

Prevalence of Tobacco Use in Adults; 2016 Nationally Representative Household Survey in Iran

Abstract

Background: Tobacco use is an established preventable risk factor for many noncommunicable diseases and is considered as an important indicator for monitoring progress towards Universal Health Coverage (UHC) and Sustainable Development Goals (SDGs). This study aimed to determine the situation of tobacco use among Iranian adults using 2016 household survey. **Methods:** This is a secondary analysis of the data from 2016 nationally representative STEPwise approach to Surveillance (STEPS) survey with a sample size of 31,050. The data on tobacco consumption was gathered using questions incorporated in the survey questionnaire. **Results:** The prevalence of current tobacco use in Iran was 25.2 % (24.4-25.9) in men versus 4% (3.7-4.3) in women. The prevalence was higher in rural areas and among second wealth group. The prevalence of current daily cigarette smoking was 20.1% (19.4-20.7) in men versus 0.9% (0.8-1.1) in women. Average number of cigarettes per day among current cigarette smokers was 14.5% (14.1-14.9), mean age at start smoking among daily cigarette smokers was 21.6% (21.1-22), and 95.2% (94.4-96) of daily current daily cigarette smokers attempted for cessation during past 12 months. Prevalences of exposure to secondhand cigarette smoke among nonsmokers at homes and workplaces were 23.21% (22.65-23.76) and 18.04% (17.2-18.87), respectively. **Conclusions:** There was a large difference between the prevalence of tobacco use between men and women (25.2% vs. 4%). Higher prevalences of tobacco use in rural areas and among lower wealth quintiles require more equity-based approaches in tobacco combatting actions.

Keywords: Health surveys, Iran, sustainable development goals, tobacco use, universal health coverage

Background

Tobacco is one of the most important preventable risk factors for many non-communicable diseases (NCDs) including cardiovascular disease, stroke, cancer, and is responsible for 7 million deaths every year.^[1] Therefore, it is not surprising that some health-related targets in Sustainable Development Goals (SDGs) are related to tobacco both directly as target 3.A and indirectly as a risk factor for non-communicable diseases, and achieving Universal Health Coverage (UHC).^[2,3] So, tobacco monitoring is considered as a priority and an essential recommendation in order to assess the progression towards SDGs and achieving UHC especially in the low-and-middle-wealth countries.^[4-6]

Assessment of the prevalence and socioeconomic inequalities in risk factors for NCDs in Iran are among research priorities to achieve long-term health

goals.^[7] It is recommended that prevalence of risk factors and behaviors such as tobacco use in the countries be monitored by setting up of surveillance systems using population surveys.^[8,9]

The STEPwise approach to Surveillance (STEPS) is a standardized survey used by World Health Organization (WHO) for collecting, analyzing, and disseminating data on many risk factors for NCDs.^[10] This survey was initiated in 2002^[10] and has gone through a many upgrades and revisions through years.^[10,11] The tobacco module in this survey called Tobacco Questions for Surveys (TQS) was presented by WHO in 2011.^[12] Although these questions were originally a part of Global Adult Tobacco Survey (GATS), they can also be incorporated into other surveys or be used as a standalone module. In 2013, the tobacco module in the STEPs was modified, enabling the STEPs instrument to provide information on all TQS indicators.^[10] Since 2005, seven rounds of STEPs surveys have

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been implemented in Iran.^[13-16] This survey is one of the sources for acquiring data on the tobacco consumption in the country and due to frequency of conducting, is now accepted as a reference by national authorities and the WHO. In this study, we assessed the prevalence of tobacco use in Iran using the last round of STEPs survey conducted in 2016. The aim of this analysis was to add equity stratifiers including age, gender, income, and geographic location.

Materials and Methods

This study is a secondary analysis of the data from 2016 nationally representative Iranian STEPs survey. Using proportional to size cluster random sampling, 31,050 participants aged 18 and above from both urban and rural parts in 30 provinces of the country have enrolled in this household survey.^[14] The data on tobacco consumption was gathered in the first step of the survey using questions incorporated in the survey questionnaire. Due to importance of cigarette smoking, apart from tobacco consumption in general, there are also questions specifically asking about cigarette smoking.

