

SMOKING BEHAVIOUR OF CZECH ADOLESCENTS: RESULTS OF THE GLOBAL YOUTH TOBACCO SURVEY IN THE CZECH REPUBLIC, 2002

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SUMMARY

The Czech Republic Global Youth Tobacco Survey (GYTS) is a school-based survey of students in grades 7-9, conducted in 2002. A two-stage cluster sample design was used to produce representative data for all of the Czech Republic.

On a large sample of students (N=4,149) from 7 - 9th grade it reveals that smoking among children has been continually growing. According to the results of this study, over 34% of the respondents smoke.

Results of the study help us to understand social and attitudinal factors that affect adolescent smoking habits. Social factors include particularly the convenient availability of cigarettes and the lack of the legal regulation of the retail of cigarettes: over one half of all smokers under 15 years of age regularly purchase cigarettes in regular retail outlets; 72% of them reported never having been restricted in their purchases because of their age. Advertising and media coverage appears to be another important factor that affects smoking in this age group. Over 80% of children under 15 years of age reported that they have been exposed to the tobacco advertising.

The study also allows an interesting analysis of the exposure to the environmental tobacco smoke. Compared to non-smokers, this exposure has been significantly higher in the case of smokers - both in their homes and at other locations (58% vs. 25%, and 90% vs. 57% respectively). The analysis of the data also revealed a strong misconception about the health risks related to passive smoking among smokers.

The study provides three key findings for health promotion: (1) it is necessary to exert a continuous pressure on the political representation to strictly enforce the regulations of tobacco distribution and availability to minors; (2) school health education as well as community oriented prevention programs need to explicitly communicate non-smoking as a standard; and (3) it is important to increase the attractiveness and availability of smoking cessation programs.

Key words: prevalence of smoking, adolescents, contextual factors, Czech Republic, recommendations, policy

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INTRODUCTION

The tobacco epidemic is one of the greatest public health challenges facing the world. The World Health Organisation (WHO) attributes some four million deaths a year to tobacco. It estimates that by the year 2020, tobacco will be responsible for ten million of tobacco-related deaths annually (1). To curb this deplorable situation, the WHO is actively encouraging its Member States to implement comprehensive tobacco control strategies that contain *inter alia* the surveillance and monitoring of trends in smoking and other forms of tobacco use and associated tobacco-related disease, and the effectiveness of national smoking control action. To facilitate this task, WHO, in collaboration with the US Centres for Disease Control and Prevention (CDC), initiated a global surveillance project on tobacco use among youth, the results of which are intended to enhance the capacity of countries to monitor tobacco use among youth, and to support implementation and evaluation of tobacco control strategies and effective prevention programmes.

In the Czech Republic, it is estimated that every year eighteen thousand people die as a result of smoking (2). Epidemiological findings on smoking habits and an understanding of their socio-psychological context are crucial in order to limit smoking successfully. Over the past few years the smoking prevalence among the adult population has decreased slightly, even though the total decline was due to more or less to the decline in smoking among men (3). In the year 2001, the reported prevalence rate for smoking among adults in the Czech Republic was 29% (male: 36%; female: 22%) (4). However, recently an increase in the prevalence rate for smoking among youth was noticed that should cause alarm. The results of two international studies carried out in the Czech Republic, the WHO survey of Health Behaviour in School-aged Children (HBSC) (5) and the European School Survey Project on Alcohol and other Drugs (ESPAD) (6) confirm this converse trend (7).

The Global Youth Tobacco Survey (GYTS) is a school-based tobacco specific survey that focuses on students aged 13 - 15 years. This survey is designed to document and monitor the prevalence of smoking among youth and to understand and to

Table 1. Results of two international studies

HBSC (15-year-olds)*			ESPAD (16-year-olds)**	
1994	1998	2002	1995	1999
14%	20%	30%	23%	30%

* Smoking once a week or more frequently

** Daily smokers

HBSC - Health Behaviour in School-aged Children

ESPAD - European School Survey Project on Alcohol and other Drugs

assess students' attitudes, knowledge and behaviours related to smoking and its health impact. The survey focuses on seven elements: tobacco use, knowledge and attitudes towards tobacco, cessation, environmental tobacco smoke, media and advertising, minors' access to tobacco products and school curriculum. The purpose of GYTS is also to provide a standard research methodology and protocol for gathering information that can be used for making comparisons between different countries and for the development of effective policy and program interventions for smoking prevention among youth.

To date the GYTS has been carried out in 76 countries around the world. It was conducted for the first time in the Czech Republic in 2002, and will serve as an important contribution to knowledge about and as a foundation for action on smoking and youth.

