigarettes with or without health warning label
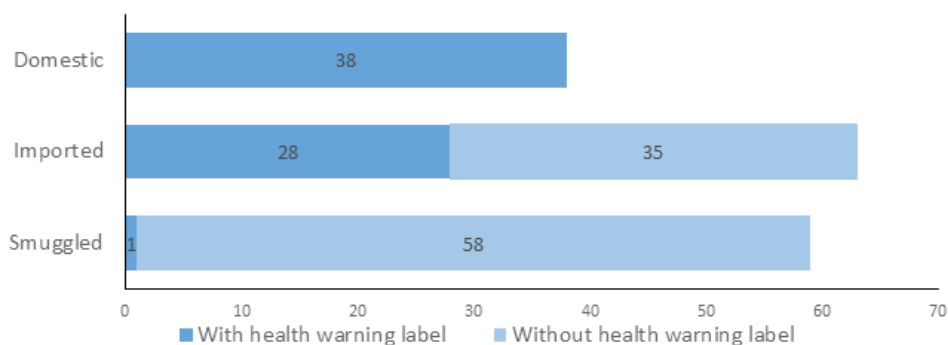

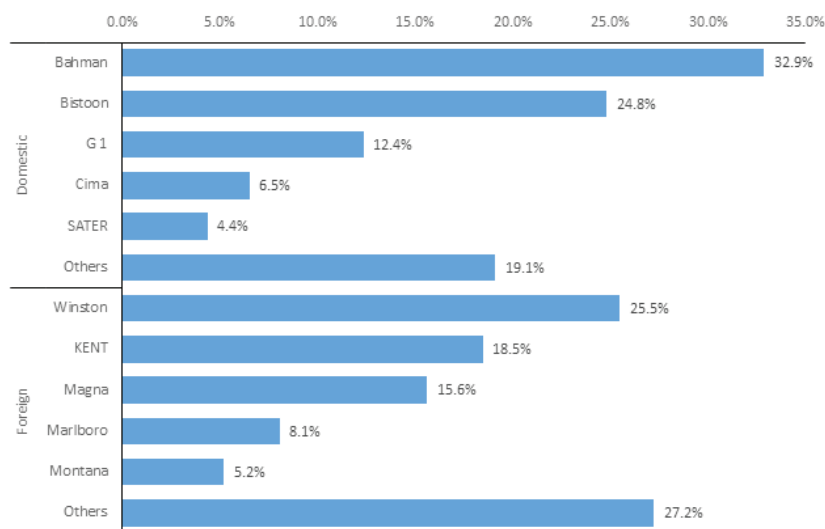Figure 2. The most common brands of domestic and foreign cigarettes used by the study population.

Figure 3. Causes of restart cigarette smoking after cessation.

Table 2. Attitude of the participants toward smoking habits (%).

Row	Items	Perfectly Disagree	Disagree	No opinion	Agree	Perfectly agree
1	If smoking in indoor public places is banned, I will avoid smoking in such places.	12.8	7.0	9.3	39.2	31.7
2	I will reduce cigarette smoking if the price of cigarettes increases,	21.8	29.5	13.1	22.5	13.1
3	I will never use foreign cigarette if the price of domestic cigarettes increases,	24.2	29.5	21.6	15.3	9.4
4	The adverse effects of domestic cigarettes are similar to that of foreign cigarettes.	17.7	26.7	16.7	24.1	14.8
5	The essence of domestic cigarettes is similar to that of foreign cigarettes.	24.4	34.5	15.3	16.3	9.5
6	Light cigarette is as harmful as conventional cigarette, although has less smoke.	10.7	24.1	17.9	29.8	17.5
7	Smoking seriously threatens my health.	6.7	9.1	13.3	29.9	41.0
8	My cigarette smoking will hurt my family members.	6.5	9.4	14.0	38.2	31.9
9	I avoid smoking at work place.	13.4	24.5	14.8	27.4	19.9
10	I will never enter smoke-free environments with a burning cigarette.	6.4	11.4	13.5	42.1	26.6
11	Smoking in public places is a violation of the rights of others.	6.2	9.0	14.4	39.6	30.8
12	I always extinguish my cigarette before entering public places.	6.0	10.1	14.2	43.2	26.5
13	I won't be upset if some reminds me for smoking in public places.	11.6	16.0	16.0	34.9	21.5
14	I respect the law of banning smoking in public places and I will perfectly follow it.	5.5	10.9	16.2	42.2	25.2
15	One reason for smoking is easy access to cigarettes.	10.5	19.3	14.5	29.0	26.7
16	Easy access to cigarettes can increase the prevalence of smoking, especially in adolescents and young adults.	8.4	17.4	13.5	31.2	29.5
17	Health warning messages by radio, TV, and other media are effective in reducing cigarette smoking.	17.8	30.1	17.9	20.7	13.5
18	Bans on all forms of tobacco marketing to persons aged under 18 years will reduce cigarette smoking.	13.8	18.3	13.8	26.7	27.4
19	The health warning labels on cigarette packs make me worry.	18.2	27.9	15.5	25.6	12.8
20	The health warning labels on cigarette packs make me smoke less.	20.4	34.3	14.5	18.0	12.8

