Gender and Age Differences in the Triggers for Smoking Cessation in Adult Turkish Smokers

INTRODUCTION

Smoking is one of the avoidable causes of premature mortality. Every year, more than 8 million people pass away as a result of smoking-related health issues. The smoking rate has been increasing in low- and middle-income nations since they are the marketing target of the tobacco industry.[1] It is estimated that there are more than 1 billion consumers of cigarettes worldwide, which negatively affects public health by its use and has an economic cost and social burden due to its consequences.[2] Türkiye ranks 29th in worldwide cigarette consumption.[3] In the current literature, there is ample evidence of the health risks associated with cigarette smoke that may reverse after an adequate term of smoking abstinence. Therefore, achieving lifelong smoking cessation is a vital target of public health in developed and developing nations.[4,5]

Smoking cessation is an important part of tobacco control policies, and evidence-based advices suggest that quitting smoking is useful for smokers. The Framework Convention of Tobacco Control, which was declared by the World Health Organization (WHO) in 2003 with the aim of "protecting the present and future generations against tobacco use and smoke exposure", was accepted and entered into force in 2004.[6] Türkiye was the first country to implement all MPOWER (M: Monitor tobacco use and prevention policies; P: Protect people from tobacco smoke; O: Offer help to quit tobacco use; W: Warn about the dangers of tobacco; E: Enforce bans on tobacco advertising, promotion and sponsorship; R: Raise taxes on tobacco) strategies in 2008.[7] While the rate of individuals aged ≥15 yrs who used tobacco products in Türkiye was 28% in 2019, it increased to 28.3% in 2022. Of these individuals, 41.3% were males, and 15.5% were females in 2022.[8] Despite serious tobacco control policy implementations in Türkiye, increasing the smoking rate should guide health professionals to focus on smoking cessation. The spectrum of smoking cessation initiatives ranges from an easy advice to pharmacological treatment and intensive behavioral support.[9]

The three experimental methods (intravenous and oral nicotine self-administration, as well as nicotine-induced conditioned place preference) that were utilized to demonstrate nicotine preference in animal

models were outlined in a previous review. All of these methods emphasized the significance of the individuals' gender and age; females and adolescents seem to have stronger preferences than males and adults, respectively. [10] Therefore, we aimed to assess the differences in the triggering factors for smoking cessation regarding gender and age, about which there are few studies in the literature. The outcomes of this study may guide physicians to develop individual intervention strategies for smoking cessation.

MATERIAL AND METHODS

Ethical approval of the study was maintained from the Ethics Committee of the reference chest diseases hospital (approval date:12.05.2022, approval no: 2022-239). The study was conducted on 185 patients admitted to the outpatient clinics of the researchers between May and Sep 2022.

Participants recruitment

The inclusion criteria of the participants were as follows: i) to be over 18 yrs old, ii) to have quit smoking for more than one year, and not to initiate again iii) accepting to answer the questionnaire.

The exclusion criteria of the participants were as follows: i) to be under 18 yrs old, ii) current smokers, iii) to have quit smoking for less than one yr.

Data collection

Data of age, gender, education degree, number of smoked cigarettes/day, number of smoked cigarettes (pack/yrs), age of initiating/quitting smoking, count of attempts to quit smoking, therapy for quitting (pharmacological, psychological, and pharmacological+psychological), and psychosocial, economic, and medical factors that promote smoking cessation were registered via participants' answers to the questionnaires.

The triggers for quitting smoking were compared according to gender and age groups. Age was grouped as ≤ 50 years and > 50 years. [11]

Statistical Analysis

A statistical software program (SPSS for Windows, version 16.0; SPSS Inc.; Chicago, IL, USA) was used to analyze the data. Quantitative data were expressed as mean±standard deviation (SD) (min-max) for the cohort's general characteristics, while qualitative data were expressed as frequencies.

Comparisons between groups were performed by the independent two-sample t test for variables with normal distribution, and with the Mann-Whitney U test for variables with non-normal distribution. Chi square test was used to compare categorical variables. $P<0.05$ was deemed as significant.

