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Original Research Article

A Community-based Study in Mersin: Factors Affecting the Prevalence of Smoking and Smoking Cessation in Adults

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Abstract

This study was performed to investigate the factors involved in the prevalence of smoking and smoking cessation. A total of 730 individuals participated in our study among whom 372 (51.0%) were male. While 306 (41.9) of the participants were active smokers, 131 (18.0%) had quitted smoking. Active smoking has a positive correlation with factors such as being male, being divorced/widowed, having lifetime smoking mother and father and having increased number of lifetime smoking in the family, whereas it has a negative correlation with increasing age. Increasing age and rising number of ex-smokers in the family elevate the prevalences of smoking cessation.

Keywords: Smoking cessation, Smoking, Stop-smoking center, Tobacco

INTRODUCTION

Currently, tobacco use is regarded as one of the leading causes of death worldwide (Mathers and Loncar, 2006; Bilir, 2009). Tobacco use is recognized as a leading risk factor for 6 of 8 deaths worldwide (T.C. Sağlık Bakanlığı, 2008). Tobacco-related death toll is estimated to be about 5.4 million in 2005 and if no measures are taken, this number is predicted to rise up to 8.3 million in 2030 (Mathers and Loncar, 2006).

Today, half the male population and one tenth of the female population smoke tobacco. Although smoking is a common habit, the prevalence of smoking cessation appears to be considerably low. The younger people quit smoking, the more adds up to the life expectancy (Jha and Peto, 2014).

In Turkey, tobacco-related mortality rates were 38.0% in men and 6.0% in women in 2004 (The Tobacco Atlas, 2004). In 2004, 12.7% of the mortalities could have been prevented simply by inducing smoking cessation (Unuvar, Mollahaliloglu, and Yardim, (eds.) 2006).

In our country, the law on prevention and control of hazards of tobacco products (law no. 4207) has been signed in 1996 and Framework Convention on Tobacco Control prepared by WHO has been signed in 2004, both of which paved the way for the "National Tobacco Control Program"(HASUDER, 2013; T.C. Sağlık Bakanlığı Temel Sağlık Hizmetleri Genel Müdürlüğü, 2010a). MPOWER, a plan by WHO outlining the tobacco control mechanisms has been implemented in 2008. Since 2009, Turkey has attained the status of "smokeless country" (T.C. Sağlık Bakanlığı Temel Sağlık Hizmetleri Genel Müdürlüğü, 2010b). In the 2012 report of Global Adult Tobacco Survey (GATS), Turkey has been declared as the first and single country complying with the strategies of MPOWER (T.C. Sağlık Bakanlığı. Halk Sağlığı Kurumu, 2014).

According to the 2008 GATS in Turkey, 31.2% of the people ≥15 years of age use tobacco or tobacco products everyday or occasionally, whereas same rate has dropped to 27.1% in 2012. In our country, the rate of people who smoke everyday or occasionally is reported to be 15.9% and 13.1% in 2008 and 2012, respectively (T.C. Sağlık Bakanlığı. Halk Sağlığı Kurumu, 2014; Türkiye İstatistik Kurumu, 2010).

Currently, cigarette smoking is a preventable public

health issue. In Turkey, we have a “ALO 171”Stop Smoking Line sponsored by the Ministry of Health and Smoking Cessation Clinics (T.C. Sağlık Bakanlığı, 2014). Despite the decline in the rate of tobacco and tobacco-product users, 27.1% of Turkey’s population still use them, exposing themselves and the ones around them to the health hazards of smoking (T.C. Sağlık Bakanlığı. Halk Sağlığı Kurumu, 2014).

In this study, we aim to investigate the factors influencing the prevalence of smoking and smoking cessation.

METHODS

This cross-sectional study was performed Mersin in 2013. Mersin is situated on the southern shores of Turkey which is a province that attracts immigrants from all provinces of Turkey, thus posing as a good sample of entire Turkey. Our study was approved by the local ethics committee.

The population of the study consisted of 646.777 people registered at the central district of Mersin province who were ≥18 years of age. Considering the smoking prevalence 50%, the worst acceptable ±4 and the 95% CI the minimum sample size was calculated 600 (by Epi-Info). A total of 750 people constituted the sample of the study. During data collection, 237 subjects declined to participate in the study due to various reasons. The data collection was proceeded until reaching the predetermined limit which was 730 participants (97.3%).

