Smoking prevalence among elementary school-age children in Sirnak province in Turkey.

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Abstract

Introduction: Majority of the smokers start smoking before adulthood. Determine smoking prevalence among elementary school students, and investigate the age they start smoking, their access to tobacco and the effects of smuggling on these outcomes.

Materials and methods: An adapted version of "IUATLD"/WHO smoking questionnaire was administered to 600 elementary school-age students in Sirnak province. All questionnaires were returned and all were evaluable.

Results: Of all participants, 333 were boys and 267 were girls. Non-smokers accounted for 57% of the study population, while the remaining 43% used tobacco in any form. Answers provided regarding access to tobacco indicated that 86% had no difficulty while buying tobacco, 97.7% of the smokers bought a single cigarette, and 88.4% of the smokers smoked duty-free/illegal/cheap tobacco. A questionnaire consisting of questions regarding smoking habits was administered to children aged between 6-14 years, who had referred to the polyclinics of Sirnak State Hospital between March 2011 and October 2011.

Conclusion: The findings suggested that smoking prevalence can be high and nicotine addiction can be common among elementary school-aged children (age interval: 6-14 years) in Sirnak in Turkey, in addition to demonstrating that these children can easily access tobacco without experiencing any difficulties.

Introduction

At the present time, more than 80% of adult smokers start smoking before the age of 18 years [1]. It is known that currently there are 1.1 billion smokers worldwide and 80% of them live in the developing countries. In the developed countries, 20% of school-age children are active daily smokers [2]. For the tobacco industry to survive, the deaths and spontaneous smoking cessations in the adult smoking population should be compensated by the addition of new smokers. These are particularly the children and teenagers, which is why prevention of adolescents from starting smoking represents one of the most significant healthcare policies. In this regard, the prevalence of smoking among adolescents is considered as one of the 10 basic health indicators in US [3]. Tobacco cost is one of the most significant factors effecting smoking prevalence among adolescents. Increasing the tobacco cost through taxes is reported to provide significant contribution to the health of societies without causing tax-loss of the countries, and has been suggested by organizations such as WHO and UICC as a method of tobacco control [4]. On the other hand, tobacco smuggling is known to be the leading strategy developed by the industry. Sirnak is a province housing one of the border-gates of our country in Turkey, and it is a leading way of tobacco smuggling. In Sirnak province and its districts, illegal tobacco is sold by peddlers on almost every street. The present study aimed to determine smoking prevalence among elementary school students, and investigate the age they start smoking, their access to tobacco and the effects of smuggling on these outcomes.

Methods

A questionnaire was administered to 600 elementary school-age children in Sirnak in Turkey. Children completing the questionnaire were aged between 6-14 years. The questionnaire was administered to elementary school-age children who referred to the polyclinics of Sirnak state Hospital between March 2011 and October 2011. Preliminary information was given to the participants to explain the purpose and requirements of the questionnaire, and to remind that their participation is voluntary. An adapted version of the self-administered "IUATLD"/WHO smoking questionnaire was used. The questionnaire mainly included questions concerning smoking habit, nicotine addiction, and the ease of access to tobacco. Regarding access to tobacco, the level and status of difficulties while buying tobacco, whether they were able to buy single cigarettes and cigarettes that are cheaper than those sold in official stores under TEKEL label were questioned.

Definitions

Non-smoker: Has never tried or smoked.

Experiencers: Non-smoker but tried, smokers who smoke less than one cigarette per week.

Occasional smokers: Those who smoke less than one per day but more than one per week.

Frequent or regular smokers: Those who smoke at least one cigarette per day.

Quitters: Those who reported the following: "I have smoked at least 100 cigarettes, I have stopped smoking and have not smoked any cigarette over the last 6 months".

Statistical analysis

SPSS 15.0 Windows package software was used for analysis. Gender differences were analysed by χ^2 test. P values<0.05 were considered statistically significant.

Results

In total, 600 questionnaires were distributed, all of which were completed and found evaluable. Of all students completing the questionnaire, 333 were boys and 267 were girls. Table 1 shows smoking status according to gender. In total, 342 of 600

students (57%) were non-smokers and of those 114 students, 231 were girls and 111 were boys. The remaining 258 students had any form of contact with tobacco.

Table 1 show that there were significant differences between genders in terms of analysed parameters.

Table 2 shows that the age at the first smoking attempt was lower among male students. Boys started smoking at an earlier age compared to the girls.

