



# Evaluation of Smoking and Associated Factors in Turkey

*\*Mustafa Çakir*

*Department of Public Health, Faculty of Medicine, Istanbul Medeniyet University, Istanbul, Turkey*

**\*Correspondence:** Email: mustafa-5355@hotmail.com

(Received 11 Jul 2022; accepted 21 Nov 2022)

## Abstract

**Background:** The aim of the present study was to evaluate the use of tobacco products and associated factors in Turkey based on the Turkey Health Survey 2019 data conducted by the Turkish Statistical Institute (TUIK).

**Method:** The study was designed as a cross-sectional research. It was conducted by utilizing the “Turkey Health Survey 2019” microdata set from the Turkish Statistical Institute. The data of 17,084 people aged 15 years and over were evaluated.

**Results:** The study examined the data of 17,084 individuals aged  $\geq 15$  years surveyed by the TUIK. 27.2% of the participants used tobacco products every day, 3.4% used occasionally, and 54.2% never used them. Furthermore, 15.8% of the participants were exposed to secondhand smoking for  $\geq 1$  hour every day, while 7% were exposed to secondhand smoking for  $< 1$  hour every day in a closed environment. The reasons for starting to use tobacco products were friend influence for 33.4% of the participants, wannabe for 25.2%, and curiosity for 18.6%.

**Conclusion:** More than a quarter of people aged  $\geq 15$  years in Turkey smoke every day. The frequency of using tobacco products every day, the daily number of cigarettes smoked, and the frequency of exposure to tobacco products in closed areas were higher among men.

**Keywords:** Tobacco; Smoking; E-cigarette; Turkey

## Introduction

Tobacco products are used by approximately 1.3 billion people worldwide, with 80% of them living in low- and middle-income countries. Tobacco products contain nicotine, which is addictive, and tobacco use has been linked to cardiovascular diseases, respiratory diseases, and more than 20 types of cancer (1). Tobacco use kills approximately 8 million people each year. About 1.2 million people die annually from secondhand tobacco smoke. About half of all children are exposed to tobacco smoke, and approximately 65,000 children die annually from second-hand smoke. Tobacco use is estimated to have a total econom-

ic cost of 1.4 trillion US dollars per year, in addition to the negative health effects (1).

Smokers are generally aware of the dangers of smoking and dislike it, but they continue to smoke (2,3). About 100 million people lost their lives worldwide in the 20th century owing to the use of tobacco products (4, 5). Determining the frequency of smoking in countries and affecting factors will guide further efforts to reduce smoking.

Therefore, the aim of the present study was to evaluate the use of tobacco products and associated factors in Turkey based on the Turkey



Health Survey 2019 data conducted by the Turkish Statistical Institute.

## Methods

The study was designed as a cross-sectional research and was conducted using the “Turkey Health Survey 2019” microdata set from the Turkish Statistical Institute (TUIK) (6). Overall, 9,470 households were surveyed representing the overall population in Turkey. The data of 17,084 people aged 15 years and over were evaluated. A stratified two-stage cluster sampling method was used. Rural vs. urban distinction was used as the external stratification criterion. (Settlements with a population of 20,000 and below were considered rural, and settlements with a population of 20,001 and above were considered urban centers). The first sampling unit was blocks containing an average of 100 household addresses randomly selected with respect to the size of the blocks, whereas the final sampling unit was individual households that were systematically randomly selected from each selected cluster. The framework used for sample selection was the

“National Address Database,” which constitutes the basis of the “Address Based Population Registration System” established in 2007 and was later updated in August 2019. The first sampling unit was blocks containing an average of 100 household addresses, whereas the final sampling unit contained individual households. A total of 9,470 households were selected from 947 blocks selected in Turkey (10 households from each block). Permission was obtained from TUIK for the use of research data (April 27, 2022, number 11089)

Statistical analyses of the study were conducted using the statistical package program SPSS 22.0 (IBM Corp., Armonk, NY, USA). Categorical variables were presented as numbers and percentages. During statistical analysis of the data, chi-square test was used to compare categorical variables and Mann–Whitney U test was used to compare continuous variables.  $P < 0.05$  was accepted as statistically significant in all analyses.

## Results

Demographics details are presented in Table 1.