Four Community Health Centers (CHC) working in the central district of Mersin were studied with regard to their population including categories such as number of individuals, gender distribution and age groups. Groups of 60 people were determined to be included from 13 neighborhoods. The number of neighborhoods to be included were determined based on the population size of the CHCs. The neighborhoods were selected from the table of random numbers.

A structured survey form was prepared in light of the current literature. This form included 23 questions aiming at sociodemographic characteristics, personal and familial smoking and cessation statuses, and knowledge on methods and centers of smoking cessation.

While assessing the smoking status of participants, the ones who had smoked at least 100 cigarettes in their life and continue to smoke daily were recognized as “daily smokers”, and continue to smoke occasionally were recognized as “occasional smokers”. The ones who had smoked at least 100 cigarettes in their lives but do not smoke currently were recognized as “ex-smokers”, and the ones who had not smoked or the ones who had smoked less than 100 cigarettes in their entire lives were recognized as “never-smokers” (HASUDER, 2013). Active smokers attempted to quit smoking or quitted smoking were recognized as “attempted smoking cessation” group. Lifetime smokingwas defined as daily Or occasionalor ex-smokers. *International Standard Classification of Occupations –ISCO 08* was employed for the occupational categorization (Türkiye İstatistik Kurumu, 2014).

Financial status was classified in 3 groups based on the 2013 official minimal wage of 773.01 TL (408.2 USD) (T.C. Çalışma ve Sosyal Güvenlik Bakanlığı, Çalışma Genel Müdürlüğü 2013).

Dependent variables

Active smokers

The ones who had smoked at least 100 cigarettes in their life and who continue to smoke daily or occasionally.

Ex-smokers

The non-smokers who had been active smokers.

Independent variables

Sociodemographic characteristics of the participants and their spouses, number of people in the household, smoking status of family members, presence of chronic diseases, smoking status of participants, and knowledge on methods and services of smoking cessation were declared as the independent variables.

The pilot study was performed and the questionnaire was revised.

The target neighborhood was visited and a street was chosen in a randomized fashion. In visited houses, all the family members above 18 years of age were included in the study. The ones at home were informed about the study and after gaining consent, the data collection was performed via face to face interviews.

Following the quality control of the study data, statistical analyses were performed. The study data were presented with descriptive statistics. The categorical variables were compared with Pearson chi-square test, whereas the continuous variables were compared with Student’s t-test, Mann-Whitney U test, and Kruskal-Wallis test. The Binary Logistic Regression analysis was employed to analyze the smoking status as well as the factors influencing cessation and cessation attempts. p values ≤0.05 were recognized as statistically significant.

RESULTS

A total of 730 individuals including 372 males (51.0%) were included in the study and the mean age of the participants was 40.3±14.3 years. The mean duration of

Table 1. Sociodemographic characteristics of the participants

Variables	n	%
Gender		
Male	372	51.0
Female	358	49.0
Educational status		
Literate and illiterate	85	11.6
Primary school or junior high school	354	48.5
High school	187	25.6
University	104	14.3
Marital Status		
Married and living with their spouses	529	72.5
Single	159	21.8
Divorced/widowed	42	5.7
Occupation		
Professional occupational groups	53	7.3
Technicians, associate professionals group	62	8.5
Service and sales workers	189	25.9
Craftsmen and related trades workers	67	9.2
Workers in elementary occupations	50	6.8
Unskilled/Unqualified workers Unemployed	309	42.3
Partner's occupation*		
Professional occupational groups	45	8.5
Technicians, associate professionals group	69	13.0
Service and sales workers	87	16.5
Craftsmen and related trades workers	42	7.9
Workers in elementary occupations	45	8.5
Unemployed	241	45.6
Partner's educational status*		
Literate and illiterate	48	9.1
Primary school or junior high school	296	55.9
High school	119	22.5
University	66	12.5
Financial status		
Below minimal wage	67	9.2
Minimal wage	124	17.0
Above minimal wage	539	73.8
Status of residence		
Own house	480	65.8
Rental	250	34.2
Total	730	100.0

*Based on the answers of 529 participants who were living with their spouses.

of education was 8.0±4.3 years, mean number of people living in the same house was 4.1±1.8. Other sociodemographic data are shown in Table 1.

While 565 (77.4%) participants had no chronic disease, 86 (11.8%) had cardiovascular chronic disease, and 79 (10.8%) had chronic diseases of other systems.

A total of 306 (41.9%) participants,comprised of 298 (40.8%) daily smokers and 8 (1.1%) occasional smokers, were active smokers, and 131 (18.0%) were ex-smokers (Figure 1).