Three major questions were asked to evaluate the ease of access to tobacco: Do you experience any difficulty while buying tobacco, can you buy single cigarettes and do you smoke cheap/duty-free/illegal cigarettes (cheap, was defined as buying the same tekel-labeled brands at a lower price out of official stores)? Almost 86% of the responders reported no difficulty in buying tobacco, no significant difference was found in terms of difficulties while buying tobacco, ability to buy single cigarettes and the percentage indicated significant difference with gender, of all, 42% were able to buy duty-free/illegal/cheap tobacco and assessment of the duty-free (illegal) tobacco purchase and smoking status, and percentage among smokers did not indicate a statistically significant difference (Table 3).

Table 1. Smoking status according to gender.

	Total	Boys	Girls	p
	n (%)	n	n	
Never-smokers	342 (57)	111	231	0.043
Experiencers	39 (6.5)	33	6	0.031
Former smokers	12 (2)	9	3	0.046
Occasional smokers	63 (10.5)	48	15	0.037
Regular smokers	144 (24)	132	12	0.023

Table 2. Age at the first smoking attempt of the students based on gender.

	n	Mean	Number of cigarettes		Min age	Max age	p
Boys	222	8.3	3.6		6	14	p=0.039
Girls	36	10.5	2.4		7	13	

Table 3. Three major questions evaluate the ease of access to tobacco.

	Total n (%)		Boys n (%)		Girls n (%)		p
	Yes	No	Yes	No	Yes	No	
The rate of having difficulty in buying tobacco and its distribution	36 (14)	222 (86)	30 (13.5)	192 (86.5)	6 (16.7)	30 (83.3)	0.058
The ability to buy single cigarettes and percentage among smokers	252 (98.4)	6 (1.6)	222 (100)	0	30 (83.3)	6 (16.7)	0.038
Duty-free (illegal) tobacco purchase and smoking status, and percentage among smokers	228 (88.4)	30 (11.6)	198 (89.2)	24 (10.8)	30 (83.3)	6 (16.7)	0.055

Discussion

Each year, almost 4 millions of people die worldwide due to tobacco-related diseases and this figure is estimated to reach 10 million by the year 2030. Of these 10 million deaths, 70% are expected to occur in the developing countries [5]. The World Bank reports state that, worldwide, 80,000-100,000 adolescents become nicotine addicts everyday [6]. In 1996, Peto et al. [7] reported that, if the current trend continues 30-40% of 2.3 billion children and adolescents in the world will become tobacco consumers by the time they reach early adulthood. If no precaution is taken, 250 million of those will die due to tobacco.

In a study performed in Edirne by Saltik et al. in 1992, smoking prevalence was found as 27% among students of secondary school [8]. In this regard, the present study reflects an 11% increase based on the demonstrated smoking prevalence of 38%. On a national level, 1988 PIAR study reported a smoking rate of 30% among adolescents aged between 15-18 years [9]. In a study performed in Manisa with high school students, 29% of the participants were found to be smokers, where 13% reported regular and 16% reported occasional smoking [10]. Similar studies performed in our country indicated that the rate of smoking among students varied between 18-43% [10,11]. In a US study performed in 1999, smoking rate was reported to be 12.8% among middle school and 34.8% among high school students [12] and an actual increase was noted compared to the rate of 27.5% recorded in 1991, while frequent/regular smoking rate in particular increased from 12.7% as recorded in 1991 to 16.8% in 1999 [13]. In Budapest, smoking rate was reported to increase from 36% in 1995 to 46% in 1999 among secondary school students. This rate of 46% is known to be the highest rate reported so far in the world in this age group [14]. Mean age at starting smoking was found to be 13.2 ± 2.7 years in the present study. In Turkey, the probability of secondary education students starting smoking between the ages of 11-14 years is 43-50% [10,11]. Again, according to PIAR study, 63% of the smokers in our country start smoking before the age of 18 years. In this study population, the rate of smoking within the first 30 minutes after waking up, individually being a significant marker of nicotine addiction as determined based on Fagerstrom questionnaire was found to be 27% among 34 adolescents who were active smokers. In fact, Fagerstrom test has a low efficiency in this age group, because limitations such as not being able to smoke at home and difficulties in buying cigarettes are far more common in this age group; thus, the actual addiction rates must be higher [15]. Similar US studies reported that more than half of active adolescent smokers have their first cigarette within 30 minutes after waking up in the morning [16]. This might be due to the adolescents in our country being more restricted compared to their US peers. Almost two-thirds of the adolescent smokers report that they want to quit smoking and 70% state that they would never start smoking if they were given another chance [17]. More than 90% of adolescents who smoke on a regular basis report symptoms of withdrawal after an attempt to quit smoking [18].

