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ORIGINAL ARTICLE

The influence of the American environment on cigarette smoking among the immigrants from the former Yugoslavia

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Summary

Purpose: *We tested the hypothesis that the American environment influences the immigrants from developing countries with high incidence of smokers to quit smoking.*

Methods: *The sample included 218 immigrants who came as adults from the former Yugoslavia. A total of 275 persons were randomly selected, and the overall study response was 79.2%. The* survey *included questions about current smoking, smoking history, and demographic data, such as year of immigration to the USA, education, and employment status.*

Results: *Upon their arrival, 34.8% of the adult Yugoslav immigrants were smokers; now 20.2% of these immigrants smoke ($p < 0.001$). Smoking prevalence for women was 9.1% higher than for men. The number of cigarettes that men and women smoke per day was similar.*

Conclusion: *For an immigrant smoker, the best chance of quitting smoking was within 5 years of acculturation. The local media in their languages may provide the best health education to immigrants, including information on the effects of cigarette smoking. To reduce smoking prevalence in the former Yugoslav republics and other developing countries, rigorous antismoking measures may effectively reduce smoking prevalence and contribute to better health of their citizens.*

Key words: acculturation, adult immigrants, American environment, cigarette smoking, smoking prevalence

Introduction

In the mid-1960s about 42% of USA adults smoked. At that time, it became clear that tobacco smoking was the leading cause of preventable morbidity and mortality. This revelation and rigorous antismoking measures conducted in this country reduced adult smoking prevalence to about 25% in 1990. Since then, adult smoking in the USA has declined slowly, and in 2003 the prevalence of smoking was about 22% [1].

In many developing countries, however, health authorities did not properly recognize the dangers of cigarette smoking, and the declared measures to reduce smoking were rarely put into practice. Thus in the 1980s, adult smoking prevalence in Yugoslavia was about 50%, and the medical students initiated the antismoking campaign. In 1982, the students established the *Day without a Cigarette - January 31st* campaign and other educational measures[2]. This and several other campaigns gradually increased pressure on the local governments to ban advertising and to establish legal regulations for banning smoking in public places. However, these measures were rarely implemented.

The majority of recent immigrants from the former Yugoslavia came from Bosnia and Herzegovina (B&H) and Serbia, the areas affected by the civil war (1992-1996) or 10-year long economic blockade and the 78-day NATO bombing of Serbia in 1999. This

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disaster caused environmental pollution and had detrimental effects on health and health care system which once was in a very good standing. The antismoking measures in the damaged areas were abandoned, post-traumatic stress disorders (PTSD) contributed to higher cigarette consumption, and numerous non-smokers started smoking [3]. Similar influence of the PTSD on smoking was recorded at Nazi-occupied Holland [4] and after the explosion in the Federal Building in Oklahoma City [5]. Today in Serbia and Montenegro 37% of physicians and 52% of nurses smoke [6]. In 2001, the incidence of adult smokers in the Backa Region of Serbia was 55.4% [7].

In the present study we tested the hypothesis whether the American environment influences the immigrants from developing countries with high incidence of smoking to quit smoking.

Methods

The sample included immigrants who came as adult persons from the former Yugoslavia. A total of 275 persons were randomly selected. The survey included questions about current smoking, smoking history, and demographic data, such as year of immigration to the USA, education, and employment status. A letter explaining the purpose of the survey and a questionnaire were both written in Serbo-Croatian using the Roman alphabet and mailed to the selected persons. The overall study response rate was 79.2%. The significance among proportions was tested with either the Fisher's Exact Test or the Chi-Square Test using the InStat Program.

Results

The proportion of self-reported current adult cigarette smokers among the Yugoslav immigrants was 20.2%, while at their arrival it was 34.8% ($p < 0.001$). The highest smoking prevalence was found in the immigrants who had arrived in the USA between 5 and 10 years ago (28.8%), and the lowest among the immigrants who had arrived more than 10 years ago (13.7%; Table 1). Forty percent of the immigrants who smoked had quit smoking; most of them had quit smoking within 5 years of immigration. However, once they had arrived in the USA, 10 of 218 adult immigrants had started to smoke, but 7 of them had quit smoking. Smoking prevalence for women was 9.1% higher than for men. Housewives and retired persons smoke almost 10 times less than employed immigrants (3.1% and 30.1% respectively; $p < 0.001$). The number of cigarettes that men and women smoke per day was similar (Table 2).

