Tibor Baška[1], Hana Sovinová[2], Agnes Németh[3], Krysztof Przewozniak[4], Charles W. Warren[5], Elena Kavcová[1], and Czech Republic, Hungary, Poland and Slovakia GYTS Collaborative Group

Section: Public health in Eastern Europe

[1] *Jessenius Faculty of Medicine, Comenius University, Martin, Slovakia*
[2] *National Institute of Public Health, Prague, Czech Republic*
[3] *National Center for Health Promotion and Development, Budapest, Hungary*
[4] *The Maria Sklodowska-Curie Cancer Center and Institute, Warsaw, Poland*
[5] *Centers for Disease Control and Prevention, Office on Smoking and Health, Atlanta, Georgia, USA*

Findings from the Global Youth Tobacco Survey (GYTS) in Czech Republic, Hungary, Poland and Slovakia – smoking initiation, prevalence of tobacco use and cessation

Submitted: 25 November 2004
Accepted: 25 April 2005

Summary

Objectives: To show selected findings from the Global Youth Tobacco Survey (GYTS) conducted in Czech Republic, Hungary, Poland and Slovakia.
Methods: Representative sample of 16918 school children aged 13–15 years; data were obtained through uniform questionnaires. The fieldwork was conducted in 2002 and 2003.
Results: Age at initiation of smoking was particularly earlier in Czech Republic, Poland, and Slovakia than in Hungary. Over one third of the students reported current cigarette smoking in Czech Republic (34.9 %) and Hungary (33.5 %) compared to about one-fourth in Slovakia (24.3 %) and Poland (23.3 %). Among current smokers, about two thirds in Slovakia (64.0 %) desired to stop smoking, while only one third in Hungary (36.7 %). The prevalence of current cigarette smoking was similar between genders.
Discussion: Smoking prevalence in these countries is considerably higher than worldwide data. Women's smoking could be an important public health problem in the future. Repeated surveys could show trends and give a clearer picture of the epidemiological situation.

Keywords: Smoking – Epidemiology – Adolescent.

Tobacco use is the single largest preventable cause of death worldwide. Almost five million deaths a year are attributable to tobacco, a figure expected to rise to more than 10 million deaths a year by 2030, with 70 % of these deaths occurring in developing countries (Peto & Lopez 2001). It appears that in many countries the majority of smokers begin using tobacco products well before age 18, and preventive measures should be implemented at much earlier age (Charlton 1996; Elders & Perry 1994). The Global Youth Tobacco Survey (GYTS) surveillance system was developed by the World Health Organization and the Centers for Disease Control and Prevention to enhance the capacity of countries to evaluate their country specific tobacco control programmes, to monitor trends in global youth tobacco use, and compare tobacco use among countries and regions.

This paper uses GYTS data from Czech Republic, Hungary, Poland and Slovakia – known as the Visegrad Four (V4) – to examine differences and similarities in smoking initiation, prevalence of tobacco use and cessation among these Central European countries. Also data on selected tobacco control programme commonalities are presented, to identify some possible preventive measures.

The V4 forms a geographical unit linked together through a common history as well as close social and economic relations. Comparison of GYTS data across the region may help to identify important factors in designing and implementing effective tobacco control programmes common and specific for the V4.

Material and methods

The GYTS uses a two-stage cluster sample survey design that produces representative samples of students in grades associated with ages 13–15 years. Data are obtained through self-administered anonymous questionnaires. The sampling frame includes all schools containing any of the identified grades. At the first stage, the probability of schools being selected was proportional to the number of students that were enrolled in the specified grades. At the second sampling stage, classes within the selected schools were randomly selected. All students attending the school the day the survey was ad-

Soz Praventiv Med. 51 (2006) 110–116
0303-8408/06/020110–7
DOI 10.1007/s00038-005-0022-8

ministered in selected classes were eligible to participate. A weighting factor was applied to each student record to adjust for non-responses and variation in the probability of selection at the school, class, and student levels. SUDAAN, a software package for statistical analysis of correlated data, was used to compute 95 % confidence intervals (Shah et al. 1997). The GYTS sampling methodology assured that the chosen sample included all socio-economic and geographic subgroups in the same proportions as in the general population. The GYTS is designed to allow direct cross-country analysis. Differences in prevalence estimates were considered statistically significant if the 95 % confidence intervals did not overlap.

