

PUBLIC HEALTH

Trends of smoking prevalence among Lithuanian school-aged children in 1994–2006

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Key words: adolescents; smoking; prevalence; trends; smoking control policy.

Summary. *Background.* Despite much effort spent on antismoking programs in schools in different countries, limited effects have been observed in many cases. Evidence from European countries shows that active tobacco control actions such as ban on tobacco advertising, increase of tobacco taxes could lead to successful results. Our study was aimed to analyze time trends on smoking in Lithuanian school-aged children during the period of 1994–2006 in the context of antismoking policies, which were implemented in Lithuania.

Material and methods. This study was a part of WHO Cross-National Health Behavior in School-Aged Children (HBSC) study carried out in Lithuania. The standardized methods of international HBSC study protocol were applied. Stratified random representative samples of 5428, 4513, 5645, and 5632 students aged 11, 13, and 15 years were included into school-based anonymous questionnaire surveys in 1994, 1998, 2002, and 2006, respectively (spring semester). Questions on frequency of smoking, age of initiation and other questions were included. Response rates of each of these four questionnaire surveys were higher than 90%.

Results. Smoking behavior was more common among boys. The prevalence gap in smoking between boys and girls diminished during period of observation. Prevalence of smoking increased significantly among boys during the period of 1994–2002 (11.3%, 19.8%, and 23.6% in 1994, 1998, and 2002, respectively), but started to decline after (17.3% in 2006, $P < 0.05$). Similar trends were observed among girls: 3.6%, 8.5%, 14.6%, and 12.5% of girls reported smoking in cross-sectional surveys of 1994, 1998, 2002, and 2006, respectively. Boys living in rural areas were more frequent smokers than those living in urban areas in 1994–1998 (9.5% vs 13.9%, $P < 0.05$). However, the surveys of 2002–2006 showed opposite changes (25.6% vs 22.1%, $P < 0.05$ and 17.8% vs 16.9%, $P > 0.05$). Urban girls have reported smoking more frequently in comparison with rural girls.

Conclusions. An increase in tobacco smoking among school-aged children was observed in Lithuania during 1994–2002. A decrease in prevalence of smoking was seen during the period of 2002–2006. These trends could be related to the implementation of tobacco control measures in Lithuania.

Introduction

The World Health Organization in its report has stated that during the 20th century more than 100 million of people died due to tobacco smoking (1). Annually, 650 000 cases of death could be attributed to smoking in the countries of the European Union (2). International experts reported death due to smok-

ing-induced diseases and their complication occurred in 4671 persons in Lithuania in the year 2000 (3). It was established by epidemiological studies that smoking is a risk factor for six out of eight major causes of mortality globally (1).

It was showed by the research that initiation of smoking usually takes place in adolescence (4, 5). A

higher risk of physical dependence of smoking in adults is considered by recent research as a result of early initiation of smoking (6). Similar observation was also presented by tobacco companies. It was stated in their marketing policy documents that in case young people do not start to smoke in early years, chances to become a smoker later decrease significantly. This is why tobacco companies provide policy of targeting youth as the most susceptible group of potential customers (7). Monitoring of frequency of tobacco smoking is important for researchers, because data on smoking among young people could be a good indicator of projecting the smoking prevalence and mortality risks among adult population in the future.

The causality of smoking is complex and could be related to individual, social environmental, cultural, and health policy factors. Some of the determinants of smoking could be easily controlled by legal and other preventive means (1). Evidence-based research and successful experience of some countries allowed establishing the most effective methods of tobacco control policy. The main strategies of such policy are presented in the WHO Framework Convention on Tobacco Control, which was signed by Lithuania (8). The health behavior monitoring surveys, such as HBSC, ESPAD, FinBalt Health Monitoring, which were started more than a decade ago, give a possibility to evaluate the effectiveness of preventive measures already started and to compare the indicators of smoking in Lithuanian population with other countries (9–11).