Among women, the prevalence of active smoking and smoking cessationwere 27.9% (100 person) and 10.6% (38 person) respectively. Same prevalence was 55.4% (206 person) and 25.0% (93person) among men, respectively. The prevalence of active smoking was highest 49.7% (98person) in the 18-29 years age group. Moreover, the lowest prevalence of smoking cessation 2.6% (5person)was observed in the same age group, as well (Figure 2).

The analysis revealed that prevalence of smoking declined by increasing age, while being a male, being divorced/widowed, having lifetime smoking mother and father, and increased number of people lifetime smoking in the family were found to be associated with statistically

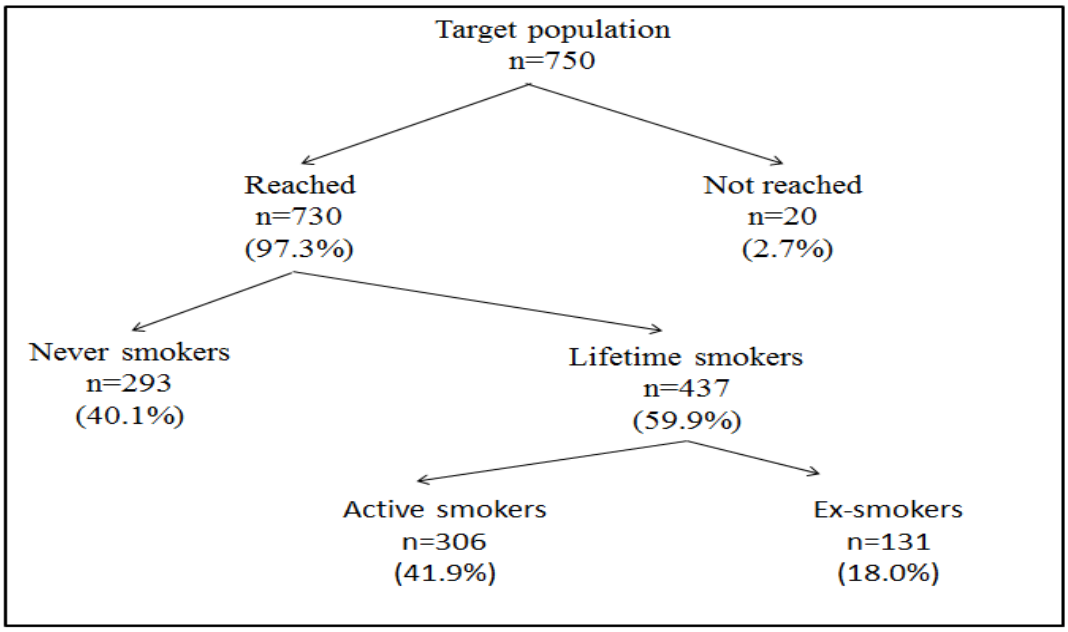

Figure 1. Smoking status of the participants

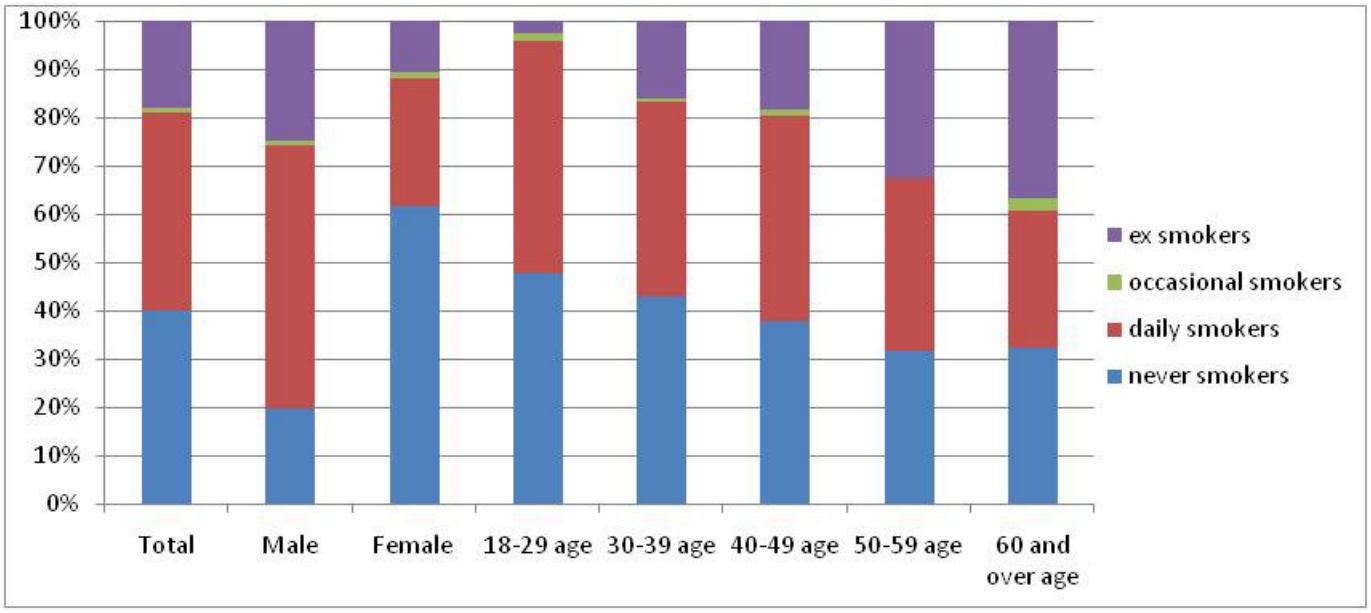

Figure 2. Smoking status relative to gender and age

significant increases in the prevalence of active smoking (Table 2). There was not association between active smoking and the presence of any chronic disease.

A total of 239 (54.7%) active smokers or ex-smokers were found to know a service giving assistance in smoking cessation. Of these participants, 190 (43.5%) knew a telephone line on smoking cessation, 76 (17.4%) knew a stop smoking center, and 6 (1.3%) knew other services assisting smoking cessation.

Of the 239 participants who knew a service or method assisting in smoking cessation, 195 (81.5%) had learnt it from television, 19 (17.9%) from the internet, 15 (6.3%) from newspapers, 16 (6.7%) from healthcare workers, and 80 (33.4%) from other sources (Since the participants told more than one source, the total rate exceeds 100.0%).