Prevalence estimates used in this study were for: current cigarette smoking ("The percentage of students who smoked cigarettes on one or more days during the past month") and current other tobacco use ("The percentage of students who had used any form of tobacco other than cigarettes during the past month"). Dependency on cigarettes among current smokers was measured from the question, "Do you always have or feel like having a cigarette first thing in the morning?" Two questions were used to construct a measure of "susceptibility" to initiate smoking among never smokers ("If one of your best friends offered you a cigarette would you smoke it?" and "Do you think you will smoke a cigarette during the next year?" Those who answered "Definitely no" to both questions were defined as "Not susceptible," all others were defined as susceptible). Students who currently smoke cigarettes were asked two questions regarding smoking cessation: if they wanted to stop smoking now and if they had tried to stop smoking during the past year.

The fieldwork was performed in 2002 and 2003. Details of the methodology are included in previous publications on GYTS (Global Youth Tobacco Survey Collaborative Group 2002; 2003; Sovinová & Csémy 2004).

In total, samples included 16 918 pupils. The school response rates were over 90 % for all four countries (Tab. 1). The student response rates ranged from 88.0 % in the Czech Republic to 78.5 % in Poland. The overall response rates were all over 70 %; thus yielding highly representative samples from each of the four countries (Tab. 1). Non-respondents were those absent in the school the day the survey was administered due to illness, family reasons etc. The students did not know about the survey in advance, so their absence could not be related to this.

Results

Smoking initiation

Students in Czech Republic and Hungary were significantly more likely than students in Poland and Slovakia to have ever smoked cigarettes (Tab. 2a). Over seven in 10 students had ever smoked cigarettes in Czech Republic and Hungary compared to approximately six in 10 in Poland and Slovakia. Boys were significantly more likely than girls to have ever smoked cigarettes in Poland and Slovakia. A significantly higher percentage of ever smokers initiated smoking before age 10 in Czech Republic, Poland and Slovakia than in Hungary. This difference applies for boys (Tab. 2b).

Current tobacco use

Over three in 10 students in Czech Republic and Hungary currently smoke cigarettes compared to two in 10 in Poland and Slovakia (Tab. 2c). There was no difference in current cigarette smoking between boys and girls in any of the countries. Use of other tobacco products was significantly higher in Slovakia (12.8 %) than in Czech Republic, Hungary or Poland (8.5 %, 7.1 %, and 8.1 %, respectively) (Tab. 2d). Cigar smoking is the primary type of other tobacco used in Slovakia (11.7 ± 1.5 % of respondents). Boys were significantly more likely than girls to use other tobacco products in Czech Republic, Hungary and Poland.

Dependence and susceptibility

Less than two in 10 current smokers always have or feel like having a cigarette first thing in the morning (Tab. 2e). There was no significant difference in dependency across the countries and the only gender difference was in Poland where boys were significantly more likely than girls to indicate cigarette dependency.

Among never smokers, over 20 % in each of the V4 countries indicated they are likely to initiate smoking during the next year (Tab. 2f). Girls were significantly more likely than boys

Table 1 Sample sizes and response rates

	Sample size	School response rate	Student response rate	Overall response rate*
Czech Republic	4149	100.0 %	88.0 %	88.0 %
Hungary	4484	98.5 %	87.2 %	85.9 %
Poland	3691	92.2 %	78.5 %	72.4 %
Slovakia	4594	98.3 %	87.4 %	85.9 %

* Overall = School × Student

Table 2 Prevalence of tobacco use, susceptibility to smoke and cessation (percent ± CI95 %)