Our study was aimed to getting a deeper insight into time trends on smoking prevalence in Lithuanian school-aged children (11-, 13-, and 15-year-old) during the period of 1994–2006 in context of anti-smoking policies, which were implemented in Lithuania.

Material and methods

Samples and survey procedures

Our research was carried out in the framework of the HBSC study, which was initiated by the WHO (9). The comprehensive surveys of the national representative samples of 11-, 13-, and 15-year-old adolescents are conducted every four years in many European countries and the United States, Canada, and Israel as well. The last four surveys of 1993/1994, 1997/1998, 2001/2002, 2005/2006 school years were carried out also in Lithuania. The standardized cross-national research methodology, which was developed by the team of experts, was used. In each country, a cluster sampling design was applied, in which school classes were used as sampling units. Samples of

students were drawn to be representative by age and gender. Recommended sample sizes were at least 1500 students per age group.

Quality of data collection was ensured, and the HBSC protocol was followed strictly. The investigation was conformed to the principles outlined in the Declaration of Helsinki and was approved by ethics committee.

In Lithuania, all surveys were completed in the spring semester (March–April). Specially trained personnel, teachers, and school nurses administered the questionnaires in school classrooms. The questionnaire was anonymous. Response rates were more than 90% during all four surveys. Upon the completion of the fieldwork, the data were prepared using standard documentation and submitted to the HBSC International Data Bank at the University of Bergen, Norway. The data were checked, cleaned, and returned to the countries for further statistical processing.

The presented here analysis is based on the total number of 21 218 records (5428, 4513, 5645, and 5632 from the surveys of 1994, 1998, 2002, and 2006, respectively) selected by quality criteria of the international HBSC database. For the survey in 2005/2006, there were 37 countries (34 countries from Europe and the United States, Canada, and Israel), which presented data on smoking to the international HBSC database. These data were accessible for cross-national comparisons.

Questionnaire and variables

Questionnaire topics and items for the HBSC surveys were discussed and approved after by the international experts involved in the HBSC (12–14). The national questionnaire was adopted after the translation of questionnaire from the standard English version into the national language and retranslation it to English.

Two questions on smoking, which wording was retained in each survey, are described and discussed in this research article.

The first was, “Have you ever smoked tobacco (at least one cigarette, cigar, or pipe)?” Response categories were “Yes” or “No.”

The second question measured frequency of current smoking, “How often do you smoke tobacco at present?” Response categories were as follows: “I do not smoke,” “Every day,” “At least once a week, but not every day,” “Less than once a week.” Based on the responses to this question, the respondents were divided into regular smokers (those who smoked daily or at least once per week) and occasional smokers (those who smoked less than once a week).

Assessing the prevalence of smoking, the following independent factors were taken into consideration: year of the survey (1994, 1998, 2002, and 2006), gender, age (11-, 13-, and 15-year-old students), and place of residence (urban area, rural area).

Statistical analysis

Due to the cluster sampling design of our study, in which school classes were used as sampling units, statistical data analysis had to be performed considering data variation both at the level of individuals and at the level of school classes.

Data were analyzed using the statistical package SPSS (version 11.5). Z and χ^2 tests evaluated statistical hypotheses on difference in the distribution of variables between the groups of respondents. Direct standardization procedure was applied for comparison of international data by taking into consideration the equal number of respondents aged 11, 13, and 15 years in the population surveyed.

Because of the cluster sampling that tends to produce higher standard errors compared to simple random sampling, we used MLwiN (version 2.0) software to fit two-level logit models, in which students (level 1) were nested within classes (level 2) (16). Throughout the binary logistic analysis, the coefficients of logistic regression and odds ratios (ORs) were calculated in order to assess the effect size of gender, age, and place of residence for the prevalence of smoking among school-aged children. The variation between individuals and sampling units was estimated as well.

All analyses were performed for boys and girls separately. The level of statistical significance was $P < 0.05$.

Results

Experimentation with smoking

In all four surveys performed during 1994–2006, there was a dramatic increase in the number of students who reported having tried smoking between the ages of 11 and 15 years. Boys were more likely to smoke than girls (Table 1).