Among the active smokers, 203 (66.3%) wanted to

Table 2. Risk factors affecting active smoking

Variables	OR	%95 CI	p
Gender			
Female	1.0		
Male	4.2	2.9-5.9	**<0.001**
Marital status			
Married and living with their spouses	1.0		
Single	1.2	0.7-1.9	>0.05
Divorced/widowed	2.8	1.4-5.6	**<0.01**
Lifetime smoking in the family			
Mother and father	3.0	1.3-6.9	**<0.01**
Mother or father	1.8	0.9-3.7	>0.05
Other family members	2.05	1.02-4.3	>0.05
Never	1.0		
Age	0.97	0.96-0.99	**<0.001**
Number of people lifetime smoking in the family	1.1	1.05-1.2	**<0.01**

Constant:-1.232

Table 3. Factors affecting smoking cessation

Variables	OR	%95 CI	p
Age	1.1	1.04-1.08	**<0.001**
Number of ex-smokers in the family	1.2	1.01-1.5	**=0.05**
Marital status			
Married and living with their spouses	3.6	1.1-1.4	**<0.05**
Single	2.3	0.6-8.9	>0.05
Divorced/widowed	1.0		

Constant: -4.648

quit smoking.

The prevalence of smoking cessation was found to be significantly increased in participants living with their spouses, with higher age, and with increased number of ex-smokers in the family (Table 3).

No association was found between the presence of a chronic disease and quit attempt or smoking cessation (p>0.05).

Among our study sample, 119 (90.8%) had quitted smoking by their own willpower, while 13.0%, 5.3%, 3.8%, 0.8%, 0.8%, 0.8%, and 0.8% reported their smoking cessation was associated with a disease or a physician's recommendation, drug usage, pregnancy, clinic, having a child, herbal products, and the emotion of disgust, relatively (Since the participants told more than one source, the total rate exceeds 100.0%).