Out of 31,050 participants, 30,002 (96.6%) completed the questionnaires for tobacco use (52.31% female); although as shown in Table 1, this number varies for each question.

National estimates for tobacco-related prevalence including current tobacco users, current daily cigarette smokers, average number of cigarettes per day, age at start smoking were calculated stratified by sex, age group (18-24, 25-59, >60), place of residence (urban, rural), and wealth quintile (poorest = quantile 1, richest = quantile 5) and presented with 95% Confidence Intervals (CIs). The wealth quintile was assessed from monthly income, housing condition, and ownership of household assets including vehicle, TV, computer, internet, mobile phone, etc. A score was generated for each household using principal component analysis and categorized into five quintiles.

The data were analyzed using STATA version 14. All calculations were carried out with weighting factor that

corrects the sample for deviations from the population structure.

Results

Table 2 shows the prevalence for tobacco consumption. The prevalence of current tobacco users in Iran was 14.2% (25.2% in men, 4.0% in women). The prevalence was higher in rural than urban areas (15.4% vs. 13.6%) totally and for both sexes, (26.5% vs. 24.6% in men) and (5.3% vs. 3.5% in women). Considering the wealth quintiles, total prevalence for current tobacco users was higher in the second quintile (15.7%). In men, the prevalence was higher in the third (middle) quintile (27.8%) and in women in the first (poorest) quintile (6.5%).

The prevalence of past tobacco users was 20.11% (35.0% in men, 6.5% in women). Similar to current tobacco users, the prevalence was higher in rural than urban areas (22.0% vs. 19.3%) totally and for both sexes, (37.5% vs. 33.9% in men) and (7.9% vs. 5.9% in women). This prevalence was totally higher in the second quintile (21.6%), in men it was higher in the third (middle) quintile (38.2%) and in women in the first (poorest) quintile (6.9%).

Cigarette-related indicators are shown in Table 3. The prevalence of current daily cigarette smoking was 10.1%. This prevalence totally and in both sexes was higher in rural areas and in the second wealth quintile. Prevalence of past daily cigarette smokers was 13.6 % and it was higher in rural areas, and in second and third wealth quintiles. The average number of cigarettes per day among current daily cigarette smokers was 14.5. It was higher in rural areas and in the first (poorest) wealth quintile.

Mean age at start smoking among daily cigarette smokers was 21.6 and as seen in Table 3, there was little difference between urban and rural areas and between wealth quintiles.

As shown in Table 4, the prevalence of smoking cessation attempts among current daily cigarette smokers was 95.2%. The prevalence was higher in rural areas and in the first (poorest) wealth quintile.

Table 1: Tobacco-specific questions in the 2016 Iranian STEPs questionnaire and number of respondents

Question	Total number of respondents
In the past, did you ever use any tobacco products?	30002
In the past, did you ever smoke cigarettes daily?	6014
In the past, did you ever use any tobacco products daily?	6018
Do you currently use any tobacco products?	30014
Do you currently smoke cigarettes daily?	4210
Do you currently use any other tobacco products daily?	4208
How many cigarettes do you smoke daily?	2907
How old were you when you first started smoking cigarettes daily?	1273
During the past 12 months, have you tried to stop smoking?	2670
During the past 30 days, did someone use any tobacco products in your home at your presence?	30020
During the past 30 days, did someone use any tobacco products in closed areas in your workplace (in the building, in a work area or a specific office)?	30025