RESULTS

A total of 185 adult participants were evaluated by the questionnaires. The average age of the participants was 58±13 yrs, and the number of males was 143 (77%). The participants were mostly primary school graduates (n:94, 51%). It was determined that the majority of the participants were able to quit smoking without any therapy support (n:166 vs n:19) (Table 1).

It was observed that females were younger (51±11 vs. 60±12, $P<0.001$) and had fewer average cigarette packs per year (19±10 vs. 25±12, $P=0.008$) than males. Compared with males, the average age of females initiating smoking was two years later ($P=0.036$), and the average age of females quitting smoking was five years earlier ($P=0.001$) (Table 1).

Among the factors, the awareness of smoking harms to health and diagnosis of chronic diseases were the most common, respectively When the factors that enabled smoking cessation were reviewed, the awareness of smoking health harms and anxiety about premature death had higher impacts on males compared to females ($P=0.026$, $P=0.01$, respectively). Among the triggers for smoking cessation, the diagnosis of COPD was seen more frequently in males ($P=0.009$), while the diagnosis of asthma was seen more frequently in females ($P=0.01$) (Table 2).

The trigger factors for smoking cessation were compared between the age groups. While having a family history of lung cancer had more impact on younger participants (15% vs. 2%, $P=0.003$), the diagnosis of chronic diseases [COPD and cardiac diseases ($P<0.0001$, $P=0.041$, respectively)] had more impact on older ones (57% vs. 31%, $P=0.001$) (Table 2).

Participants generally reported multifactorial (>3) triggers for smoking cessation. The count of smoking cessation triggers is shown in Table 3.

DISCUSSION

Among the triggering factors for smoking cessation, the most common was awareness of the smoking harms to health by 65% in our study. Similarly, Argüder E et al [12] reported that the primary factor

leading Turkish adults to smoking cessation among the other factors was awareness of the health harms of smoking at a rate of 44%. Moreover, previous studies reported that concern about future health problems due to this awareness was the most effective factor. [13,14] In developing nations (Malaysia, Thailand, Indonesia, and Vietnam) that implement MPOWER measures like ours, awareness of health harms of smoking appears as the major factor in smoking cessation. [15] Levy DT et al [16] proved this result by showing that health warnings were the MPOWER approach that had the greatest impact on reducing smoking-related deaths (13.3 million as opposed to <1 million for each of the other MPOWER initiatives).

The second most common factor was the diagnosis of chronic diseases such as COPD, asthma, cardiac diseases, and hypertension (HT). Similar to our study, Wang R et al [17] found that smokers with tobacco related chronic diseases had higher prevalence of quit smoking. On the contrary, Holm M et al [18] reported that the presence of diabetes, chronic bronchitis, asthma, and HT were not associated with smoking cessation. Similar to this study, Patel K et al [19] detected no significant associations between smoking cessation and diabetes, HT, and high cholesterol. We consider that the differences between our study and these studies may be due to the fact that the relationship between chronic diseases and smoking cessation was not explained in detail when informing patients. Patients may wise up that smoking is only a risk factor for lung diseases. Because patients are unaware of the smoking harms to the other organ systems, their chronic diseases, except lung diseases, may not have triggered them to quit smoking.

When smoking cessation triggers were compared according to age, the presence of a chronic disease was more effective in the elderly. Among these chronic diseases, the presence of COPD or cardiac diseases enabled older participants to quit smoking significantly more than younger ones. This outcome was expected due to the parallel increase in chronic diseases as aging. In younger people, a family history of lung cancer, which could lead to future health concerns, was prominent. In agreement with our findings, a previous study reported that current health problems enabled elders to quit smoking, while future health concerns enabled younger ones to quit smoking.[20]

In this study, compared with males, females initiated smoking later and quit smoking earlier. As expected, females smoked fewer packs of cigarettes per year. Males are more exposed to

environmental factors that encourage smoking (such as coffeehouse habits, work environment at an early age) compared to females in Türkiye. Thus, males may be under more sociocultural pressure to smoke and continue smoking for more extended periods than females.