DISCUSSION

According to the results of the 2008-2011 GATS, the prevalence of smoking varies between 14.0% and 39.1% in 17 countries (Centers for Disease Control and Prevention (CDC), 2013). In our country, the prevalence of smoking was 27.1% in 2012 (T.C. Sağlık Bakanlığı. Halk Sağlığı Kurumu, 2014). Other studies conducted in Turkey show a prevalence varying between 22.7-50.9% (Aslaner, 2008; Baris et al., 2011; Baser et al., 2007; Kaplan et al., 2013; Turan et al., 2014; Bugdayci et al., 2010; Yasan et al., 2008). In the present study, the prevalence of active smoking was 41.9%. This rate appears to be higher than those of other studies conducted in Turkey. The intensive number of immigrants received by Mersin from the neighboring provinces may be the reason behind that high rate (Erjem, 2009). In immigration destinations, particularly among second generation immigrants, substance abuse is known to be common (Balcioglu et al., 2001). Another explanation may be the availability of smuggled cheap cigarettes due to easy transportation via port of Mersin, one of the popular Eastern Mediterranean ports (T.C. İçişleri Bakanlığı Emniyet Genel Müdürlüğü Kaçakçılık ve Organize Suçlarla Mücadele Daire Başkanlığı, 2013; T.C. Gümrük ve Ticaret Bakanlığı, 2014).

Studies show that increasing age is negatively correlated with smoking rates. According to the GATS 2012 conducted in Turkey, the prevalence of smoking was 35.6% in the 25-44 years age group, while it was 25.9% in the 45-64 years age group and 8.8% in the ≥65 years age group (T.C. Sağlık Bakanlığı. Halk Sağlığı Kurumu, 2014). Baser et al. (2007) found the prevalence of smoking as 35.4% in participants <50 years of age,

which dropped to 25.6% in those aged ≥50 years. These results were consistent with those of other studies in Turkey (Yasan et al., 2008; Kiter et al., 2008). In the present study, increasing age was determined to be a factor reducing the prevalence of active smoking. This result may be explained by two reasons. First, as seen in our study, increasing age is a factor that has a positive influence on smoking cessation, leading to decreased prevalence of active smoking in advanced ages. Second, smokers are known to die earlier than non-smokers which may explain the higher prevalence of non-smokers in advanced ages (Jha and Peto, 2014; Unuvar, Mollahaliloglu, Yardim, (eds.) 2006).

A study in China including people enrolled in a stop smoking program, 96.% of the smokers were male and 4% were female (Zhu et al., 2010). In a GATS study on13 countries with low and middle-income countries, smoking was found to be more prevalent among men than in women (Palipudi et al., 2012). Studies in Turkey exhibit that the prevalence of smoking is higher among men than in women, as well (Aslaner, 2008; . Baris et al., 2011; Baser et al., 2007; Turan et al., 2014; Bugdayci et al., 2010; Yasan et al., 2008; Kiter et al., 2008; Keskinoglu et al., 2007). In the present study, being a male was observed to be a factor increasing the prevalence of smoking. This may be explained by the social roles of men and women. Since men are recognized as the leader of the family, they have a higher degree of economic freedom as they interact withthe outside world, however, women, as mother of the family, are bound within the house environment.

Studies conducted in Mersin (Bugdayci et al., 2010) and Diyarbakır (Yasan et al., 2008) have shown that marital status has no link with smoking status. A study in Izmir showed that 42.5% of the married and 28.6% of the unmarried were non-smokers (Keskinoglu et al., 2007). In the present study, widow/divorced people showed higher prevalence of smoking as compared to the married couples living together, indicating that losing a spouse can be recognized as a risk factor for activesmoking. The loneliness of people who lose their spouses renders them more susceptible to stress factors.

A study in Rome found that 22.2% of the participants having no smoker family member were smokers, while among those having a smoker father, 49.2% were smokers (Marino et al., 2010). Other national (Baser et al., 2007; Bugdayci et al., 2010; Yasan et al.,2008; Ozge et al., 2005) and international (Mony et al., 2014) studies also show that having a smoker mother and/or father is a risk factor for increased prevalence of smoking.In the present study, having both smoking mother and father was found to be a risk factor increasing the prevalence of smoking, suggesting that smoking parents constitute a dominant role model for the children. Moreover, the positive correlation between the number of smokers in the family and the prevalence of smoking in our study appears to be consistent with this result.

A study in Ankara showed that 46.0% of the smokoers were aware of the stop smoking clinics.In the same study, 67.8% of the smokers and 49.5% of the ex-smokers were found to be aware of the stop smoking telephone line (Kaplan et al., 2013). In the present study, 54.7% of the active smokers and ex-smokers knew a service giving assistance in smoking cessation. Stop smoking linewas the most commonly known assisting service (43.5%) and 81.5% of the services had been learnt from the TV and 6.7% from the healthcare workers. In light of these data, we see that approximately half of the smokers did not know a service assisting smoking cessation and TV was the most common source of knowledge about such services. Therefore, TV appears to be the most important source of knowledge on smoking cessation, whereas healthcare institutions which should be the leading source of knowledge, seem to be inadequate in this regard.