**Table 1:** Distribution of Socio-Demographical Characteristics of the Participants

<i>Variable</i>	<i>n (%)</i>
Gender (n=17084)	
Male	7784 (45.6)
Female	9300 (54.4)
Age group (n=17084)	
15-29	4192 (24.5)
30-39	3367 (19.7)
40-49	3178 (18.6)
50-59	2752 (16.1)
60 years and older	3595 (21.0)
Marital status (n=17084)	
Single, that is, never married	3610 (21.1)
Married	11726 (68.6)
Divorced/ Widowed	1748 (10.2)
Education (n=17084)	
Primary school or lower	7806 (45.7)
Secondary school	2965 (17.4)
High school	3246 (19.0)
College/University and above	3067 (18.0)
Body Mass Index (BMI) (n=17084)	
< 18.5	587 (3.4)
18.5-24.9	6540 (38.3)
25-29.9	6146 (36.0)
≥ 30	3811 (22.3)

Overall, 27.2% (n = 4646) of the participants used tobacco products every day, and 3.4% (n =

585) used occasionally. Other features are showed in Table 2.

**Table 2:** Distribution of tobacco product usage characteristics of the participant

<i>Variable</i>	<i>n (%)</i> *
Tobacco use (n=17084)	
Daily	4646 (27.2)
Occasionally	585 (3.4)
Never	9256 (54.2)
I quit	2597 (15.2)
Daily use of packed or rolled cigarettes (n=4646)	
Yes	4536 (97.6)
No	110 (2.4)
Average number of cigarettes per day	
Mean±standard deviation	16.7±9.7
Daily or almost daily use of tobacco products for at least 1 year (n=7828)	
Yes	6833 (87.3)
No	995 (12.7)
Duration of daily tobacco product use (year) (n=6833)	
Mean±standard deviation	20.3±13.4
Average age of starting to use tobacco products regularly (n=6833)	
Mean±standard deviation	19.3±6.7
Frequency of exposure to tobacco smoke indoors (n=17084)	
Every day, ≥1 hour a day	2706 (15.8)
<1 hour every day	1188 (7.0)
At least once a week (but not every day)	869 (5.1)
Less than once a week	1409 (8.2)
Never/Almost never	10912 (63.9)
Current use of electronic cigarettes or similar electronic products (n=17084)	
Daily	72 (0.4)
Occasionally	76 (0.4)
No, but I have used them in the past	417 (2.4)
Never	16519 (96.7)

(%): column percentage

The reasons for starting to use tobacco products were friend influence for 33.4% (n = 2285) of the participants, wannabe for 25.2% (n = 1721), and curiosity for 18.6% (n = 1274). Characteristics of

tobacco product use of the participants are presented in Table 3.

Socio-demographic characteristics of the participants in details are reported in Table 4.

**Table 3:** Distribution of characteristics of tobacco product use of the participants

<i>Variable</i>	<i>n (%)*</i>
Reason for starting to use tobacco products (n=6833)	
Curiosity	1274 (18.6)
Wannabe	1721 (25.2)
Family problems	382 (5.6)
Personal problems	469 (6.9)
Friend influence	2285 (33.4)
Recreational purposes	289 (4.2)
No particular reason	404 (5.9)
Other	9 (0.1)
Attempt to quit smoking in the last 12 months (n=5931)	
Yes	2641 (44.5)
No	3290 (55.5)
Last used method to quit smoking (n=2641)	
I quit smoking on my own	2394 (90.6)
I called the 171 Smoking Cessation Hotline	55 (2.1)
I quit with the help of a doctor	83 (3.1)
I quit with the help of a doctor and medication	56 (2.1)
I quit with the help of medication	49 (1.9)
Other	4 (0.2)

**Table 4:** Tobacco use status according to the socio-demographic characteristics of the participants

<i>Variable</i>	<i>Tobacco Use Status</i>			<i>P</i>
	Yes n (%)*	Never n (%)*	I quit n (%)*	
Gender				<0.001
Male	3431(44.1)	2495(32.1)	1858(23.9)	
Female	1800(19.4)	6761(72.7)	739(7.9)	
Age group (yr)				<0.001
15-29	1176(28.1)	2809(67.0)	207(4.9)	
30-39	1338(39.7)	1682(50.0)	347(10.3)	
40-49	1250(39.3)	1476(46.4)	452(14.2)	
50-59	856(31.1)	1303(47.3)	593(21.5)	
60 years and older	611(17.0)	1986(55.2)	998(27.8)	
Marital status				<0.001
Single, that is, never married	1037(28.7)	2384(66.0)	189(5.2)	
Married	3737(31.9)	5848(49.9)	2141(18.3)	
Divorced/ Widowed	457(26.1)	1024(58.6)	267(15.3)	
Education				<0.001
Primary school or lower	2001(25.6)	4431(56.8)	1374(17.6)	
Secondary school	997(33.6)	1649(55.6)	319(10.8)	
High school	1262(38.9)	1532(47.2)	452(13.9)	
College/University and above	971(31.7)	1644(53.6)	452(14.7)	
Body Mass Index (BMI)				<0.001
< 18.5	160(27.3)	393(67.0)	34(5.8)	
18.5-24.9	2273(34.8)	3566(54.5)	701(10.7)	
25-29.9	1934(31.5)	3068(49.9)	1144(18.6)	
≥ 30	864(22.7)	2229(58.5)	718((18.8)	

Furthermore, Tobacco use features according to the tobacco use characteristics of the participants

are presented in Table 5. *P* values shows the status of significant or non-significant cases.