a) Ever smokers (even one or two puffs)	boys	girls	total
Czech Republic	75.0 ± 3.0	71.2 ± 3.0	73.2 ± 2.4
Hungary	71.4 ± 3.6	69.5 ± 4.0	70.7 ± 3.2
Poland	64.0 ± 3.2	55.3 ± 4.1	59.8 ± 3.1
Slovakia	69.9 ± 2.3	58.0 ± 3.1	64.3 ± 2.2
b) Ever smokers who first tried smoking at less than 10 years of age	**boys**	**girls**	**total**
Czech Republic	33.1 ± 2.7	19.4 ± 2.6	26.4 ± 2.2
Hungary	20.4 ± 3.4	14.6 ± 2.7	17.7 ± 2.6
Poland	30.4 ± 3.6	20.9 ± 3.6	26.1 ± 3.2
Slovakia	35.9 ± 3.2	21.2 ± 3.4	29.3 ± 2.5
c) Current smokers of cigarettes	**boys**	**girls**	**total**
Czech Republic	34.4 ± 4.3	34.9 ± 4.0	34.9 ± 3.4
Hungary	33.1 ± 4.4	32.7 ± 4.0	33.5 ± 3.1
Poland	24.9 ± 4.3	20.6 ± 2.6	23.3 ± 2.7
Slovakia	25.5 ± 2.8	22.5 ± 2.2	24.3 ± 2.0
d) Current smokers of tobacco products other than cigarettes	**boys**	**girls**	**total**
Czech Republic	11.5 ± 2.2	5.5 ± 1.4	8.5 ± 1.4
Hungary	11.1 ± 2.2	3.3 ± 1.0	7.1 ± 1.4
Poland	9.9 ± 2.2	5.3 ± 1.3	8.1 ± 1.4
Slovakia	13.9 ± 2.3	11.2 ± 1.8	12.8 ± 1.5
e) Current smokers who always have or feel like having a cigarette first thing in the morning	**boys**	**girls**	**total**
Czech Republic	16.4 ± 3.3	13.8 ± 3.9	15.2 ± 2.5
Hungary	18.1 ± 4.0	16.1 ± 6.7	17.4 ± 3.9
Poland	16.5 ± 3.9	8.5 ± 4.0	13.3 ± 3.5
Slovakia	12.5 ± 4.7	10.4 ± 3.7	11.8 ± 3.2
f) Likely to initiate smoking in the next year	**boys**	**girls**	**total**
Czech Republic	17.5 ± 4.3	28.1 ± 5.1	23.0 ± 3.5
Hungary	15.0 ± 3.6	27.9 ± 3.6	22.1 ± 2.5
Poland	22.8 ± 3.1	27.7 ± 4.4	25.5 ± 2.6
Slovakia	19.7 ± 3.3	24.8 ± 4.3	22.9 ± 3.1
g) Current smokers desiring to stop	**boys**	**girls**	**total**
Czech Republic	50.4 ± 4.3	47.3 ± 6.1	48.8 ± 4.0
Hungary	40.1 ± 4.9	33.6 ± 4.8	36.7 ± 3.4
Poland	55.0 ± 7.3	53.0 ± 8.7	53.0 ± 6.3
Slovakia	61.7 ± 4.9	66.0 ± 8.8	64.0 ± 4.4
h) Current smokers trying to stop this year	**boys**	**girls**	**total**
Czech Republic	67.7 ± 4.7	70.9 ± 4.7	69.1 ± 3.4
Hungary	61.6 ± 5.6	65.5 ± 6.4	64.4 ± 4.0
Poland	60.9 ± 5.9	63.9 ± 4.5	61.8 ± 3.9
Slovakia	79.8 ± 3.6	80.8 ± 4.5	80.8 ± 3.2

Table 3 Selected components of tobacco control programs (% ± CI95 %)

	Czech Republic	Hungary	Poland	Slovakia
Saw anti-smoke messages over the recent 30 days	77.2 ± 1.6	89.0 ± 1.5	89.5 ± 1.1	88.1 ± 1.2
Saw pro-tobacco media messages on TV over the recent 30 days	85.4 ± 1.2	85.8 ± 1.1	67.1 ± 2.2	77.4 ± 1.2
Taught in class dangers of smoking during the recent school term	63.8 ± 3.5	48.7 ± 6.5	55.9 ± 3.1	69.4 ± 2.8
Discussed in class during the recent school term reasons why people their age smoke	50.0 ± 3.0	38.6 ± 6.4	46.9 ± 3.1	55.3 ± 2.5

to indicate the likelihood of initiating smoking in Czech Republic and Hungary.

Cessation

Current smokers in Slovakia (64.0 %) were significantly more likely to desire to stop smoking than current smokers in the other countries (Tab. 2g). Approximately half of current smokers in Czech Republic and Poland expressed a desire to stop smoking compared to about one-third in Hungary. Current smokers in Slovakia (80.8 %) were significantly more likely than those in the other three countries to have tried to stop smoking during the past year (Tab. 2h).