Table 2: Prevalence of tobacco consumption in Iranian adults, 2016

	Prevalence of current (daily and occasional) tobacco users n=30,014 Percent (95% CI)			Prevalence of past tobacco users n=30,002 Percent (95% CI)			Prevalence of past smokers that currently do not smoke n=29,977 Percent (95% CI)		
	M	F	T	M	F	T	M	F	T
Age									
18-24	13.5 (11.6-15.6)	2.0 (1.4-2.9)	7.3 (6.3-8.4)	17.9 (15.8-20.3)	4.0 (3.1-5.1)	10.4 (9.3-11.7)	35.4*	57.4*	40.0*
25-59	27.8 (27.0-28.7)	4.1 (3.7-4.5)	15.4 (14.9-15.9)	36.3 (35.4-37.3)	6.0 (5.6-6.4)	20.5 (20.0-21.0)	28.1 (26.7-29.6)	40.1 (36.4-43.9)	29.93 (28.6-31.3)
>60	21.0 (19.6-22.6)	4.8 (4.1-5.7)	12.8 (12.0-13.7)	38.0 (36.2-39.8)	9.7 (8.7-10.9)	23.6 (22.5-24.8)	47.17 (44.2-50.2)	54.33 (48.5-60.1)	48.66 (46-51.3)
Place of residence									
Rural	26.5 (25.2-27.9)	5.3 (4.7-6.0)	15.4 (14.7-16.2)	37.5 (36.0-39.1)	7.9 (7.2-8.7)	22.0 (21.1-22.9)	32.4 (30.1-34.8)	40.8 (35.8-45.9)	34.0 (31.9-36.2)
Urban	24.6 (23.8-25.5)	3.5 (3.2-3.9)	13.6 (13.2-14.1)	33.9 (33.0-34.9)	5.9 (5.5-6.4)	19.3 (18.8-19.9)	32.6 (31.1-34.2)	47.6 (43.7-51.5)	35.0 (33.5-36.5)
Wealth quintile									
First (poorest)	24.7 (23.0-26.4)	6.5 (5.7-7.5)	14.7 (13.8-15.7)	34.7 (32.9-36.7)	9.6 (8.6-10.7)	21.0 (19.9-22.1)	34.7 (31.7-37.9)	38.1 (32.9-43.5)	35.6 (33.0-38.3)
Second	27.6 (25.9-29.3)	5.0 (4.3-5.8)	15.7 (14.8-16.6)	37.4 (35.6-39.2)	7.4 (6.5-8.4)	21.6 (20.5-22.7)	28.6 (25.9-31.5)	42.0 (35.5-48.7)	31.0 (28.4-33.6)
Third	27.8 (26.1-29.4)	3.4 (2.84.1)	15.2 (14.3-16.1)	38.2 (36.4-40.1)	5.8 (5.0-6.7)	21.5 (20.5-22.6)	31.6*	54.1*	34.5*
Fourth	24.9 (23.3-26.6)	2.7 (2.2-3.4)	13.5 (12.6-14.4)	35.1 (33.4-36.9)	4.7 (4.0-5.5)	19.4 (18.4-20.5)	33.0*	50.1*	35.2*
Fifth (richest)	21.1 (19.7-22.6)	2.6 (2.1-3.3)	11.8 (11.0-12.6)	29.6 (28.0-31.3)	5.0 (4.2-5.8)	17.2 (16.2-18.2)	36.4 (33.2-39.7)	50.0 (41.3-58.3)	38.2 (35.3-41.3)
Total	25.2 (24.4-25.9)	4.0 (3.7-4.4)	14.2 (13.8-14.6)	35.0 (34.2-35.8)	6.5 (6.1-6.9)	20.11 (19.7-20.6)	32.6 (31.3-33.9)	45.2 (42.1-48.3)	34.7 (33.5-35.9)

CI: Confidence Interval, M: Male, F: Female, T: Total. *Missing standard errors because of stratum with single sampling unit

Table 5 shows the prevalence of exposure to secondhand cigarette smoke among nonsmokers. The exposure prevalence was higher at homes; than workplaces (23.21% vs. 18.4%). At homes, the prevalence was higher in women (25.52% vs. 19.87%) and at workplaces, it was higher in men (20.03% vs. 7.8%)

Discussion

The aim of this study was to assess the pattern of tobacco use in Iranian adults using last round of STEPs survey. All prevalences were higher in men, rural areas, and poorer wealth quintiles. Not surprisingly, the prevalence of current tobacco users and current daily cigarette smokers were higher in 25-59 age group and past tobacco users and past daily tobacco users were higher in above 60 years' population.

In this study, the mean age at start smoking among current daily cigarette smokers (21.6) was consistent and even higher comparing with other studies conducted in the medium and high wealth countries.^[16-20] Starting age was not significantly different between the rural and urban areas, and wealth quintiles.

Regarding the exposure to secondhand smoke, nonsmoker women were more exposed to secondhand smoke at homes than nonsmoker men (25.52% vs. 19.87%). Moreover, although the prevalence of current tobacco users and current daily cigarette smokers were higher in rural areas, the prevalence of exposure to secondhand cigarette smoke among nonsmokers at homes was significantly higher in urban areas (29.51% vs. 16.18%).