Table 2. Average number of cigarettes that a smoker uses per day

No. of cigarettes/day	*Men*	*Women*
<10	6	9
10-20	7	9
20-40	1	5
>40	5	1

One man smokes only cigars, so he could not be included in this table

Discussion

The results obtained indicate that smoking prevalence among adult immigrants from the former Yugoslavia was lower than among their former compatriots. The reason may be due to the fact that many of the recent immigrants are well educated. Among current adult immigrants who smoke, the highest percent belongs to those who have lived in the USA between 5 and 10 years. The majority of these immigrants came from B & H and Serbia as refugees.

The fact that 40% of the immigrants who smoked

Table 1. Number of current self-reported smokers and smokers who quit smoking during various periods of acculturation

Duration of acculturation (years)	*Number of current smokers among immigrants (%)**†	*Number of persons that quit smoking upon arrival in the US /number of smokers at arrival in the US (%)*
<5	7/38 (18.4)	18/76 (23.7)
5-10	21/73 (28.8)	7/76 (9.2)
>10	16/117 (13.7)	7/76 (9.2)

*When 218 adult immigrants arrived to the USA, 76 (34.8%) of them were smokers. Now, 20.2% of these immigrants smoke. One man smokes only cigars, and he was included among the smokers.

†In the USA, 10 persons, mainly students, had started to smoke, but 7 of them quit smoking. Three of these smokers are not included among the current smokers.

had quit smoking shows that the American cultural and social environment significantly contributes to smoking cessation. For an immigrant smoker, the highest chance of quitting smoking seems to be within 5 years of acculturation. After that, the chances of quitting smoking decrease 2.5 times. Perhaps many factors influence the decision to quit smoking, including policy in the workplace, many smoke-free places all over the country, cost of cigarettes, the influence of American colleagues and friends, and availability of nicotine replacement therapy, a kind of help for tobacco dependence that could not be obtained in their country.

To facilitate smoking reduction among the immigrants, in addition to the national and community programs on smoking cessation, an intervention design should incorporate the intervention that may reach various ethnic groups that have recently immigrated to this country. Perhaps local radio, newspapers, and TV in their languages may be the best measures to provide health education to immigrants, including providing information on the effects of cigarette smoking. All these measures may help us reach the national Healthy People 2010 target that smoking prevalence among adults to be less than 12% [8].

In order to reduce smoking prevalence in a developing country, the national campaign should encourage physicians to promote non-smoking to their patients. However, physicians should first stop smoking themselves. If they are non-smokers, they may effectively influence patients, regardless of age, to consider the benefits of smoking cessation, proper nutrition and exercise. The evidence-based preventive measures can drastically reduce various diseases and increase life expectancy, especially in war-torn countries. However, their influence is slowed down by the unavailability of nicotine replacement preparations. Unfortunately, in Serbia and Montenegro (S&M), nicotine replacement preparations are not yet available for those who decided to kick this remarkably difficult addiction. The only drug obtainable for this purpose in S&M is the antidepressant bupropion (Zyban).

In many developing countries, including several former Yugoslav republics, the antismoking campaigns are hindered by unrestricted tobacco industry's cigarette advertisements. Availability of the new brands of cigarettes in many developing countries, especially in the countries of the former Eastern Block, further contributed to the epidemic of smoking. Thus, a future goal of antismoking campaign should be to put pressure on the governments to sign and approve ratification of the WHO Framework Convention on Tobacco Control (FCTC). The FCTC has been signed by 98 states so far [3]. Among the former Yugoslav republics Slovenia was the only one that ratified this act. The implementation of the FCTC will facilitate a strict control over cigarettes, because this convention obligates the signatory state to challenge the expansion of the tobacco market with new tough regulations on advertising, health warnings, and juvenile smoking [9]. Let us hope that these and other rigorous measures, including use of nicotine replacement therapy [10-12] that should be applied in the former Yugoslav republics and other developing countries, may effectively reduce smoking prevalence and contribute to better health of their citizens.

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