Selected components of tobacco control

Almost nine in 10 students in Hungary, Poland and Slovakia reported seeing an anti-smoking media message during the past month compared to approximately three-fourth in Czech Republic (Tab. 3). Students in Czech Republic and Hungary (85.4 % and 85.8 %, respectively) were more likely to see pro-tobacco media messages on TV than students in Poland (67.1 %) and Slovakia (77.4 %). Over six in 10 students in Czech Republic and Slovakia were taught in class about the dangers of smoking, compared to approximately half in Hungary and Poland. Similarly, students in Slovakia (55.3 %), Czech Republic (50.0 %), and Poland (46.9 %) were more likely to have discussed in class the reasons why people in their age smoke than in Hungary (38.6 %).

Discussion

Findings from the present study can be compared to GYTS data from other countries (Global Youth Tobacco Survey Collaborative Group 2002; 2003) with the following three general conclusions:

1. V4 countries have high prevalence of cigarette smoking (ever smokers and current smokers), particularly in Czech Republic and Hungary, relative to other parts of the world;
2. There is no general gender difference in tobacco use in the V4 countries, which is consistent with many other countries – however, an exception has been found among students attending rural schools in Poland where boys tend to use tobacco more often than girls (Ross & Przewozniak 2004).
3. Approximately one in four never smokers are likely to initiate smoking in the next year both among boys and among girls, a finding suggesting use of tobacco among youth is on the rise in the V4 countries, especially among young girls. This finding has been found in many other countries (Global Youth Tobacco Survey Collaborative Group 2003). In Czech Republic and Hungary, girls who had never smoked cigarettes were significantly more likely than boys to indicate they were likely to initiate smoking in the next year. Clearly, further research focusing on attitudes and factors influencing smoking initiation as well as programme intervention measures are needed to address this problem, since self-reporting of the likelihood of the smoking initiation has been shown to be a significant predictor of future smoking (Choi et al. 2001).

Use of tobacco products other than cigarettes was unexpectedly high in the V4 countries, especially in Slovakia. This percentage in all countries is few times higher in youth than adult population. In all the V4 countries, the use of other tobacco products was higher among youth than their corresponding adult population. In recent years, other tobacco products have become more available in Central and Eastern Europe, which is consistent with the findings from the GYTS. Tobacco control programme efforts in the V4 countries need to be broad in scope to address this emerging problem. Use of cigars, as the most popular tobacco product other than cigarettes, traditionally has been a symbol of higher economic status (Frazier et al. 2000) and some studies suggest cigars can play a role as a gateway for future initiation of cigarette smoking (Frazier et al. 2000; Everett et al. 2000). In Central Europe, prices of all tobacco products are low in comparison with other market products and significantly lower than in other European Union countries, which may have an impact on the level of use among children and youth in the V4 (Ross & Przewozniak 2004).

The survey showed in more than 10 % of current smokers a strong dependency on nicotine (i. e. the desire to smoke in the morning as one of the crucial signs of nicotine dependence

(Fagerstrom & Schneider 1989)). Although this proportion is clearly lower than in adult populations (Kandel 2000), among youth this should be considered a very serious problem. The lack of gender difference in the youth population, which has traditionally been seen (Molarius et al. 2001), also indicates the importance of focusing tobacco control program efforts on both boys and girls.

The proportions of current smokers desiring and trying to quit demonstrate a strong interest in quitting and are comparable with the data found in adult populations (Molarius et al. 2001). This corresponds to a high proportion of smokers trying to quit unsuccessfully. Taking into consideration a relatively rare nicotine dependency among the current smokers (less than 18 %), the main reasons for failure could differ from that of tobacco addiction (which is the major reason in adult smokers) and probably can include psychological and social factors such as lack of assertiveness, peer-pressure, positive attitudes towards smoking (i.e. especially in adult role models [parents, siblings, relatives]) (Ellickson et al. 2001, Tyas & Pederson 1998). These findings indicate that appropriate smoking cessation programmes for youth are needed; however, different from those for adults. Youth-oriented and population-based smoking cessation campaigns are an option. This might be based on the experiences of the Great Central and Eastern European Smoke-Out that is organized (but targeted to the adult population) since the beginning of the 1990s[1]. In Slovakia, where current smokers reported the desire and past attempts to quit more frequently than in the other three countries, these findings may reflect better awareness of the negative aspects of smoking as a result of education and other preventive measures. For this reason, a more detailed analysis of the tobacco control activities in Slovakia (Kavcová et al. 2004) in comparison with the other V4 countries would be very helpful. On the other hand, a relatively low number of respondents desiring smoking cessation in Hungary, together with a high prevalence of ever smoking as well as current smoking, speaks for positive attitudes towards smoking in Hungary, so there is the need for tobacco control programs in Hungary to increase information and decrease the attractiveness of smoking among youth.