Most of the participants (57.3%) were willing to stop smoking and 41.9% were ready to quit cigarette smoking if there would be smoking cessation centers that supported them free of charge. In addition, 3103 (89.2%) participants had attempted to quit smoking at least once in the past year. The causes of restarting after quitting smoking are given in Figure 2. Being tempted (25.0%), getting nervous (24.1%), and seeking euphoria (24.1%) were the most common reasons that participants reported for restarting cigarette smoking after cessation (Figure 3).

The attitude of participants toward smoking habits is given in Table 2. According to these results, 70.9% of participants believed that if smoking in indoor public places were banned, they would avoid smoking in such places; 68.7% stated that they would never enter smoke-free environments with a burning cigarette; 69.7% acknowledged that they would always extinguish their cigarettes before entering public places; 70.4% believed that smoking in public places was a violation of the rights of others; 67.4% respected the law of banned smoking in public places; and 47.3% claimed that they would avoid smoking in workplaces.

About 55.7% of the participants believed that one reason for tobacco epidemic was easy access to cigarettes; 54.1% acknowledged that bans on all forms of tobacco marketing to persons aged under 18 years would reduce cigarette smoking; and 60.7% stated that easy access to cigarettes could increase the prevalence of smoking, especially in adolescents and young adults.

Only 38.4% of the participants stated that the health warning labels on cigarette packs made them worry and just 30.8% claimed that health warning labels on cigarette packs made them smoke less; in addition, only 34.2% expressed that health warning messages by radio, TV, and other media were effective in reducing cigarette smoking.

Discussion

We indicated that a majority of people started smoking at the age of 10 to 19 years. Cigarette smoking and hookah are common among adolescent and young adults. Bashirian et al. reported that about 36.1% of high-school students have used hookah at least once in the past.[10] Another epidemiological study conducted in Iran reported that almost 80% of smokers experienced their first smoke under 15 years of age.[11] This means that policies and prevention programs should focus on adolescents and young adults as the most vulnerable age group, emphasizing the need for age-specific tobacco control strategies. For instance, warning secondary and high school students about the dangers of tobacco use through effective health programs may be helpful. Furthermore, bans on all forms of tobacco marketing to people aged under 18 years may reduce the prevalence of cigarette smoking. These suggestions are consistent with the WHO global action plans for the prevention and control of noncommunicable diseases.[1]

Our findings showed that most of smokers had a good attitude

toward tobacco control programs. Most smokers believed that smoking in indoor workplaces and public places was a violation of the rights of other people and agreed that smoking in such places should be avoided. This finding indicates that if governments create by law completely smoke-free environments in all indoor workplaces, public places and public transport, a majority of smokers are likely to follow the law. This will offer help to people who want to reduce their exposure to second-hand smoke, especially pregnant women.