In 1994–2002, the proportion of 11-year-old boys who reported ever having smoked increased from 31.3% to 42.0% ($P < 0.001$), but in 2006, it decreased to 30.9% ($P < 0.001$). As with boys, the proportion of such girls increased substantially from 5.9% to 24.9% in 1994–2002, but for the last survey, it decreased to 14.7%. Changes in smoking prevalence among 13- and 15-year olds were similar to those among 11-year olds. Diminishing gender differences were also apparent. For example, in 1994, 76.6% of boys and 40.7% of girls aged 15 years reported ever having smoked (the rate for boys was almost double that for girls), while in 2006, the relevant rates were 82.8% and 71.6% for boys and girls, respectively (the ratio of rates decreased to 1.16).

Current smoking

Table 2 provides information how the prevalence of current smoking was changing in different demographical groups of school-aged children.

The data show a substantial increase in smoking prevalence with increasing age. Across all age groups, boys smoked more often than girls, but the difference between boys' and girls' smoking rates was diminishing during 12 years of the observation. The prevalence of smoking increased considerably in the period of 1994–2002. According to the data of surveys in 1994, 1998,

Table 1. Students who reported ever have smoked in 1994, 1998, 2002, and 2006 by gender and age

Age	Gender	1994 (N=5428)		1998 (N=4513)		2002 (N=5645)		2006 (N=5632)	
		n	%	n	%	n	%	n	%
11-year olds	Boys	245	31.3	351	45.5	399	42.0	298	30.9
	Girls	59	5.9	147	18.8	228	24.9	134	14.7
		$\chi^2=43.0$; $df=3$; $p<0.001$ *							
13-year olds	Boys	496	57.7	515	70.3	705	73.9	645	63.7
	Girls	211	20.5	315	40.8	462	50.3	385	43.1
		$\chi^2=47.1$; $df=3$; $p<0.001$ *							
15-year olds	Boys	604	76.6	527	83.0	870	88.7	778	82.8
	Girls	395	40.7	439	55.1	670	72.7	659	71.6
		$\chi^2=41.7$; $df=3$; $p<0.001$ *							

* Comparison of trends between boys and girls; number of respondents is weighted by the year of survey and gender.

Table 2. Students who reported smoking in 1994, 1998, 2002, and 2006 by gender, age, and place of residence

Respondents	1994 (N=5428)		1998 (N=4513)		2002 (N=5645)		2006 (N=5632)	
	sk.	proc.	sk.	proc.	sk.	proc.	sk.	proc.
All respondents	378	7.0	624	13.8	1084	19.2	841	15.0
	$\chi^2=354.4$; $df=3$; $p<0.001$							
Boys	272	11.3	424	19.8	681	23.6	501	17.4
Girls	106	3.6***	200	8.5***	403	14.6***	340	12.4***
	$\chi^2=45.4$; $df=3$; $p<0.001^{\#}$							
Boys:								
11-year-old	31	4.0	58	7.5	50	5.3	29	3.1
13-year-old	62	3.7	141	19.2	172	18.0	158	15.6
15-year-old	179	23.0	225	35.5	459	46.8	314	33.5
	$\chi^2=24.5$; $df=6$; $p<0.001^{##}$							
Girls:								
11-year-old	7	0.7	6	0.8	19	2.1	16	1.8
13-year-old	25	2.4	56	7.2	105	11.5	76	8.5
15-year-old	74	7.7	138	17.4	279	30.3	248	27.0
	$\chi^2=4.96$; $df=6$; $p=0.549^{##}$							
Boys:								
living in urban area	135	9.5	207	19.6	315	25.6	232	17.8
living in rural area	137	13.9***	217	20.0	366	22.1*	269	16.9
	$\chi^2=15.2$; $df=3$; $p=0.002^{###}$							
Girls:								
living in urban area	125	7.1	115	9.8	193	16.5	198	15.5
living in rural area	83	7.0	85	7.2*	210	13.2*	142	9.8***
	$\chi^2=3.76$; $df=3$; $p=0.289^{###}$							

[#] Comparison of trends between boys and girls; number of respondents is weighted by the year of survey and gender.