**Table 5:** Tobacco use status according to the tobacco use characteristics of the participants

Variable	Gender		<i>P</i>
	Male n (%)*	Female n (%)*	
Tobacco use			<0.001
Daily	3160(40.6)	1486(16.0)	
Occasionally	271(3.5)	314(3.4)	
Never	2495(32.1)	6761(72.7)	
I quit	1858(23.9)	739(7.9)	
Average number of cigarettes per day			<0.001
Mean±standard deviation	18.6±10.0	12.6±7.4	
Median (min; max)	20(1; 99)	10(1; 50)	
Duration of daily tobacco product use (year)			<0.001
Mean±standard deviation	21.6±13.9	17.3±11.6	
Median (min; max)	20(1; 80)	15(1; 60)	
Average age of starting to use tobacco products regularly			<0.001
Mean±standard deviation	18.3±5.7	21.8±8.1	
Median (min; max)	18(7; 75)	20(7; 78)	
Attempt to quit smoking in the last 12 months			0.003
Yes	1783(45.9)	858(41.9)	
No	2101(54.1)	1189(58.1)	
Frequency of exposure to tobacco smoke indoors			<0.001
Every day, ≥1 hour a day	1484(19.1)	1222(13.1)	
<1 hour every day	603(7.7)	585(6.3)	
At least once a week (but not every day)	448(5.8)	421(4.5)	
Less than once a week	664(8.5)	745(8.0)	
Never/Almost never	4585(58.9)	6327(68.0)	

## Discussion

In this study, of the participants used tobacco products daily, 3% used them occasionally, and 54% never used them. Among OECD countries, 16.5% of people aged ≥15 years smoked every day in 2019. The frequency of daily cigarette consumption among individuals aged ≥15 years in 2019 or the nearest year in OECD countries was 10.3% in Canada, 10.9% in the USA, 15.8% in the UK, 16.5% in Japan, 9.8% in Brazil, 18.8% in

Germany, 18.6% in Italy, 24.0% in France, 24.9% in Greece, and 25.8% in Russia (7). In a study using data obtained from three national surveys on adults (aged ≥18 years) in the US conducted in 2014–2015, the frequency of >1 cigarette consumption per day was 13.6% in the TUS-CPS survey, 14.9% in the NHIS survey, and 18.8% in the PATH survey (8). In Japan in 2015, 58.7% of people aged ≥15 years had never smoked, 3.4% were current smokers with an intention to quit, and 18.7% were current smokers without any

intention to quit (9). In the USA, 20.8% of adults, aged  $\geq 18$  years used any type of tobacco product and 14% smoked cigarettes (10). In Burkina Faso, the prevalence of tobacco consumption was 19.8%, the frequency of smoking was 11.3%, and the frequency of daily smoking was 9.3% (11). In Australia, 8% of the participants were active smokers, 34% had smoked in the past, and 58% had never smoked (12). The frequency of tobacco product use in Turkey is higher than in most of the OECD countries.

In the present study, the frequency of daily and occasional use of electronic cigarettes or similar electronic products was 0.4%. In the USA, the frequency of  $>1$  e-cigarette use per day was 2.2% in the TUS-CPS survey, 3.1% in the NHIS survey, and 4.6% in the PATH survey (8). In another study, the frequency of e-cigarette use was 4.5% in the USA (10). The data show that the frequency of electronic cigarette use is lower in Turkey.

In the study, 40.6% of men used tobacco products every day and 3.5% used tobacco products occasionally, whereas these rates were 16% and 3.4% for women, respectively. Accordingly, the frequency of daily tobacco product use was higher in men. According to the 2019 data, 20.6% of men aged  $\geq 15$  years and 12.8% of women aged  $\geq 15$  years smoked daily across OECD countries. In individual countries, these rates were 12% for men and 8.7% for women in Canada, 11.7% for men and 10% for women in the USA, 17.7% for men and 13.8% for women in the UK, 27.1% for men and 7.6% for women in Japan, 12.3% for men and 7.7% for women in Brazil, 22.3% for men and 15.3% for women in Germany, 22.7% for men and 14.9% for women in Italy, 27.5% for men and 20.7% for women in France, 31.3% for men and 19% for women in Greece, and 43.2% for men and 13.7% for women in Russia (7). In the USA, the frequency of using any tobacco product was 26.2% in men and 15.7% in women, and the prevalence of smoking was 15.3% in men and 12.7% in women (10). In another study, 29.2% of men and 11.8% of women used some type of tobacco product (11). Men use tobacco products at a higher rate than wom-

en do. However, the rates among women are also substantial.