However, despite the very close links between V4 countries, GYTS findings show a certain level of heterogeneity in some features and three different patterns of tobacco use can be identified:

1. Poland and Slovakia: Prevalence of current smokers is relatively low. Although initiation of smoking occurred in younger age groups, the percentage of students who had ever smoked is not very high, suggesting that smoking is not as attractive among children as in other countries. Also, boys were significantly more likely than girls to have ever smoked cigarettes or to initiate smoking before age 10; which may reflect the persistence of traditional social attitudes not favouring smoking among girls and women, especially in rural areas (Ross & Przewozniak 2004).
2. Czech Republic: High prevalence of current smokers, ever smokers as well as students first-smoking before the age of 10, speaks for widespread tobacco use and its attractiveness. Traditional attitudes regarding girls' smoking are not as strong as in Poland and Slovakia.
3. Hungary: This country represents a rather different situation regarding tobacco use among school children. A high prevalence of ever smokers and on the other hand a relatively not frequent smoking initiation before the age of 10, suggest that although smoking is very attractive for children in this country, its initiation takes place in older age than in other countries. Attention should be paid particularly to smoking of girls, since among them it is as widespread as among boys, indicating high level of social acceptance of female smoking.

The GYTS includes also information on factors that can influence tobacco use among youth. Although most of the students reported seeing anti-smoking media messages, similar proportions have seen pro-tobacco messages on TV, so the final effect of the anti-smoking media campaigns could be lost. This is especially true in Czech Republic, where pro-tobacco messages overbalanced anti-smoking messages. On the other hand, Poland's example shows that the total ban on tobacco advertisement, promotion and sponsorship that came into force in 2001 can significantly reduce exposure of children to tobacco ads. The percentage of school children in Poland who saw pro-tobacco message on TV is the lowest (67 %) of all V4 countries. However, the fact that about two thirds of respondents in Poland saw pro-tobacco ads in spite of such progressive legislation, underlines the fact that indirect tobacco advertisement and promotion is still a factor (e. g. smoking of favourite actors/actresses, youth's heroes and celebrities). A more detailed cross-country analysis of these tobacco control measures in the V4 countries will be provided in the next publication focused especially on this problem.

Regarding school curricula, the situation is better in Czech Republic and Slovakia, however, generally, in all V4 countries the current situation is far from ideal. The relevant responsible authorities in each of the V4 countries should be made aware of the GYTS results and encouraged to re-evaluate their school health curricula in both ways – to increase the number of classes students have on health and besides the information on harmful effects of tobacco also including teaching on social resistance

[1] As a result of this campaign, 2.8 million adult smokers quitted smoking for good in Poland in last decade.

and assertiveness. Adequate attention should be paid also to changing social attitudes towards smoking and tobacco.

Conclusions

The V4 has some of the highest levels of youth smoking in the world affecting both boys and girls. Current epidemiological situation in youth smoking appears more favourable in Poland and Slovakia. It could be caused at least partially by the implemented tobacco control measures, but also by a specific historical and cultural background. Also, reliability analysis in specific conditions of Central and Eastern Europe could be helpful, since the available data on this originate from USA with rather different socio-economic background (Brener et al. 1995). Tobacco control programmes in the V4 countries should focus particularly on smoking of girls, since the traditional gender differences were not found, and a very high prevalence of girls were found susceptible to initiating smoking. These findings suggest that tobacco use among women will become an important public health problem in the future. Also, tobacco control programs need to develop effective youth cessation programmes. Finally, the V4 countries need to develop and implement strong tobacco control programs to address these problems. The initial GYTS has served as a good baseline for identifying problems and the repeated GYTS can be used to monitor and evaluate these tobacco control programmes in the future.

Acknowledgements

The survey was financed and supported by World Health Organisation and Centers for Disease Control and Prevention. Nobody from authors declared any competing interests.