So far, seven rounds of STEPs surveys have been implemented in Iran in 2005, 2006, 2007, 2008, 2009, 2011, and 2016.^[16-18] This survey is usually used to report the prevalence of tobacco consumption in the country. The frequency of conducting this survey shows that the country has good experiences and capacities in establishing the surveillance system for NCD risk factors.^[21] However, the age group for this survey is 18 and above, but international data repositories and dashboards including Eastern Mediterranean regional core indicators usually require the countries to report and present the prevalence in Above 15 population and there are difficulties in comparing our findings with the other countries presented in these dashboards like WHO global health observatory (GHO). Although in order to assess the prevalence of tobacco consumption in 15-18 age group, since 2003 Iran has conducted five rounds of the school-based survey called "childhood and adolescence surveillance and prevention of adult non-communicable disease" (CASPIAN)^[22-26] but there are difficulties in merging the results of these surveys with STEPs surveys due to differences in the questionnaire and timing of conduction.

According to WHO, the global prevalence of tobacco smoking among the people aged ≥15 was decreased from

Table 3: Cigarette-related indicators in Iranian adults 2016 (percent)

	Prevalence of current daily cigarette smokers n=4,210 Percent (95% CI)			Prevalence of past daily cigarette smokers n=6,018 Percent (95% CI)		
	M	F	T	M	F	T
	Age					
18-24	4.9 (3.8-6.4)	0.1 (0-0.5)	2.3 (1.8-3.0)	5.6 (4.4-7)	0.2 (0.1-0.7)	2.7 (2.1-3.4)
25-59	22.6 (21.7-23.4)	0.8 (0.7-1.0)	11.2 (10.8-11.7)	28.1 (27.2-29)	1.1 (0.9-1.3)	14 (13.5-14.5)
>60	18.1 (16.7-19.6)	1.7 (1.3-2.2)	9.8 (9.0-10.6)	31.9 (30.2-33.6)	3.3 (2.7-4.1)	17.4 (16.4-18.4)
Place of residence						
Rural	20.8 (19.6-22.1)	0.9 (0.7-1.2)	10.4 (9.7-11.1)	29.2 (27.8-30.6)	1.3 (1-1.7)	14.6 (13.9-15.4)
Urban	19.8 (19.0-20.6)	0.9 (0.8-1.1)	10.0 (9.6-10.4)	25.8 (25-26.7)	1.5 (1.2-1.7)	13.1 (12.7-13.6)
Wealth quintile						
First (poorest)	19.8 (18.3-21.4)	1.4 (1.0-1.8)	9.7 (8.9-10.5)	27.4 (25.6-29.2)	1.7 (1.3-2.3)	13.4 (12.5-14.3)
Second	22.2 (20.7-23.8)	0.9 (0.7-1.4)	11.0 (10.2-11.9)	29.6 (27.9-31.4)	1.7 (1.3-2.3)	14.9 (14-15.9)
Third	22.7 (21.2-24.3)	0.7 (0.5-1.1)	11.4 (10.6-12.2)	29.6 (27.9-31.3)	1.2 (0.8-1.6)	14.9 (14.1-15.9)
Fourth	19.5 (18.1-21.0)	0.6 (0.4-10.0)	9.8 (9.0-10.6)	26.3 (24.7-28)	1 (0.7-1.5)	13.3 (12.4-14.2)
Fifth (richest)	16.2 (14.9-17.6)	1 (0.7-1.4)	8.5 (7.8-9.3)	21.4 (20-23)	1.4 (1.1-2)	11.4 (10.6-12.2)
Total	20.1 (19.4-20.7)	0.9 (0.8-1.1)	10.1 (9.7-10.4)	26.8 (26-27.5)	1.4 (1.2-1.6)	13.6 (13.2-14)
	Average number of cigarettes per day among current daily cigarette smokers n=2,9007 Number (95% CI)			Mean age at start smoking among current daily cigarette smokers n=1,273 Year (95% CI)		
	M	F	T	M	F	T
Age						
18-24	11.3 (9-13.7)	*	11.3 (9-13.7)	-	-	-
25-59	14.4 (14-14.9)	13.1 (10.6-15.6)	14.4 (14-14.8)	-	-	-
>60	15.4 (14.5-16.4)	13.5 (9.7-17.3)	15.3 (14.4-16.2)	-	-	-
Place of residence						
Rural	15.8 (15.1-16.5)	14.2 (8.7-19.7)	15.8 (15-16.5)	21.7 (20.9-22.5)	35.9 (26.8-45)	22.2 (21.3-23.1)
Urban	14 (13.6-14.5)	13 (10.8-15.2)	14 (13.6-14.4)	21 (20.5-21.5)	24.9 (21.7-28.1)	21.2 (20.7-21.7)
Wealth quintile						
First (poorest)	16.7 (15.7-17.7)	13.6 (8.3-18.8)	16.5 (15.5-17.5)	21.6 (20.5-22.7)	28.5 (21-36.1)	22.1 (20.9-23.3)
Second	14.8 (13.9-15.6)	13.9 (8.5-19.3)	14.7 (13.9-15.6)	21.4 (20.6-22.2)	34.1 (24.3-44)	21.9 (21-22.8)
Third	14.9 (14.1-15.7)	12 (7.7-16.3)	14.8 (14.1-15.6)	20.8 (20-21.7)	27.2 (20.1-34.3)	21 (20.2-21.9)
Fourth	13.7 (12.9-14.5)	14.2 (11-17.4)	13.7 (12.9-14.5)	21.1 (20.1-22.1)	23.9 (18.3-29.6)	21.2 (20.2-22.2)
Fifth (richest)	12.7 (11.9-13.5)	12.6 (8.9-16.2)	12.7 (12-13.5)	21.5 (20.4-22.6)	23.5 (18.9-28)	21.6 (20.6-22.7)
Total	14.6 (14.2-14.9)	13.2 (11.2-15.3)	14.5 (14.1-14.9)	21.2 (20.8-21.7)	27.6 (24.1-31.2)	21.6 (21.1-22)