^{##} Comparison of trends between 11-, 13-, and 15-year olds; number of respondents is weighted by the year of survey and age.

^{###} Comparison of trends between students who live in urban and who live in rural area; number of respondents is weighted by the year of survey and place of residence.

* $p\leq 0.05$, ** $p\leq 0.01$, *** $p\leq 0.001$, Z test when comparing boys and girls or urban and rural students.

and 2002, 11.3%, 19.8%, and 23.6% of boys and 3.6%, 8.5%, and 14.6% of girls, respectively, reported current smoking (a significant increase comparing subsequent surveys ($P<0.001$), both for boys and girls). Therefore, in 2006, lower rates of smoking were detected: among boys it decreased to 17.4% ($P<0.001$) and among girls to 12.4% ($P=0.023$).

The prevalence of smoking was analyzed in respect of place of residence too. Boys who reported living in rural area smoked more often than urban peers according to the data of surveys in 1994 and 1998, but the data of subsequent surveys in 2002 and 2006 demonstrated the contrary. Urban girls reported higher smoking rates than rural girls over all period of the study.

The risk of adolescents' smoking was assessed by the multivariate logistic regression model that included effect of all measured demographical variables (Table 3). Moreover, the model was extended to handle data with a two-level hierarchical structure (individuals and classes). Such a model led up to estimation of the variation between individuals and sampling units. The findings showed that during the study period, the risk of smoking among girls increased about 2.5 times (OR increased from 0.25 to 0.62, i.e. to the risk of smoking among boys, equal to 1). Concerning effect size by age, it was observed an increase in smoking risk among 13- and 15-year-old adolescents (in comparison to 11-year olds, the risk increased at least twice over the study

Table 3. Effect size of gender, age, and place of student's residence on smoking prevalence among 11-15-year-old students in 1994, 1998, 2002, and 2004: results from the multivariate logistic regression analysis with a two-level model¹

Parameters and factors of the model		1994 (N=5428)	1998 (N=4513)	2002 (N=5645)	2006 (N=5632)
Intercept	β_0	-3.69 (0.23)	-2.89 (0.19)	-3.08 (0.16)	-3.68 (0.18)
Variation of intercept between school classes	Ω	0.70 (0.15)	0.61 (0.11)	0.37 (0.07)	0.41 (0.08)
Girls (in comparison with boys)	β_1 OR	-1.37 (0.13) 0.25 (0.20–0.33)	-1.18 (0.10) 0.31 (0.25–0.37)	-0.68 (0.08) 0.51 (0.43–0.59)	-0.48 (0.08) 0.62 (0.52–0.74)
13-year olds (in comparison with 11-year olds)	β_{21} OR	0.85 (0.26) 2.34 (1.41–3.89)	1.37 (0.21) 3.94 (2.61–5.94)	1.56 (0.18) 4.76 (3.34–6.77)	1.77 (0.21) 5.87 (3.97–8.69)
15-year olds (in comparison with 11-year olds)	β_{22} OR	2.24 (0.24) 9.39 (5.87–15.04)	2.35 (0.21) 10.49 (6.95–15.83)	2.96 (0.17) 19.30 (13.83–26.93)	3.00 (0.20) 20.09 (13.57–29.73)
Rural students (in comparison with urban students)	β_3 OR	0.16 (0.16) 1.17 (0.86–1.61)	-0.18 (0.13) 0.84 (0.65–1.08)	-0.11 (0.10) 0.90 (0.74–1.09)	-0.27 (0.10) 0.76 (0.63–0.93)

¹ β – coefficients of logistic regression (standard deviation); OR – odds ratios (95% confidence interval).