The authors would like to extend their thanks to the World Health Organization (WHO) and Centers for Disease Control and Prevention (CDC) for their substantial support and assistance in GYTS, namely to Haik Nikogosian and Ionela Petrea from the Tobacco Free Initiative, WHO, Darina Sedlakova, Liaison Officer of WHO in Slovakia, as well as to Juliette Lee and Veronica Lea from the Office on Smoking and Health, CDC. The authors are also deeply thankful to all directors and personnel of selected schools, since without their readiness and understanding the project could not have been realized.

Czech Republic, Hungary, Poland and Slovakia GYTS Collaborative Group:

Hana Sovinova[1], Ladislav Csemy[1], Agnes Nemeth[1], Krzysztof Przewozniak[2], Witold Zatonski[2], Tibor Baska[3], Anna Beresova[4], Andrea Cucova[5], Ludmila Jackova[6], Elena Kavcová[3], Lucia Kobeticova[7], Jarmila Korcova[7], Maria Kovarova[4], Daniela Marcinkova[7], Anna Pakosova[7], Robert Ochaba[8], Charles W. Warren[9]

[1] National Institute of Public Health, Prague, Czech Republic
[2] The Maria Sklodowska-Curie Cancer Center and Institute, Warsaw, Poland
[3] Jessenius Faculty of Medicine, Comenius University, Martin, Slovakia
[4] Medical Faculty of the P.J. Safarik University, Kosice, Slovakia
[5] Faculty of Humanities and Natural Sciences, University of Presov, Slovakia
[6] State Health Institute in Banska Bystrica, Slovakia
[7] Faculty of Social Work and Health, Trnava University, Slovakia
[8] Office of Public Health of the Slovak Republic, Bratislava, Slovakia
[9] Centers for Disease Control and Prevention, Office on Smoking and Health, Atlanta, Georgia, USA

Zusammenfassung

Forschungsergebnisse von Global Youth Tobacco Survey (GYTS) in der Tschechischen Republik, Ungarn, Polen und in der Slowakei – Rauchbeginn, Prävalenz und Entwöhnung

Fragestellung: Ausgewählte Ergebnisse des Global Youth Tobacco Surveys (GYTS) aus der Tschechischen Republik, Ungarn, Polen und der Slowakei werden gezeigt.

Methoden: Eine repräsentative Stichprobe von 16 918 Schülern im Alter von 13–15 Jahren. Die Daten wurden mittels eines Fragebogens in den Jahren 2002 bis 2003 erfasst.

Ergebnisse: Mehr als ein Viertel der Kinder unter 10 Jahren begannen in Tschechien (26,4 %), in Polen (26,1 %) und in der Slowakei (29,3 %), in Ungarn aber nur 17,7 % zu rauchen. In Tschechien (34,9 %) und Ungarn (33,5 %) geben mehr Kinder an zu rauchen als in der Slowakei (24,3 %) und in Polen (23,3 %). Ungefähr die Hälfte von den Rauchern hat den Wunsch geäussert, das Rauchen aufzugeben, und zwar am häufigsten in der Slowakei (64,0 %) und am wenigsten in Ungarn (36,7 %). Es gibt keinen Unterschied zwischen den Geschlechtern.

Schlussfolgerungen: Die Raucherprävalenz ist in diesen Ländern erheblich höher als in der restlichen Welt. Das Rauchen von Frauen könnte in Zukunft ein bedeutendes öffentlichgesundheitliches Problem sein. Wiederholte Forschungen ermöglichen es, Trends zu zeigen und ein schärferes Bild von der epidemiologischen Situation zu geben.

Résumé

Résultats de l'étude Global Youth Tobacco Survey (GYTS) en République Tchèque, Hongrie, Pologne et Slovaquie – initiation, prévalence et cessation tabagiques

Objectifs: Présenter certains résultats de l'étude Global Youth Tobacco Survey (GYTS) réalisée en République Tchèque, Hongrie, Pologne et Slovaquie.

Méthodes: Echantillon représentatif de 16 918 enfants scolarisés, âgés de 13 à 15 ans; données obtenues sur la base d´un questionnaire. La collecte des données a été faite en 2002 et 2003.