According to our results, the majority of smokers used foreign cigarettes. In addition, 36.9% of the foreign cigarettes were smuggled brands. Even a major part of those cigarettes had holograms and were supposed to be imported formally, but were really smuggled, because some holograms were illegally printed and installed on the cigarette packets. A similar study, which was conducted in 2005 in Tehran showed that about 40% of smokers used smuggled cigarettes,[12] indicating that a large part of cigarettes marketed in Iran are illicit tobacco products. In this situation, increasing tobacco taxes and prices could reduce the affordability of tobacco consumption when simultaneous effective measures are implemented to eliminate all kinds of illicit tobacco products. It should be remembered that cigarette smuggling is a problem worldwide, though Iran and Iraq are the two main target markets for tobacco smuggling in the Eastern Mediterranean Region.[13] A report estimated that 16.8% of cigarettes used in low-income countries, 11.8% in middle-income countries, and 9.8% in high-income countries were smuggled.[14] Another report indicated that not only foreign brands but also domestic brands are smuggled into Turkey.[15] Therefore, cooperative action is necessary to eliminate all kinds of illicit trade in all forms of tobacco products, including smuggling, illicit manufacturing and counterfeiting as confirmed in the preamble of the WHO FCTC.[5]

According to the WHO FCTC, each unit packet and package of tobacco products should carry health warning labels describing the harmful effects of tobacco use.[5] This issue was confirmed by the WHO global action plan for the prevention and control of noncommunicable diseases.[1] Furthermore, several epidemiological studies have indicated that graphical health warning labels are associated with increased awareness of the smokers about smoking-related risks and toxic tobacco constituents[16] and have an impact on avoidance of cigarette smoking.[17] However, in our study, only 38.4% of the participants believed that health-warning labels on cigarette packs and health warning messages from the media might be effective in reducing cigarette smoking. Unawareness of the participants about the serious consequences of tobacco may be a reason. However, comprehensive educational and public awareness programs about the health risks of tobacco use and exposure to tobacco smoke, as well as providing information about the benefits of the cessation of smoking may promote public awareness of the serious consequences of tobacco consumption.

The majority of participants had attempted to quit smoking, but unfortunately, they restarted after a while. Nicotine dependence is the most widespread addictive behavior worldwide. Since smoking causes both physical and psychological dependence on nicotine, the success rate of smoking cessation is not ideal in general.[18] However, most of the participants stated that they were willing to quit tobacco use if there were smoking cessation centers that supported them free of charge. This indicates that providing and promoting tobacco cessation centers should be an important

component of national efforts to provide facilities for those who want to stop smoking.

This study had a few limitations as follows. We directly asked the participants' monthly income. This is a sensitive question and people usually do not give a correct answer to it. However, this variable had no significant effect on our results. Some smuggled cigarettes were supposed to be labeled with spurious holograms and were misclassified as imported. This might introduce information bias to our results and lead to underestimation of the rate of cigarette smuggling. About 12% of the smokers refused to participate or they were excluded from the study for some reasons. This might introduce selection bias into our results.

Despite the above limitations, this study could efficiently assess the status of cigarette marketing in Iran, the characteristics of smokers, and their attitude toward smoking habits and tobacco control strategies. We enrolled a large sample selected from general population, irrespective of age, sex, and other characteristics in six provinces in Iran to increase the generalizability of the results. Thus, the body of evidence was sufficient to make a robust conclusion regarding the objective of the study.

We concluded that the majority of smokers use foreign cigarettes and a huge part of the cigarettes marketed in Iran are either imported or smuggled. In addition, most of the smokers experienced their first cigarette during the second decade of life. Therefore, smoking prevention programs should focus on adolescents and young adults as the most vulnerable age group. Raising the retail price of tobacco products through increasing taxes can reduce consumption particularly among first starters and youth. However, increasing taxes and prices of tobacco products may be effective when simultaneous effective measures are implemented to eliminate all kinds of illicit trade in all forms of tobacco products.

Furthermore, most of the participants had a good attitude toward tobacco control strategies and believed that smoking in indoor workplaces and public places is a violation of the rights of other people. Therefore, it is expected that legislation of completely smoke-free environments in all indoor workplaces, public places and public transport may effectively reduce exposure to second-hand smoke. Finally, providing smoking cessation centers that support smokers free of charge may be an effective measure to help smokers who are willing to quit cigarette smoking.

Conflict of interest statement

The authors declare that they have no conflicts of interest for this work.

Acknowledgments

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