In the present study, the average number of cigarettes consumed among people who used tobacco products every day was 16, and the average duration of use was 20 years. Furthermore, the mean age of starting to use tobacco products regularly was determined to be 19 years. In the present study, the reasons for starting to use tobacco products were friend influence in one third, wannabe in one fourth, and curiosity in one fifth of the participants. The results of the present study show that the use of tobacco products begins at a young age and continues for a long time, with an average of one pack per day.

15.2% of the participants stopped using tobacco products. This rate was 23.9% in men and 7.9% in women. In a study, 7.1% of adult smokers had recently quit smoking successfully and 6.8% of men and 7.4% of women quit smoking, besides there was no difference in smoking cessation in terms of gender (13). The proportion of participants who had smoked in the past was 19.2% (9), and in another study, this ratio was 34% (12). The frequency of quitting using tobacco products is at significant rates.

## **Conclusion**

More than a quarter of people aged  $\geq 15$  years in Turkey smoke every day. The average duration of daily smoking was 20 years, and the average number of cigarettes consumed per day was 16. Further studies aimed at reducing the frequency of smoking and secondhand smoking should be conducted in Turkey. It is recommended that public education and public service announcements be made about the dangers of smoking and secondhand smoking, as well as increasing the number of smoking cessation outpatient clinics and public awareness.

## **Journalism Ethics considerations**

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or fal-



sification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

## Acknowledgements

I thank Turkish Statistical Institute (TUIK) for sharing the data with me. No financial support was received for this study.

## Conflict of Interest

The authors declare that there is no conflict of interests.

## References

1. World Health Organization (2022). Tobacco. <https://www.who.int/news-room/fact-sheets/detail/tobacco>
2. Fidler J, West R (2011). Enjoyment of smoking and urges to smoke as predictors of attempts and success of attempts to stop smoking: A longitudinal study. *Drug Alcohol Depend*, 115:30–34.
3. Ussher M, Brown J, Rajamanoharan A, et al (2014). How do prompts for attempts to quit smoking relate to method of quitting and quit success? *Ann Behav Med*, 47:358–368
4. Asma S, Song Y, Cohen J, et al (2014). CDC grand rounds: global tobacco control. *MMWR Morb Mortal Wkly Rep*, 63(13):277–80.
5. Eriksen M, Mackay J, Schluger N, et al (2015). *The Tobacco Atlas*. 5th ed. Atlanta, GA: American Cancer Society.
6. Turkish Statistical Institute (2019). Turkey Health Survey 2019 Micro Data Set. <https://www.tuik.gov.tr/Home/Index> (accessed 2022 Apr 28)
7. OECD Health Statistics 2021. <https://www.oecd.org/health/health-data.htm>
8. Sánchez-Romero LM, Cadham CJ, Hirschtick JL, et al (2021). A comparison of tobacco product prevalence by different frequency of use thresholds across three US surveys. *BMC Public Health*, 21:1203
9. Tabuchi T, Gallus S, Shinozaki T, et al (2018). Heat-not-burn tobacco product use in Japan: its prevalence, predictors and perceived symptoms from exposure to secondhand heat-not-burn tobacco aerosol. *Tob Control*, 27:e25–e33.
10. Cornelius ME, Wang TW, Jamal A, et al (2020). Tobacco Product Use among Adults — United States, 2019. *MMWR Morb Mortal Wkly Rep*, 69:1736-1742.
11. Bonnechère B, Cissé K, Millogo T, et al (2019). Tobacco use and associated risk factors in Burkina Faso: results from a populationbased cross-sectional survey. *BMC Public Health*, 19:1466.
12. Banks E, Joshy G, Korda RJ, et al (2019). Tobacco smoking and risk of 36 cardiovascular disease subtypes: fatal and non-fatal outcomes in a large prospective Australian study. *BMC Med*, 17:128.
13. Walton K, Wang TW, Prutzman Y, et al (2020). Characteristics and Correlates of Recent Successful Cessation among Adult Cigarette Smokers, United States, 2018. *Prev Chronic Dis*, 17:E154.