These findings suggest that the adolescents are more prone to addiction compared to the adults, and they experience more difficulty while quitting smoking.

There are several factors increasing the risk of smoking among adolescents. These include the advertisements and promotions of the tobacco industry, easy access to tobacco products and low prices. Other significant factors include peer pressure, having lower self-esteem compared to the peers, perceiving smoking as a normal behavior and smoking addiction of the parents [15]. Measures to prevent the access of adolescents to tobacco are very important to control smoking in this age group. One of these measures is the tobacco sales ban for individuals aged below 18 years, as effective in our country per regulation 4207. However, this study demonstrated that, in practice, the adolescents can easily buy tobacco and can even access to single cigarettes on demand. The sale of single cigarettes is one of the most crucial violations against public health and it overcomes the deterrence of tobacco costs, thereby allowing an adolescent to readily attempt smoking [19]. Cost is one of the most important factors limiting the access of adolescents to tobacco [20]. Cost of tobacco products has an impact on smoking prevalence: any inflation-adjusted 10% increase in the cost was shown to result in 4% and 8% reduction in total consumption in the high-income and low-middle-income countries, respectively. The argument that such a cost increase may reduce tax income turned out to be incorrect, as a 10% increase in tax was shown to cause 7% increase in tax income [21]. Tobacco smuggling is one of the major strategies developed to cope with cost increases. One-thirds of worldwide tobacco export reaches illegal markets and the majority of 350 billion of lost tobacco packs originate from the American tobacco companies. Tobacco smuggling seriously threaten the public health from two aspects. First, it allows access to cheap tobacco and increases its consumption. This is particularly true for the poor countries. The second, tobacco industry uses tobacco smuggling as an excuse to reduce taxes during their lobbying activities with the governments. In this regard, they argue that smuggling results from cost difference (market pressure). In their study investigating tobacco smuggling in Europe, Joossens et al. [22] demonstrated that this argument is incorrect. Based on their assessment, a pack of Marlboro costs 1.20 $ in Spain and 6.27 $ in Sweden, but tobacco smuggling is common in Spain while it is rare in Norway. Similarly, in France, which is a neighboring country of Spain, a pack costs 3.38 $ and smuggling is rare. If the argument of market pressure was correct, smuggling would be expected to be more common in countries where tobacco prices are high. Similarly, the brands which are the most commonly subjects of smuggling are rather expensive brands such as Marlboro, Camel and Winston, representing another evidence of irrelevance to market pressure. With a mean price of 1-1.20 $, our country is one of those with the cheapest tobacco. The same report also underlined that international tobacco companies get the greatest benefit from international tobacco smuggling [22]. The fact that some official bodies such as the EU Commission, Tajikistan, Kırghizia and Colombia governments brought

smuggling suits against US tobacco companies in the USA reflects the significance and extent of the problem.

Since Sirnak is a city located in country border, tax-free trade can be expected to be easy. Tobacco smuggling is an international threat to public health all over the world. Tax-free tobacco sold in the customs stations are also included in the tobacco smuggling mentioned here. Such "free-shop" or "duty-free" sales now are responsible from a major portion of all tobacco sales worldwide, particularly in Europe. The solution is not tax reduction, but international cooperation. WHO opened the International Tobacco Framework Agreement (ITFA) for signature in order to prevent the advertisements and illegal sales in the whole world.

In conclusion, the present study demonstrated that more than half of the smokers among high school students particularly bought two tobacco brands. The effects of advertisements are relevant, as the two brands stood out among several different brands. Most of the tobacco advertisements are known to directly reach the children. In conclusion, access to tobacco should be prevented as the first step, and children should be protected from all kinds of advertisements and promotions. A fight must be given against smoking in all age groups, particularly the parents, and the whole community to prevent children from imitating smoking behavior. It is important to make an effective struggle against tobacco smuggling, increase tobacco taxes, prevent tobacco advertisements and provide continuous education to school-age children on the harms of smoking. Struggling with tobacco smuggling is particularly important in regions harboring border-gates.

Declaration of Interest

The authors have no financial disclosures to declare and no conflicts of interest to report. The authors are responsible for the content and writing of the paper.

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