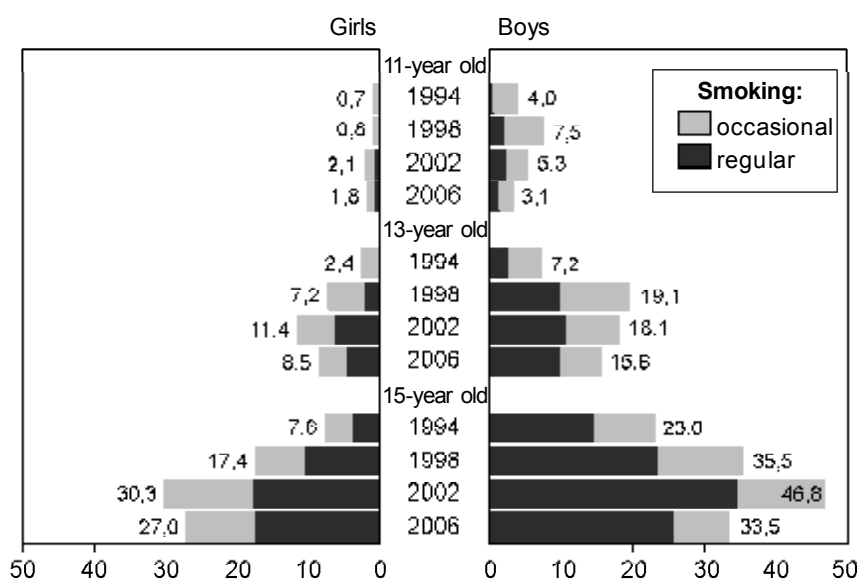


Fig. 1. Trends of percentage of 11-, 13-, and 15-year-old girls and boys who reported daily or weekly and less than weekly smoking in 1994, 1998, 2002, and 2006

period). The smoking risk for rural adolescents decreased and at the end of study period became significantly lower than for peers living in urban area.

The variation of intercept between school classes (Ω) was also estimated. In our models fitted, this estimation reflects the intralevel correlation, which is the correlation between students in the same class. As the value of this estimation decreased over the study pe-

riod from 0.70 to 0.41, it is likely that at the beginning of the study, smokers were “concentrated” into several classes, while at the end of the study period, smoking became a common phenomenon in many classes

Regular and occasional smoking

Smoking frequency at least weekly and less than weekly was classified into regular and occasional