CI: Confidence Interval, M: Male, F: Female, T: Total, *Incalculable

**Table 4: Prevalence of smoking cessation attempts among current daily cigarette smokers in Iran 2016. n=2,670
Percent (95% CI)**

	M	F	T
Age			
18-24	82.8 (69.8-90.9)	*	81.4 (68.5-89.8)
25-59	95.3 (94.3-96.1)	95.1 (88.4-98)	95.3 (94.3-96.1)
>60	97.1 (95.1-98.3)	93.7 (82.2-98)	96.8 (94.9-98)
Place of residence			
Rural	97.5 (96.2-98.4)	94.6 (80.7-98.6)	97.4 (96.1-98.3)
Urban	94.4 (93.2-95.4)	93.6 (87-97)	94.3 (93.2-95.3)
Wealth quintile			
First (poorest)	97.5 (95.6-98.5)	94.7 (81.1-98.7)	97.2 (95.4-98.3)
Second	96.4 (94.7-97.6)	89.7 (72.2-96.7)	96.1 (94.3-97.4)
Third	95.8 (93.9-97.2)	95.1 (72.1-99.3)	95.8 (93.9-97.1)
Fourth	94.3 (92-96)	94.6 (70-99.2)	94.4 (92-96)
Fifth (richest)	92.2 (89.2-94.4)	95.6 (83.6-99)	92.4 (89.6-94.5)
Total	95.3 (94.4-96.1)	93.9 (88.5-96.8)	95.2 (94.4-96)

CI: Confidence Interval, M: Male, F: Female, T: Total. *Incalculable

Table 5: Prevalence of exposure to secondhand cigarette smoke among nonsmokers in Iran 2016