We found that the awareness of smoking health harms and anxiety about premature death had more effects on males for smoking cessation. Similarly, many studies declared that males quit smoking more due to health concerns than females. [21-23] In contrast, females were more triggered to quit by concerns of health problems from smoking than males in a previous study.[24] The variation between the mentioned above studies may be due to the participants' different sociocultural characteristics and educational levels.

The leading health problems associated with smoking are respiratory diseases such as COPD and asthma. Having a diagnosis of COPD or asthma is an important factor enabling quitting smoking. [25,26] The diagnosis of COPD had a significant impact on males compared to females for smoking cessation in our study. Because males smoked longer and more packs/year of cigarettes, and as expected, they were diagnosed with COPD more often. In line with a previous study, having a diagnosis of asthma was observed to trigger smoking cessation mostly in females compared to males.[27]

Study Limitations

Since the hospital serves adult patients over 18 yrs, only adult patients could be evaluated in this study. Such a survey study should be performed in a larger population in order to reflect the general population.

CONCLUSION

Effective interventions are valuable for successful smoking cessation. Physicians should target separate approaches to men and women, as well as young people and the elderly, for smoking cessation. Among the triggers, awareness of the health harms of smoking, anxiety about premature death, and diagnosis of COPD were more prominent in males, and the diagnosis of asthma was more prominent in females. A family history of lung cancer appeared to enable younger participants to quit smoking, while chronic diseases appeared to enable the older ones. Physicians should explain the

appropriate triggers to the patients according to their gender and age. Also, these triggers should be emphasized in public anti-smoking campaigns.

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	Number of participants (%)	Female n=42 (%)	Male n=143 (%)	P	≤50 yr n=55 (%)	>50 yr n=130 (%)	P
Mean age(yr)±SD	58±13	51±11	60±12	**<0.001**			
Gender							
Male	143 (77)				35 (24)	108 (76)	**0.007**
Female	42 (23)				22 (52)	20 (48)	
Education degree							
Primary	94 (51)	6 (14)	21 (15)		21 (38)	73 (56)	
Secondary	44 (24)	7 (17)	13 (9)	0.523	14 (26)	30 (23)	0.066
High school	20 (11)	8 (19)	36 (25)		7 (12)	13 (10)	
University	27 (14)	21 (50)	73 (51)		13 (24)	14 (11)	
Mean cigarette number/d ±SD (min-max)	24±12 (3-60)	19±10	25 ± 12	**0.008**	22±10	24±13	0.277
Cigarette number (pack/yr)							
0-20	57 (31)	19 (45)	38 (27)	**0.03**	38	19	>0.0001
20-40	90 (49)	19 (45)	71 (50)		17	73	
>40	38 (20)	4 (10)	34 (24)		0	38	
Mean age of smoking initiation (yr)±SD (min-max)	18±5.5 (6-41)	20±6	17.9±5	**0.036**	18±4	18±6	0.905
Mean age of smoking cessation ± SD (min-max)	45.5±12 (17-71)	41.3±12	46.8±12	**0.01**	34±8	50±10	N/A
Number of attempts to quit smoking							
1	39 (21)	10	29		16	23	
2	62 (34)	12	50	0.665	14	48	0.193
3	32 (17)	7	25		11	21	
>3 (4-6)	52 (28)	18	39		14	38	
Support for smoking cessation	19 (10)	7 (12)	7 (5)	0.19	6 (11)	8 (6)	0.360
Pharmacotherapy							
Varenicline	7	4	3		4	3	
Nicotine patch	2	0	2		2	0	
Nicotine gum	1	1	0	0.179	1	0	0.131
Bupropion	1	1	0		1	0	
Psychotherapy	5	2	3		1	4	
Pharmacotherapy+ Psychotherapy	3	1	2	0.285	1.2	2	0.548

Table 1. Demographic, smoking, and quitting smoking characteristics of the participants and comparison of participants' characteristics by gender and age