METHODS

The Czech Republic GYTS was a self-administered, school-based survey of students in grades 7 - 9, conducted in March - April 2002. A two-stage cluster sample design was used to produce a nationally representative sample of students in grades 7, 8 and 9 in all schools in Czech Republic. Data about schools were obtained from the Ministry of Education and sent to the Office on Smoking and Health at the US Centres for Disease Control and Prevention (OSH/CDC) to calculate the study sample. The first stage of the sampling process consisted of selecting schools for participation in the survey based on the probability of selection proportional to the school enrolment size. All schools containing these grades with 40 or more students in grades 7, 8 and 9 were included in the final sampling frame. Fifty schools were selected.

The second sampling stage was a systematic equal probability sample of classes with a random start provided by the OSH/CDC from the 50 schools selected. All 7th, 8th and 9th grade classes in each selected school were included in the sampling frame. For each school, a computer-generated list of random numbers was used to select the classes which would participate in the survey. A total of 204 classes were selected, with a total enrolment of 4,716 students.

The GYTS data are weighted to adjust for sample selection (school and class levels), non-response (school, class, and student levels), and post-stratification of the sample population relative to the grade and sex distribution in the total population.

The GYTS was conducted with the support of the Czech Ministry of Health. Letters of support for the survey endorsed by the Ministry of Education were sent to the principals of the 50 selected schools inviting them to participate in the survey. Regional and District Public Health Services were asked to collaborate. The National Institute of Public Health (NIPH) coordinated data collection. The Czech version of the original questionnaire was prepared and pre-tested in a pilot study by a group of 10 students.

Fifty-two experienced staff from the NIPH and the regional and district public health services took part at a one-day GYTS training workshop organised by the NIPH. The field surveyors administered the questionnaires in the selected classrooms at each participating school.

The self-administered questionnaire consisted of 59 multiple choice questions (54 core questions for both national and international comparison and five additional questions to assess the context of local tobacco use). Students recorded their responses directly on a separate answer sheet that was optically scanned for data entry.

All students in these classes were eligible to participate in the survey. Their participation was voluntary. A total of 4,149 questionnaires were completed, 2,070 by boys and 2,030 by girls. Gender was not specified on the remaining 49 questionnaires. The school response rate was 100.0% and the students' response rate was 88.0%. The overall response rate was 88.0%. SUDAAN and Epi Info were used to compute 95% confidence intervals for the estimates.

The field surveyors reported a very good experience both with teachers and students during completing the GYTS questionnaires. Both the teachers and students found the study of great interest.

RESULTS

Nearly three-quarters of all students (73.2%) have ever tried to smoke cigarettes (Table 2). More than one third (34.8%) of the respondents currently use some of tobacco products, with 34.9% smoking cigarettes and 8.5% using some other tobacco product. No statistical difference was found between boys and girls in the use of any tobacco product or cigarettes. There was a significant difference between boy and girl current smokers for other forms of tobacco products (11.5% for boys; 5.5% for girls). Of concern is the proportion of never smokers (23.0%) who indicated they were likely to initiate smoking during the next year, with a higher percentage

Table 2. Percent of students who use tobacco, Czech Republic GYTS, 2002

Category	Ever smoked cigarettes, even one or two puffs	Current use			Never smokers who are susceptible to initiating smoking
		any tobacco product	cigarettes	other tobacco products	
Total	73.2 (±2.4)	34.8 (±2.9)	34.9 (±3.4)	8.5 (±1.4)	23.0 (±3.5)
Boys	75.0 (±3.0)	35.8 (±4.0)	34.4 (±4.3)	11.5 (±2.2)	17.5 (±4.3)
Girls	71.2 (±3.0)	33.4 (±3.6)	34.9 (±4.0)	5.5 (±1.4)	28.1 (±5.1)

Table 3. Forms of smoking by school grade and by age in percents

Category	School grade			Age (years)		
	7	8	9	13	14	15
Current smoking (any cigarette smoking during the last 30 days)	28.2 (±4.8)	37.1 (±5.1)	42.4 (±4.1)	25.8 (±4.0)	35.5 (±4.2)	44.1 (±4.4)
Current frequent smoking (smoking in 20 or more days of last 30)	6.7 (±1.2)	12.0 (±2.1)	20.5 (±2.4)	5.8 (±1.3)	11.0 (±1.6)	21.7 (±2.5)
Daily smoking	4.2 (±1.6)	7.6 (±2.5)	13.6 (±3.3)	3.7 (±1.9)	6.5 (±1.8)	13.7 (±3.0)
Heavy daily smoking (daily consumption of >10 pieces of cigarettes/day)	1.4 (±0.5)	3.5 (±1.0)	4.4 (±1.0)	1.3 (±0.6)	3.2 (±0.8)	4.3 (±1.0)