Field studies performed abroad have shown the prevalence of smoking cessation as 21.6% in the US (Lee and Kahende, 2007), 24.0% in China (Zhu et al., 2010), and 48.2% in Brasil (Tejada et al., 2013). GATS performed in 13 countries with low and middle-income countrieshave shown the prevalence of smoking cessation as 3.0-24.0 (Palipudi et al., 2012). In Turkey, according to the GATS 2012, this rate was 13.1% (T.C. Sağlık Bakanlığı. Halk Sağlığı Kurumu, 2014). The prevalence of smoking cessation has varied between 15.9-36.5% in other studies in Turkey (Kaplan et al., 2013; Turan et al., 2014; Arguder et al., 2013). In the present study, this rate was 18.0%. The differences between countries with regard to prevalence of smoking cessation are associated with differences in sociocultural life, study methods, and smoking policies.

Being married has been shown to be a factor in smoking cessation in studies performed in the US (Lee and Kahende, 2007) and Korea (Kim, 2014). However, studies in China (Zhu et al., 2010), Rome (Marino et al., 2010), and Brasil (Azevedo and Fernandes, 2011) have shown no link between marital status ad smoking cessation. A study in Izmir (Sahbaz et al., 2007) showed that marital status increased the prevalence of smoking cessation, while a study in Ankara (Arguder et al., 2013) showed no such association.In the present study, marriage was observed to be a factor increasing the prevalence of smoking cessation. This may be explained with the support of a spouse in living a healthy life.

Although foreign studies (Lee and Kahende, 2007; Tejada et al., 2013; Kim, 2014) have shown a positive correlation between age and smoking cessation,some studies (Zhu et al., 2010; Azevedo and Fernandes, 2011) report no such relationship. In studies in Turkey (T.C. Sağlık Bakanlığı. Halk Sağlığı Kurumu, 2014*;* Turan et al., 2014; Ozge et al., 2005), as in our study, a positive correlation has been shown between age and smoking cessation. This result may be associated with the increasing health problems and pressure from relatives

at advanced ages.

A study in Brasil (Azevedo and Fernandes, 2011) has not shown a link between the success of smoking cessation and living within a household including smokers. A study performed in the US (Lee and Kahende, 2007) found that having no smoker in the household increased the success rate of smoking cessation 10.5-fold.In a study in Romania (Kaleta et al., 2014), the success of smoking cessation was observed to increase 13.8-fold in men and 20.9-fold in women having no smoker in the household. In the present study, increased number of ex-smokers in a family was found to be related to 1.2-fold increase in smoking cessation. In general, studies show that living in the same household with an ex-smoker promotes smoking cessation in the household. This result can be explained by the fact that smoking cessation may be acting as a strong role model in the household.

In a study focusing on the methods of smoking cesation in the US (Lee and Kahende, 2007), 75.7% were found to quit smoking at once. One study in Izmir (Turan et al., 2014) found that 53.8% used a proven method to quit smoking, while another study in Mersin (Ozge et al., 2005) revealed that 95.9% did not receive professional assistance. In the present study, 90.8% of the ex-smokers had quitted by their own willpower.

A study in Rome revealed the main reason behind smoking cessation as pressure from other people and health concerns (Marino et al., 2010). In Turkey, according to the GATS 2012, the main reason behind smoking cessation is health issues (T.C. Sağlık Bakanlığı. Halk Sağlığı Kurumu, 2014). A study in Mersin (Ozge et al., 2005) found that 54.5% of their sample quitted smoking due to health problems.

There are differing reasons behind smoking cessation between various studies, however, health concerns and willpower are recognized as the leading factors. In the present study, although the presence of a chronic disease was not an influential factor on smoking cessation, the general health status is believed to be a significant factor in quitting smoking.

CONCLUSION AND RECOMMENDATIONS

In conclusion, we found that being a male, being divorced/widow, having lifetime smokingmother and father, and high number of smokers in the household increased the prevalence of smoking, while advanced age was found to be associated with lower prevalence of smoking. Age and increased number of ex-smokers among the family members were observed to have a positive correlation with smoking cessation. Moreover, living with a spouse was found to be associated with higher prevalence of smoking cessation.

We believe that targeting men, young individuals, divorced/widowed people, and those with a smoking parent as a high-risk group and applying an intensive smoking cessation program, will be a more effective solution.

Limitations of the study

Since the data were collected in the evenings, we could not reach the public servants. The study has not been made throughout in our countries.

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