Résultats: Plus qu´un quart des enfants a commencé à fumer avant l'âge de 10 ans en République Tchèque (26,4 %), en Pologne (26,1 %) et en Slovaquie (29,3%), un peu moins en Hongrie (17,7 %). Plus d´enfants fument régulièrement en République Tchèque (34,9 %) et en Hongrie (33,5 %) qu´en Slovaquie (24,3 %) et en Pologne (23,3%). En Slovaquie, une majorité de ces jeunes souhaite arrêter de fumer (64 %), tandis qu'il ne sont que 36.7 % en Hongrie. Les résultats ne sont pas différents selon les sexes.

Conclusions: Dans ces pays, la prévalence du tabagisme est plus élevée que dans le reste du monde. Le tabagisme féminin pourrait représenter à l'avenir un problème de santé public important. Une répétition de ce type d'étude permettrait de dessiner les tendances et de fournir une image plus claire de la situation épidémiologique du tabagisme.

References

Brener ND, Collins JL, Kann L, et al. (1995). Reliability of the Youth Risk Behavior Survey questionnaire. Am J Epidemiol *141*: 575–80.

Charlton A (1996). Children and smoking: the family circle. Br Med Bull *52*: 90–107.

Choi WS, Gilpin EA, Farkas AJ, Pierce JP (2001). Determining the probability of future smoking among adolescents. Addiction *96*: 313–23.

Elders MJ, Perry ChL (1994). The report of the Surgeon General: preventing tobacco use among young people. Am J Public Health *84*: 543–8.

Ellickson PL, McGuigan KA, Klein DJ (2001). Predictors of late-onset smoking and cessation over 10 years. J Adolesc Health *29*: 101–8.

Everett SA, Malarcher AM, Sharp DJ, et al. (2000). Relationship between cigarette, smokeless tobacco, and cigar use, and other health risk behaviors among U.S. high school students. J Sch Health *70*: 234–40.

Fagerstrom KO, Schneider NG (1989). Measuring nicotine dependence: a review of the Fagerstrom Tolerance Questionnaire. J Behav Med *12*: 159–82.

Frazier AL, Fisher L, Camargo CA, et al. (2000). Association of adolescent cigar use with other high-risk behaviors. Pediatrics *106*: E26.

Global Youth Tobacco Survey Collaborating Group (2003). Differences in worldwide tobacco use by gender: findings from the Global Youth Tobacco Survey. J Sch Health *73*: 207–15.

Kandel DB (2000). Extent of smoking and nicotine dependence in the United States: 1991–1993. Nicotine Tob Res *2*: 263–75.

Kavcová E, Kocan I, Squier C (2004). Tobacco control and the role of the medical community in the Slovak Republic. Eur J Dent Educ *8 (Suppl 4):* 46–50.

Molarius A, Parsons RW, Dobson AJ, et al. (2001). Trends in cigarette smoking in 36 populations from the early 1980s to the mid-1990s: findings from the WHO MONICA Project. Am J Public Health *91*: 206–12.

Peto R, Lopez AD (2001). Future worldwide health effect of current smoking patterns. In: Kopp CE, Pearson CE, Schwarz MR, eds. Critical issues in global health. San Francisco: Jossey-Bass.

Ross H, Przewozniak K (2004). Poland 1999 Global Youth Tobacco Survey: economic aspects. Washington, DC: The World Bank. (Economics of tobacco control paper; no. 22).

Shah BV, Barnwell BG, Bieler GS (1997). Software for the statistical analysis of correlated data (SUDAAN): user's manual, release 7.5, 1997 [software documentation]. Research Triangle Park, NC: Research Triangle Institute.

Sovinová H, Csémy L (2004). Smoking behaviour of Czech adolescents: results of the Global Youth Tobacco Survey in the Czech Republic, 2002. Cent Eur J Publ Health *12*: 26–31

Global Youth Tobacco Survey Collaborative Group (2002). Tobacco use among youth: a cross country comparison. Tob Control *11*: 252–70.

Tyas SL, Pederson LL (1998). Psychosocial factors related to adolescent smoking: a critical review of the literature. Tob Control *7*: 409–20.

Address for correspondence
Tibor Baška, MD, PhD
Institute of Public Health
Department of Epidemiology
JFM CU
Sklabinska 26
037 53 Martin, Slovak Republic
e-mail: baska@jfmed.uniba.sk

Soz Praventiv Med. 51 (2006) 110–116