Table 4. School curriculum

Category	Percent taught dangers of smoking	Percent discussed reasons why people their age smoke
Total	63.8 (±3.5)	50.0 (±3.0)
Boys	62.1 (±4.3)	48.1 (±3.2)
Girls	65.5 (±3.7)	52.2 (±3.7)

Table 5. Cessation

Category	Current smokers	
	Percent desire to stop	Percent tried to stop this year
Total	48.8 (±4.0)	69.1 (±3.4)
Boys	50.4 (±4.3)	67.7 (±4.7)
Girls	47.3 (±6.1)	70.9 (±4.7)

Table 6. Environmental tobacco smoke

Category	Exposed to smoke from others in their home		Exposed to smoke from others in public places		Percent think smoking should be banned from public places		Definitely think smoke from others is harmful to them	
	never smokers	current smokers	never smokers	current smokers	never smokers	current smokers	never smokers	current smokers
Total	24.7 (±2.5)	57.6 (±2.9)	57.3 (±3.6)	90.1 (±1.5)	84.6 (±2.4)	45.5 (±2.8)	70.2 (±3.5)	51.5 (±3.2)
Boys	27.1 (±4.7)	58.5 (±4.3)	59.2 (±5.0)	89.0 (±2.1)	85.7 (±2.9)	46.6 (±4.2)	71.9 (±3.9)	51.8 (±2.9)
Girls	22.7 (±2.9)	56.3 (±3.7)	55.6 (±5.1)	91.4 (±2.1)	84.0 (±3.3)	44.2 (±3.4)	69.0 (±4.7)	51.1 (±5.3)

(although not statistically significant difference) for girls (28.1%) than for boys (17.5%).

Table 3 summarizes the extent of specific forms of smoking by school grade and by age. The data show marked increase in all forms of smoking by age. Most striking is the rapid growth of daily smokers during a relatively short period of early adolescence from 3.7% among 13 years old to 13.7% among 15 years old children.

Nearly two thirds of all students (63.8%) had been taught in school during the last year about the dangers of smoking (Table 4). One half of the students had discussed in school during the past year reasons why people their age smoke (48.1% of the boys; 52.2% of the girls). There were no statistically significant differences by gender.

Almost half of the students who currently smoke (48.8%) stated that they wanted to stop smoking (Table 5). More than two-thirds of students who currently smoke cigarettes (69.1%) tried to quit smoking sometime during the past year but failed to do so. There was no statistically significant difference by gender.

Exposure to environmental tobacco smoke (ETS) in their homes was significantly higher for current smokers (57.6%) in comparison with 24.7% for never smokers (Table 6). Exposure to

ETS in public places was high for all students, but significantly higher for those who are current smokers (90.1%) than for never smokers (57.3%). Never smokers were more than twice as likely as current smokers (84.6% versus 45.5%) to think smoking should be banned from public places.

Seven in ten never smokers (70.2%) and slightly more than five in ten of current smokers (51.5%) think environmental tobacco smoke is harmful to them.

Only one fifth (20.8%) of never smokers and one quarter of current smokers (25.1%) think boys who smoke have more friends than non-smokers (Table 7). Both never smokers and current smokers were less likely to think that girls who smoke have more friends than non-smokers (15.8% and 20.0% respectively). Attitudes toward students who smoke do not vary significantly by gender. Among both boys and girls, current smokers were significantly more likely than never smokers to think boys who smoke and girls who smoke are more attractive than non-smokers.

Over three-quarters of students (77.2%) reported seeing an anti-smoking message during the past 30 days (Table 8). Over

Table 7. Knowledge and attitudes

Category	Think boys who smoke have more friends		Think girls who smoke have more friends		Think smoking makes boys look more attractive		Think smoking makes girls look more attractive	
	never smokers	current smokers	never smokers	current smokers	never smokers	current smokers	never smokers	current smokers
Total	20.8 (±2.5)	25.1 (±2.6)	15.8 (±1.9)	20.0 (±2.6)	7.6 (±1.5)	16.4 (±2.7)	5.5 (±1.3)	12.5 (±2.1)
Boys	19.2 (±4.0)	25.7 (±4.0)	16.8 (±3.1)	19.4 (±3.2)	10.5 (±3.1)	15.0 (±2.5)	4.9 (±2.2)	12.4 (±3.1)
Girls	22.3 (±3.7)	24.6 (±3.8)	15.0 (±2.5)	20.9 (±4.6)	5.1 (±1.6)	17.7 (±3.8)	6.1 (±1.9)	12.4 (±2.7)