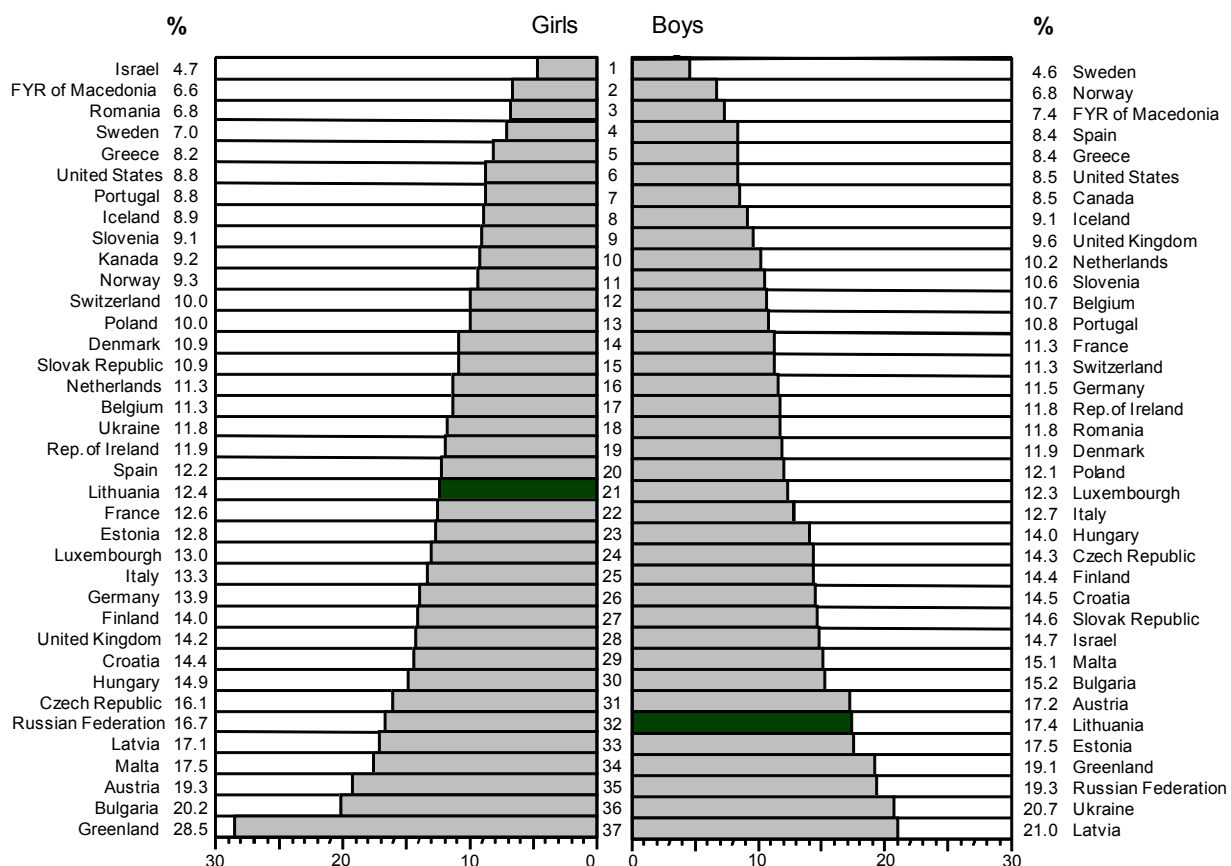


Fig. 2. Percentage of 11-15-year-old boys and girls who reported smoking by countries, which completed the HBSC survey in 2005/2006 school year

Data from 37 countries standardized by age. Countries are ranked by ascending smoking prevalence.

Table 4. Assessment of smoking prevalence among Lithuanian students in comparison with other countries and regions, which completed the HBSC survey in 1993/1994-2005/2006

Year of the survey	Number of countries and regions, which completed the HBSC survey	Rank of Lithuanians among students from HBSC countries and regions ranked by ascending smoking prevalence	
		boys	girls
1993–1994	24	3	1
1997–1998	29	22	2
2001–2002	35	33	15
2000–2006	37	32	21

smoking, respectively. Fig. 1 shows trends of percentage of students who reported regular and occasional smoking over the study period, by age and gender.

Regular smoking increased substantially across age groups. According to data of all surveys, among 11-year olds, only a few students reported regular smoking. However, a half of 13-year-old smokers and two-thirds of 15-year-old smokers were classified as regular smokers.

The recent (in 2006) decrease in smoking rate

among boys resulted from a decrease in both regular and occasional smoking rates. In contrast, a decrease in smoking rate among girls is noticed due to decrease in occasional smoking rates in general (this picture is clearly seen among 15-year olds).

Cross-national comparison

Cross-national comparison of study results was one of important objectives for the HBSC surveys. The

same method of smoking examination among young people was applied for all participating countries. Additionally, a method of direct standardization of data by age was used.

The survey in 2005/2006 school year was carried out in 37 countries (34 European countries and the United States, Canada, and Israel). Fig. 2 shows the percentage of 11-15-year-old boys and girls who reported smoking by countries, which completed the HBSC survey. Ascending smoking prevalence ranks countries in the form of pyramid indicating percentage variation across countries.

Ranking of data demonstrated that Lithuanian boys were ranked the 32nd position out of 37 positions or sixth in a group of students from countries that reported the highest rates of smoking. Girls were ranked to the 21st position that might be considered as an average. Although the survey data in 2006 emerged a decreased prevalence of smoking among Lithuanian boys and girls, but their position in the rating scale should be assessed negatively. In 1994, girls from Lithuania smoked the least frequently among peers from 24 countries, and boys were ranked third within countries of the lowest prevalence of smoking. Therefore, during 12 years of the study, Lithuanian boys and girls leaved these positions and by each year of the survey fell down in the ranking scale (Table 4).