	Prevalence of exposure to secondhand cigarette smoke at home <i>n</i> =30,020 Percent (95% CI)			Prevalence of exposure to secondhand cigarette smoke at workplace <i>n</i> =30,025 Percent (95% CI)		
	M	F	T	M	F	T
Age						
18-24	26.59 (23.84-29.33)	29.61 (27.2-32.02)	28.31 (26.5-30.12)	23.38 (19.02-27.74)	8.16 (2.74-13.59)	20.37 (16.66-24.07)
25-59	19.14 (18.22-20.06)	25.51 (24.67-26.34)	22.91 (22.3-23.53)	20.45 (19.42-21.48)	7.8 (6.35-9.24)	18.1 (17.22-18.99)
>60	16.95 (14.29-19.6)	20.23 (17.88-22.58)	18.91 (17.14-20.67)	14.2 (10.57-17.83)	6.85 (0-15.98)	13.61 (10.19-17.04)
Place of residence						
Rural	16.18 (15.27-17.08)	21.98 (21.14-22.83)	19.6 (18.98-20.22)	20.85 (19.68-22.02)	6.56 (5.13-7.99)	17.92 (16.94-18.91)
Urban	29.51 (27.71-31.32)	34.51 (32.98-36.05)	32.49 (31.32-33.65)	19 (17.27-20.72)	13.37 (9.37-17.36)	18.33 (16.73-19.92)
Wealth quintile						
First (poorest)	28.77 (26.56-30.98)	32.26 (30.4-34.12)	30.84 (29.42-32.27)	16.84 (14.76-18.91)	11.77 (7.42-16.12)	16.11 (14.23-17.99)
Second	22.55 (20.37-24.73)	29.68 (27.84-31.51)	26.95 (25.55-28.36)	19.69 (17.37-22.02)	12.85 (8.28-17.42)	18.66 (16.57-20.76)
Third	21.65 (19.66-23.64)	28.68 (26.9-30.45)	25.87 (24.54-27.2)	22.18 (19.89-24.47)	7.62 (4.32-10.93)	19.87 (17.86-21.89)
Fourth	17.64 (15.9-19.38)	22.84 (21.22-24.46)	20.66 (19.47-21.85)	23.84 (21.58-26.11)	6.84 (3.67-10)	20.93 (18.95-22.9)
Fifth (richest)	12.88 (11.42-14.34)	16.35 (14.92-17.77)	14.82 (13.8-15.84)	20.21 (18.13-22.29)	5.6 (3.52-7.69)	16.62 (14.95-18.29)
Total	19.87 (19.04-20.71)	25.52 (24.77-26.26)	23.21 (22.65-23.76)	20.3 (19.33-21.27)	7.8 (6.42-9.18)	18.04 (17.2-18.87)

CI: Confidence Interval, M: Male, F: Female, T: Total

26.9% in 2000 to 20.2% in 2015.^[27] It is estimated that this decrease in the prevalence of tobacco consumption will be continued to 2025 in all WHO regions except for the Eastern Mediterranean region where Iran is located in.^[27] Comparing our findings with previous STEPs surveys suggests a decline in the prevalence of tobacco use, but we found some inconsistencies in the results of the previous STEPs surveys. According to the official 2005 survey report, the prevalence of current smoking in Iran in 2005 was 14.2%, but two other studies using the same data reported that the prevalence of current tobacco use in 2005 was 12.3% and 17.0%.^[28,29] Again, according to the official 2007 survey report, the prevalence of current smoking in 2007 was 12.27%, but two other studies using the same data reported that the prevalence of current tobacco use in 2007 was 14.8% and 13.5%.^[28,30] The official 2011 survey report, reported that the prevalence of current smoking was 10.91% (9.97 to 11.93) but another study with the same data showed the prevalence of current tobacco use in 2011 was 13.5%^[27] and other secondary study using this data reported that the prevalence of current cigarette smokers was 9.6%.^[31] As these studies used the same data, the inconsistencies are probably due to differences in the methods used for handling the data.

Tobacco-attributable diseases impose a great burden on health systems, hindering the progression towards achieving UHC especially in low-and-middle-wealth countries.^[27,32] A surveillance system that could provide timely and accurate data on the tobacco prevalence is essential for policymaking and evaluating tobacco combating actions. The strength of a national tobacco surveillance system is assessed by the WHO by the frequency and periodicity of nationally representative youth and adult surveys in countries.^[6,33] According to the latest report by WHO, Iran was successful in monitoring tobacco consumption by providing recent, representative, and periodic data for both adults and youth.^[6]

Limitations

Our study had some limitations. Due to the cross-sectional nature of the survey, it is difficult to draw a causal relationship between the variables like wealth quintile and smoking prevalence. Also, as the data were gathered using questionnaires, some underreporting and recall bias might have occurred.