SD, standard deviation; N/A, nonavailable

Table 2. Comparison of trigger factors for smoking cessation by gender and age

		Gender statistics			Age statistics		
Triggers	Number of participants (%)	Female n=42 (%)	Male n=143 (%)	P	≤50 yr n=55 (%)	>50 yr n=130 (%)	P
Awareness of smoking harms to health	121 (65)	21 (50)	100 (70)	**0.026**	33 (60)	88 (68)	0.317
*Diagnosis of Chronic diseases**	91 (49)	20 (48)	71 (50)	0.862	17 (31)	74 (57)	**0.001**
Diagnosis of Chronic Obstructive Pulmonary Disease	63 (34)	7 (17)	56 (39)	**0.009**	4 (7)	59 (45)	**<0.0001**
Desire not to be an inappropriate role model for children	61 (33)	13 (31)	48 (34)	0.853	20 (36)	41 (32)	0.608
Recommendation of a healthcare professional	58 (31)	11 (26)	47 (33)	0.455	12 (22)	46 (35)	0.083
Anxiety about requiring care in old age	51 (28)	8 (19)	43 (30)	0.175	14 (26)	37 (29)	0.722
Request of family members	40 (22)	6 (14)	34 (24)	0.209	12 (22)	28 (22)	0.998
Anxiety about premature death	39 (21)	3 (7)	36 (25)	**0.01**	8 (15)	31 (24)	0.173
Bad breath smell	37 (20)	10 (24)	27 (19)	0.513	14 (26)	23 (18)	0.234
Hypertension	33 (18)	9 (20)	24 (20)	0.884	5 (9)	28 (22)	0.057
Decision after acute diseases§	31 (17)	7 (17)	24 (17)	0.998	8(15)	23 (18)	0.672
Diagnosis of Asthma	25 (14)	11 (26)	14 (10)	**0.010**	12 (22)	13 (10)	0.057
Financial problems	25 (14)	4 (10)	21 (15)	0.454	11 (20)	14 (11)	0.104
Diagnosis of cardiac diseases¶	20 (11)	3 (7)	17 (12)	0.573	2 (4)	18 (14)	**0.041**
Heart attack	19 (10)	5 (12)	14 (10)	0.773	4 (7)	15 (12)	0.441
Smoking ban at home	16 (9)	4 (10)	12 (8)	0.762	2 (4)	14 (11)	0.155
Effect of public service announcements in the Media	15 (8)	1 (2)	14 (10)	0.197	6 (11)	9 (7)	0.384
Other triggers	14 (8)	4 (10)	10 (6)	0.236	5 (9)	9 (6)	0.415
Anxiety about beauty loss	13 (7)	4 (10)	9 (6)	0.498	6 (11)	7 (5)	0.213
A family history of lung cancer	11 (6)	4 810)	7 (5)	0.274	8 (15)	3 (2)	**0.003**
Diagnosis of malignancy	7 (4)	1 (2)	6 (4)	0.998	3 (6)	4 (3)	0.426
Sexual intercourse disorders	6 (3)	1 (2)	5 (4)	0,998	1 (2)	5 (4)	0.671
Stroke	5 (3)	2 85)	3 (2)	0.318	2 (4)	3 82)	0.635
Infertility	3 (2)	2 (5)	1 (1)	0.130	2 (4)	1 (1)	0.21
Pregnancy	2 (1)	2 (5)			2		

* Chronic diseases: Chronic obstructive pulmonary disease, asthma, cardiac diseases, hypertension; [§]Acute diseases: Heart attack, stroke, and others; [¶] Cardiac diseases: Coronary artery disease, cardiac arrhythmias, heart valve diseases, heart failure. Triggers have more than one option.

Table 3. Count of smoking cessation triggers

Count of smoking cessation triggers	Number of paticipants (%)	Female (n=42)	Male (n=143)	P	≤50 yr (n=55)	>50 yr (n=130)	P
1 2-3 >3	29 (16) 53 (29) 103 (65)	9 (21) 10 (24) 23 (55)	20 (14) 43 (30) 80 (56)	0.19	16 (29) 15 (27) 24 (44)	19 (15) 42 (32) 69 (53)	0.071
Mean count of smoking cessation triggers±SD	3.7±2 (1-9)	3.6	3.8	0.312	3.4	3.9	0.224

SD, standard deviation