Table 8. Media and advertising

Category	Percent saw anti-smoking media messages	Percent saw pro-tobacco messages in newspapers and magazines		Percent who had object with a cigarette brand logo on it		Percent offered "free" cigarettes by a tobacco company	
		never smokers	current smokers	never smokers	current smokers	never smokers	current smokers
Total	77.2 (±1.6)	80.1 (±2.9)	83.1 (±2.4)	13.3 (±1.8)	34.9 (±3.5)	5.1 (±1.5)	12.2 (±1.8)
Boys	76.4 (±1.8)	76.5 (±3.3)	82.2 (±4.0)	15.9 (±2.7)	37.6 (±4.1)	5.5 (±2.3)	13.8 (±3.3)
Girls	77.8 (±2.2)	83.3 (±4.2)	84.2 (±2.7)	11.1 (±2.2)	32.6 (±4.2)	4.8 (±1.6)	10.8 (±2.3)

Table 9. Access and availability

Category	Percent current smokers who usually smoke at home	Percent current smokers who purchased cigarettes in a store	Percent current smokers who bought cigarettes in a store and were not refused because of their age
Total	3.2 (±1.1)	49.1 (±3.9)	71.8 (±3.7)
Boys	3.0 (±1.1)	56.0 (±4.1)	69.1 (±4.8)
Girls	3.2 (±1.6)	42.5 (±6.0)	75.4 (±4.8)

8 in 10 of the students (80.1% for never smokers and 83.1% for current smokers) saw a pro-tobacco message in newspapers or magazines in the same time. There was no statistical difference in exposure by gender. More than one third (34.9%) of current smokers have an object with a cigarette brand logo on it. Never smokers possess significantly less (13.3%) of such objects. Never smokers (5.1 %) were also significantly less likely to be offered free cigarettes in comparison with current smokers (12.2%). There was no statistical difference between boys and girls.

Only 3.2% of current smokers usually smoke at home and almost half (49.1 %) purchase their cigarettes in a store (Table 9). Boys who currently smoke were significantly more likely than girls who smoke to purchase cigarettes in a store (56.0% for boys; 42.5% for girls). In almost three-quarters of current smokers (71.8%) who usually buy their cigarettes in a store their purchase had not been turned down because of their age. There were no significant differences by gender.

DISCUSSION

The 2002 GYTS was the first comprehensive survey carried out in the Czech Republic about tobacco use among school children. The survey provides important baseline data about the extent of smoking

among youth as well as their attitudes and behaviour towards smoking, and the impact that advertising and exposure to tobacco-related campaigns, both promoting and against smoking. The study's results provide important information for decision-makers and practitioners for the development of effective tobacco control policy and smoking prevention interventions aimed at youth in the Czech Republic.

Prevalence

Smoking prevalence among students is very high (35%). The level is much higher than the smoking prevalence rate among adults (29%) (8). Although the results of the GYTS do not show any significant differences in smoking prevalence between boys and girls, smoking prevalence among young girls (33.4%) is much higher than that found for adult women (22%) (8). The reasons responsible for this situation are unknown, and more research is required.

Schools and Prevention of Smoking

One of the more positive findings from the GYTS was the high percentage of school children that were taught during the past school year about the harmful effects of tobacco use (63.8%). Half of the students (50.0%) also indicated that they had attended a discussion about the reasons why people their age smoke. However, when the high prevalence of smoking among young students is taken into account, and as well the data that a high

likelihood exists for current never smokers to initiate smoking sometime during the next year (23.0%), especially among young girls (28.1%), there is an urgent need to focus national tobacco control policy on school health education and prevention activities. This situation supports the need for the development of effective gender-focused school anti-tobacco health education and prevention programs and community-based actions aimed at young people, and particularly at girls.

Cessation of Smoking

Almost half of the students (48.8%) who currently smoke cigarettes stated the desire to stop smoking and almost seven in ten students (69.1%) indicated that they had tried to stop smoking but failed during the past year. It is apparent that measures to provide young smokers with access to smoking cessation programs (preferably through the schools) are needed.