Conclusions

Iran has successfully implemented many anti-tobacco policies in recent years. Our findings showed that tobacco consumption tends to be more prevalent in the deprived populations such as people living in rural areas and among poorer wealth quintiles. This suggests the necessity of an equity approach in tobacco combating policies and programs in the country. Our findings also showed that a high percentage of current daily cigarette smokers (95.2%)

tried to quit smoking during past 12 months. Although this percentage was higher in poorer wealth quintiles, higher prevalence of tobacco use among poorer quintiles suggests unsuccessful attempts.

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Conflicts of interest

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References

- Gakidou E, Afshin A, Abajobir AA, Abate KH, Abbafati C, Abbas KM, *et al.* Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2016: A systematic analysis for the Global Burden of Disease Study 2016. *Lancet* 2017;390:1345-422.
- World Health Organization. Towards a Monitoring Framework with Targets and Indicators for the Health Goals of the Post-2015 Sustainable Development Goals. Geneva: World Health Organization; 2015.
- Lee BX, Kjaerulf F, Turner S, Cohen L, Donnelly PD, Muggah R, *et al.* Transforming our world: Implementing the 2030 agenda through sustainable development goal indicators. *J Public Health Policy* 2016;37:13-31.
- Jamison DT, Breman JG, Measham AR, Alleyne G, Claeson M, Evans DB, *et al.* (Eds). *Disease Control Priorities in Developing Countries* (2nd edn). Washington (DC): The International Bank for Reconstruction and Development / The World Bank; 2006. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK11728/>. [Last accessed on 2021 Jul 10].
- Hogan DR, Stevens GA, Hosseinpoor AR, Boerma T. Monitoring universal health coverage within the sustainable development goals: Development and baseline data for an index of essential health services. *Lancet Glob Health* 2018;6:e152-68. doi: 10.1016/S2214-109X (17) 30472-2.
- World Health Organization. WHO report on the global tobacco epidemic 2019: Offer help to quit tobacco use. Center for Tobacco Control Research and Education, UC San Francisco; 2019.
- Mansoori P, Majdzadeh R, Abdi Z, Rudan I, Chan KY, Aarabi M, *et al.* Setting research priorities to achieve long-term health targets in Iran. *J Glob Health* 2018;8:020702.
- Carmichael GA. *Fundamentals of demographic analysis: Concepts, measures and methods*. Switzerland: Springer; 2016.
- Rein DB, Wittenborn JS, Phillips EA, Saaddine JB; Vision and Eye Health Surveillance System Study Group. Establishing a vision and eye health surveillance system for the nation: A status update on the vision and eye health surveillance system. *Ophthalmology* 2018;125:471-3.
- Riley L, Guthold R, Cowan M, Savin S, Bhatti L, Armstrong T, *et al.* The World Health Organization STEPwise approach to noncommunicable disease risk-factor surveillance: Methods, challenges, and opportunities. *Am J Public Health* 2016;106:74-8.
- Armstrong T, Bonita R. Capacity building for an integrated noncommunicable disease risk factor surveillance system in developing countries. *Ethn Dis* 2003;13 (2 Suppl 2):S13-8.
- World Health Organization, Centers for Disease Control. Tobacco questions for surveys: A subset of key questions from the Global Adult Tobacco Survey (GATS). Global tobacco surveillance system; 2011.
- Karami M, Soori H, Monfared AB. Estimating the contribution of selected risk factors in attributable burden to stroke in Iran. *Iran J Public Health* 2012;41:91-6.
- Djalalinia S, Modirian M, Sheidaei A, Yoosefi M, Zokaiee H, Damirchilu B, *et al.* Protocol design for large-scale cross-sectional studies of surveillance of risk factors of non-communicable diseases in Iran: STEPs 2016. *Arch Iran Med*. 2017;9:608-16.
- Esteghamati A, Gouya MM, Abbasi M, Delavari A, Alikhani S, Alaedini F, *et al.* Prevalence of diabetes and impaired fasting glucose in the adult population of Iran: National Survey of Risk Factors for non-communicable diseases of Iran. *Diabetes Care* 2008;31:96-8.
- Esteghamati A, Etemad K, Koohpayehzadeh J, Abbasi M, Meysamie A, Noshad S, *et al.* Trends in the prevalence of diabetes and impaired fasting glucose in association with obesity in Iran: 2005–2011. *Diabetes Res Clin Pract* 2014;103:319-27.
- Wang N, Feng Y, Bao H, Cong S, Fan J, Wang BH, *et al.* Survey of smoking prevalence in adults aged 40 years and older in China, 2014. *Zhonghua Liu Xing Bing Xue Za Zhi* 2018;39:551-6.
- Kumar R, Goel N, Kumar S, Kushwah AS, Vijayan VK. Epidemiological profile of tobacco users at tobacco cessation centre: An Indian experience. *Indian J Chest Dis Allied Sci* 2016;58:93-7.
- Gurram N, Martin G. Disparities in age of smoking initiation and transition to daily smoking in New Zealand. Wellington: Health Promotion Agency; 2019.
- Nuyts PA, Kuipers MA, Willemsen MC, Kunst AE. Trends in age of smoking initiation in the Netherlands: A shift towards older ages? *Addiction* 2018;113:524-32.
- Djalalinia S, Kasaeian A, Peykari N, Modirian M, Sepanlou S, Ghasemian A, *et al.* The challenges and lessons learned experiences of six round STEPs surveys in Iran. *Hakim Res J* 2017;20:186-94.
- Kelishadi R, Ardalan G, Qorbani M, Ataie-Jafari A, Bahreynian M, Taslimi M, *et al.* Methodology and early findings of the fourth survey of childhood and adolescence surveillance and prevention of adult non-communicable disease in Iran: The CASPIAN-IV study. *Int J Prev Med* 2013;4:1451-60.
- Kelishadi R, Heshmat R, Motlagh M, Majdzadeh R, Keramatian K, Qorbani M, *et al.* Methodology and early findings of the third survey of CASPIAN study: A national school-based surveillance of students' high risk behaviors. *Int J Prev Med* 2012;3:394.
- Abdalmaleki E, Abdi Z, Goharimehr M, Alvandi R, Riazi Esfahani S, Ahmadnezhad E. A review of the methodology and tools of childhood & adolescence surveillance and prevention of adult non-communicable disease survey (CASPIAN) conducted in Iran. *Iranian J Epidemiol* 2019;15:1-6.
- Motlagh ME, Ziaodini H, Qorbani M, Taheri M, Aminaei T, Goodarzi A, *et al.* Methodology and early findings of the fifth survey of childhood and adolescence surveillance and prevention of adult noncommunicable disease: The CASPIAN-V study. *Int J Prev Med* 2017;8:4.
- Heshmat R, Kelishadi R, Motamed-Gorji N, Motlagh ME, Ardalan G, Arifirad T, *et al.* Association between body mass index and perceived weight status with self-rated health and life satisfaction in Iranian children and adolescents: The CASPIAN-III study. *Qual Life Res* 2015;24:263-72.
- World Health Organization. WHO global report on trends in prevalence of tobacco smoking 2000–2025. 2018.