Discussion

The results of smoking monitoring surveys, which are presented in our paper, have some practical implications. These data should encourage the implementation of preventive measures listed in the WHO Framework Convention on Tobacco Control (8). Smoking is considered as one of preventable risky behaviors, and all preventive measures should be initiated in early stage of adolescence (1, 4).

Our study has demonstrated a significant increase in smoking prevalence among school-aged children in the period of 1994–2002. However, such an increase was followed by the trend of decrease after 2002.

An introduction of effective tobacco marketing measures after tobacco industry was privatized in Lithuania and became a part of global tobacco market might be one of possible explanations why smoking prevalence was rising during the period of 1994–2002. Such aggressive advertisement of tobacco products in public places, through mass media, and by sponsoring public events persisted until the year 2000. It seems that some part of young female population, which was less prone to smoking, was targeted by these massive advertising companies and especially in Central and

Eastern Europe. HBSC survey results show a three-fold increase in smoking during 8 years of the observation during 1994–2002.

Issue of the ban on tobacco advertising was investigated at the Constitutional Court of Lithuania. Only after reject of the plaint on the ban, all tobacco advertising in mass media and public places was restricted. We could attribute this step as the turn point after which smoking prevalence in children and adults started to decrease (11). These changes in smoking prevalence were compared with similar monitoring data in other HBSC countries. A special interest was focused on other Central and Eastern European countries, where tobacco market growth was similar. This comparison indicates similar trends, which took place in Latvia, Estonia, Czech Republic, and Slovakia during the period of 1994–2002 (9, 17).

The mentioned patterns were confirmed also by other international monitoring study – the ESPAD (10, 18). The latter study showed the following major changes of epidemiological indicators of smoking during 1995–2003: 1) percentage of respondents who ever smoked increased (65% in 1995; 77%, in 1999; and 80%, in 2003); 2) percentage of respondents who smoked 40 or more times during their life increased; 3) prevalence of adolescents who reported smoking during the last 30 days also increased.

The Lithuanian Health program projected the decrease in smoking prevalence among school-aged children by 10% by the year 2010 (19). A positive trend of decline in smoking, which was observed in 2006, provided some more optimism to achieve the planned target. Additional tobacco preventive measures, such as full ban of smoking in public places, which was initiated from January 1, 2007, also increasing taxation for tobacco products, should facilitate the achievement of the goals set by the Health Program. Therefore, the collation of smoking trends and preventive measures on tobacco control gives us some evidence about effectiveness of smoking prevention measures among young people in Lithuania.

Despite advantages of our methodology of analysis we used, some limitations in such design should be mentioned. Some researchers noticed that possibilities of comparison of prevalence of risk-taking behaviors in different countries and cultures could be confined by different format of questions and answers or by different age of respondents (17, 20). However, our analysis covered results from standardized data collection available in 24–35 HBSC countries.

This cross-sectional questionnaire survey as well as other similar studies carried out on smoking pre-

sents an example of very sensitive and personal issues for investigation. This is why special attempts were made by researchers to provide warranty of anonymity and confidentiality. Majority of researchers have stated that in comparison with biochemical methods of validation of smoking prevalence, responses of school-aged children are quite reliable indicators, which describe real epidemiological situation on smoking (21, 22). However, some studies proved that such survey method could show lower prevalence of smoking. (23). A decreased prevalence could also be due to low response rate, because adolescents with risk-taking behaviors tend to be absent at school. Therefore, in our study, the response rate was quite high and approached 85–90%. This reason allows excluding such hypothesis.

The findings from our study indicate a decrease in the prevalence of smoking in school-aged children, which was observed during 2002–2004. It could be related to the implementation of tobacco control measures in Lithuania: total ban of advertisement (since the year 2000); increase of tobacco taxes (every year since 1998), ban of sale of reduced cigarette packages, ban of tobacco product imitations, introduction of youth

smoking prevention programs, and warnings on tobacco products. Further monitoring of prevalence of smoking and preventive measures should be continued.