Environmental Tobacco Smoke

Exposure to environmental tobacco smoke (ETS) is one of the major risks that threaten young people both in their homes and public places. According to the data, current smokers are more likely to stay in places contaminated by tobacco smoke. High exposure to ETS is a challenge that should be taken into account when enforcing the current legislation concerning ban of smoking in public places and as an argument for development of new legal norm to protect young people from ETS (ban of smoking in sport and cultural facilities, during concerts, social events etc.).

Attitudes

The relatively low proportion of young people who perceive a link between smoking and popularity is encouraging. This is an important aspect of the impact of peer pressure and acceptance of smoking. Smoking as a social advantage seems not to be a frequent opinion among students in the Czech Republic. Yet in spite of this, more than one third of students smoke. Further research should be carried out to understand better this phenomenon.

Media and Advertising

The prevailing assumption holds that the advertising of tobacco products in the popular media influences young peoples' smoking behaviour. Over eight in ten students (80.1% for never smokers and 83.1% for current smokers) indicated that they see on a regular basis pro-tobacco messages on billboards, in magazines, and at the cinema. Young people are also often objects of interest for tobacco companies' promotional activities, as more than one in three current smokers reportedly possess an item that has a cigarette logo on it. The enactment of comprehensive legislation ensuring the total ban of the advertisement of tobacco products, as well as tobacco company promotion and sponsorship could serve to reverse these negative trends.

Minors' Access and Availability

Even if the minimum legal age for purchasing cigarettes in the Czech Republic is 18 years of age, there is no problem for underage smokers to purchase their cigarettes in a store. Stores refused to sell cigarettes to only three in ten minors because of age. This indicates that the existing law is not sufficiently enforced.

CONCLUSIONS AND RECOMMENDATIONS

This was for the first time that the GYTS was conducted in the Czech Republic. The survey produced a considerable amount of data that will be useful to decision-makers and advisors in government and non-governmental institutions and organizations alike as they seek to implement the national tobacco control program for school children in the Czech Republic. The GYTS provides an excellent baseline on use, knowledge, and attitudes towards tobacco by school children in the Czech Republic. The following are some of the main conclusions and recommendations to be drawn from the survey:

- Healthy life style education that covers smoking prevention issues needs to be enhanced as a component of the primary and secondary school curriculum. Children start to smoke at an early age and easy become addicted to tobacco.
- Effective prevention of smoking should start already in early age of children, both in families and school facilities, preferably in nursing schools and first grades of elementary schools.
- Smoking cessation programs, particularly for young women, should be instituted in schools. Almost half of current smokers want to quit, but smoking cessation services for youngsters are lacking.
- Efforts to reduce significantly exposure of young people to ETS must be enhanced. Public education campaigns about the negative health effects of ETS in the home and in public places should be conducted. Overall exposure to ETS at home and in public places is high both for smokers and non-smokers, while more than one half of students have parents who smoke. The ban on smoking in public places is not applied routinely.
- Existing regulations concerning the sale of tobacco products to minors need to be enforced vigorously. Legislation ensuring the total ban of the advertisement of tobacco products and sponsorship of social and sporting events by tobacco companies should be enacted and enforced. Omnipresent advertisement on tobacco products and forceful promotional tactics of tobacco companies strongly influence young people and support the image of smoking as a „normal“ behaviour and the age limit of 18 does not hinder purchasers to sell cigarettes to minors.
- From the analysis of data on advertisement and availability of tobacco products it is apparent, that strong legislation concerning protection of people, particularly children and young people, against harmful effects of smoking is needed.
- The Global Youth Tobacco Survey should be repeated on a regular basis, to demonstrate trends in smoking prevalence and attitudes among youth. The survey provided the Czech Republic with valuable information about different aspects of relationship between youth and tobacco, including tobacco use, prevention of smoking as a part of school curriculum, exposure to environmental tobacco smoke, attitudes and knowledge, and the impact of tobacco advertisement in media.
- The establishment of an effective surveillance system in the Czech Republic (as per the recommendations of the Warsaw Declaration for a Tobacco-Free Europe, 2002). This is necessary to repeat it periodically, to monitor

changes and follow trends in tobacco use. Similar studies should be implemented also for other groups of society to obtain an overall picture of smoking patterns and related determinants in entire population. Surveillance outcomes will be then utilised for influencing the national public health policies such as Health 21, National strategy on Tobacco-Free Europe and National Environment and Health Programme.

- As the tobacco epidemic is a global burden, international collaboration in pursuing effective surveillance system is an important tool for recognizing patterns, determinants and consequences of tobacco use and for developing common standardized approaches to combat this menace to people's health on a global level.

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