28. Meysamie A, Ghalehtaki R, Ghodsi S, Esteghamati A, Mohammad K, Etemad K, *et al.* Trend of cigarette smoking in Iranian adult population from 2000 to 2011 based on four national surveys. *Soc Determ Health* 2017;3:148-59.
29. Emamian MH, Fateh M, Fotouhi A. Socioeconomic inequality in smoking and its determinants in the Islamic Republic of Iran. *East Mediterr Health J* 2020;26:29-38.
30. Meysamie A, Ghaletaki R, Haghazali M, Asgari F, Rashidi A, Khalilzadeh O, *et al.* Pattern of tobacco use among the Iranian adult population: Results of the national Survey of Risk Factors of Non-Communicable Diseases (SuRFNCD-2007). *Tob Control* 2010;19:125-8.
31. Abachizadeh K, Ekhtiari YS, Kolahi AA. Smoking pattern and associated sociodemographic factors: Findings from a nationwide STEPS survey in Iran. *Int J Prev Med* 2018;9:105-10.
32. Goodchild M, Nargis N, d'Espaignet ET. Global economic cost of smoking-attributable diseases. *Tob Control* 2018;27:58-64.
33. Puska P, Daube M; WHO FCTC Impact Assessment Expert Group. Impact assessment of the WHO framework convention on tobacco control: Introduction, general findings and discussion. *Tob Control* 2019;28(Suppl 2):s81-3.