Conclusions

1. The prevalence of smoking was increasing significantly during the period of 1994–2002. However, a significant decline in smoking prevalence was observed during the period of 2002–2006.

2. Narrowing of the gender gap in smoking between boys and girls was established due to significant increase of smoking among girls during the 12-year period of observation.

3. Rural boys were more likely to smoker in comparison with urban boys during the period of 1994–2008. However, an opposite trend took place after 1998.

4. In recent years (results of the HBSC survey 2006), Lithuanian population of school-aged children could be attributed to the group of countries, where smoking prevalence is highest. This situation is in sharp contrast with the opposite situation when we had the lowest prevalence of smoking among the HBSC countries in 1994.

Lietuvos moksleivių rūkymas ir jo paplitimo pokyčiai 1994–2006 m.

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Raktažodžiai: paaugliai, rūkymas, paplitimas, pokyčiai, rūkymo kontrolės politika.

Santrauka. Įvairiose šalyse daug pastangų skirta vykdant mokyklose tabako kontrolės prevencijos programas. Deja, daugeliu atvejų nesulaukta pageidaujamų rezultatų. Europos šalių praktika parodė, kad, uždraudus tabako reklamą, pakėlus tabako produktų kainas, galima pasiekti apčiuopiamų rezultatų. Tyrimo tikslas. Įvertinti 11–15 metų Lietuvos moksleivių rūkymo paplitimą ir jo pokyčius 1994–2006 m. bei išanalizuoti jo sąsajas su tabako kontrolės politikos vykdymu.

Tyrimo medžiaga ir metodai. Tyrimas atliktas vykdant Pasaulinės sveikatos organizacijos koordinuojamą „Moksleivių sveikatos ir gyvensenos studiją HBSC“. Į anketinio tyrimo, skirto 11, 13 ir 15 metų moksleiviams, klausimus 1994 m. atsakė 5428, 1998 m. – 4513, 2002 m. – 5645, 2006 m. – 5632 Lietuvos mokyklų moksleiviai, atrinkti atsitiktinės grupinės atrankos būdu. Anonimines anketas moksleiviai pildė pamokų metu. Moksleivių buvo klausiama apie gyvenseną, vienas iš kurių buvo apie tabako rūkymą. Visos apklausos vyko kovo–balandžio mėn. Kiekvienos apklausos atsako dažnis ne mažesnis kaip 90 proc.

Rezultatai. Dažniau rūkė berniukai nei mergaitės, tačiau rūkymo paplitimo skirtumas tarp lyčių žymiai sumažėjo per 12 metų stebėjimo laikotarpį. Rūkymo paplitimas sparčiai augo tarp berniukų moksleivių 1994–2002 m. laikotarpiu (atitinkamai – nuo 11,3 iki 19,8 ir 23,6 proc. 1994 m., 1998 m. ir 2002 m.), tačiau po to pradėjo mažėti ir 2006 m. pasiekė 17,4 proc. lygį ($p < 0,001$). Mergaičių rūkymo paplitimo rodikliai kito panašiai kaip ir berniukų: didėjo nuo 3,6 iki 8,5 proc. bei iki 14,6 proc. 1994–2002 m. laikotarpiu ir sumažėjo iki 12,4 proc. 2006 m. Kaimo

vietovėje gyvenantys berniukai rūkė dažniau nei bendraamžiai iš miesto 1994–1998 m. laikotarpiu, tačiau 2002–2006 m. pastebėta priešinga tendencija. Miesto moksleivės visu stebėsenos laikotarpiu rūkė dažniau nei kaimo mergaitės.

Išvada. Lietuvoje rūkančių moksleivių procentas 1994–2002 m. laikotarpiu augo, tačiau 2002–2006 m. laikotarpiu jau mažėjo. Tikėtina, kad pastarasis pokytis yra susijęs su mokslo pagrįstų tabako kontrolės priemonių įgyvendinimu šalyje.

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