

## Global Youth Tobacco Survey – Bulgaria Prevalence, knowledge and attitudes to smoking

The Global Youth Tobacco Survey (GYTS) was conducted in Bulgaria in 2002 as part of an international surveillance project initiated by the World Health Organization/Tobacco Free Initiative, US Centres for Disease Control and Prevention and other partners. GYTS was designed to track the tobacco consumption among youth in countries across the world, using a common standardized methodology and protocol for data collection, which facilitates and permits evaluation, monitoring and data comparison across countries. **OBJECTIVE** To assess the active and passive smoking patterns of Bulgarian adolescents, as well as their knowledge, attitudes and beliefs about tobacco use, within the framework of GYTS-Bulgaria. **METHOD** GYTS-Bulgaria is a cross-sectional self-administered, school-based survey of a nationally representative sample of students from 7th, 8th and 9th grades with 2,167 students, aged 13–16 years completing the survey (1,008 males and 1,136 females). The Bulgarian version of the GYTS multiple-choice questionnaire was used, which comprised 56 core questions and 4 supplemental questions. **RESULTS** Analysis of the questionnaires showed that 69.1% of the students have smoked cigarettes at some time and 37.4% are current active smokers. Two-thirds of these (63.6%) manifest a desire to quit smoking and 71.0% had tried to stop smoking during the previous year but were unsuccessful. The greater part of the all studied population passively exposed to smoke in their homes and public places, with current smokers significantly more likely to report exposure than those that never smoked ( $P < 0.05$ ). Despite their knowledge about the detrimental effects of active and passive smoking on health, twice fewer current smokers than those who never smoked express negative attitudes to smoking of others and think that smoking should be banned in public places ( $P < 0.05$ ). The perception of smoking-attractiveness for both genders is significantly higher for current smokers than for those that never smoked ( $P < 0.05$ ). Inversely, for 80.8–81.7% of the studied population, smoking is not related to the perception of popularity. **CONCLUSIONS** These results show that the tobacco consumption among Bulgarian youth is among the highest in the world and suggest that youth smoking is an important target for public policy. The data imply also the imperative need for programs aimed at preventing or delaying the onset of tobacco use, as well as for programs to help school children to stop smoking. Prevention strategies should involve not only the students themselves but their families, schools and social environment as well.

Tobacco consumption is the one of the leading preventable causes of morbidity and premature mortality in the world. Even though the overall smoking prevalence trend in the European countries is relatively stable,<sup>1</sup> the data from recent studies carried out in Bulgaria show that the consumption of tobacco products has increased steadily over the past decade, from 33% in

1989 and 35.6% in 1996 to 40.5% in 2001. This rise is due mainly to a jump in the prevalence of smoking among women, and especially younger women (7–14 points according to different authors).<sup>2–4</sup>

As it was stated in the 1994 report of the Surgeon General, 71% of adult daily smokers started smoking as teenagers and had become regular smokers by 18 years

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Παγκόσμια Μελέτη για το Κάπνισμα  
στους Νέους – Βουλγαρία.  
Επίπτωση, γνώσεις και στάση  
απέναντι στο κάπνισμα

*Περίληψη στο τέλος του άρθρου*

### Key words

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of age,<sup>5</sup> which is why tobacco use is often referred to as a “pediatric disease”.<sup>6</sup> Children and adolescents therefore should be the primary focus of a national strategy and specific programs for smoking prevention.

In spite of the numerous studies which have been conducted in the field of adolescent smoking prevalence in Bulgaria, the results obtained are not always valid and reliable due in a large part to methodological differences between the studies, lack of standardized questionnaires and statistical analysis procedures, and the use of non-representative samples. Also, they were developed as individual studies and not as part of a comprehensive surveillance system.<sup>7</sup> For these reasons it has been difficult to observe the trend of adolescent tobacco use in Bulgaria. The Global Youth Tobacco Survey (GYTS)-Bulgaria is part of an international surveillance project initiated by the World Health Organization/Tobacco Free Initiative, Office on Smoking and Health at the US Centres for Disease Control and Prevention (OSH/CDC) and other partners. GYTS has been designed to track tobacco consumption among youth in countries across the world, using a common methodology and protocol for data collection, which facilitates and permits evaluation, monitoring and data comparison across countries.<sup>8</sup>

This paper presents a fragment of GYTS-Bulgaria, the objective of which is to assess the active and passive smoking patterns of Bulgarian adolescents, as well as their knowledge, attitudes and beliefs about tobacco use.

## MATERIAL AND METHOD

GYTS-Bulgaria is a cross-sectional self-administered, school-based survey of a nationally representative sample of students from the 7th, 8th and 9th grades. The research has been performed in keeping with the Declaration of Helsinki (1975).

A two-stage cluster sample design was used.<sup>8</sup> The first stage of the sampling process consisted of selection of schools containing these grades, with the probability proportional to the school enrolment size. Fifty schools were selected covering the whole Bulgarian territory. The second sampling stage was a systematic equal probability sample of classes from the 50 schools selected (with a random start provided by the OSH/CDC). All 7th, 8th and 9th grade classes in each participating school were included in the sampling frame. All pupils in these classes were eligible to participate in the survey. The survey was performed in April–May 2002. The school response rate was 100% and the student response rate 91%, with 2,167 students (1,008 males and 1,136 females) completing the survey. The age distribution of the sample is 13 years old: 572, 14 years old: 678, 15 years old: 545 and 16 years old: 360 pupils.

The Bulgarian version of the GYTS multiple-choice questionnaire is composed of 56 core questions<sup>9</sup> and 4 supplemental questions covering various aspects of tobacco use. In this study only the questions focussing on prevalence of tobacco use, age of starting smoking, smoking cessation and addiction, environmental tobacco smoke (ETS) exposure, and knowledge, attitudes and beliefs in relation to smoking are considered.

The statistical analysis was conducted by OSH/CDC, using the program SUDAAN to compute the weighted prevalence estimates (%), 95% confidence intervals (95CI) and standard error (SE). Differences between prevalence estimates were considered statistically significant ( $P < 0.05$ ) if the 95CI did not overlap.<sup>8</sup>

## RESULTS

### Active smoking patterns

Results from the active smoking prevalence questions are presented in table 1 and show that 7 out of 10 students have experimented with tobacco (defined as “ever smoked cigarettes, even one or two puffs”), slight-

**Table 1.** Active cigarette smoking patterns (prevalence estimates  $\pm$  SE).

	Experimentation	Age of initiation	Current cigarette use	Regular smoking	Intensity of smoking	Never smoked, susceptible to initiate smoking
Total	69.1 ( $\pm$ 3.9)	16.9 ( $\pm$ 2.4)	37.4 ( $\pm$ 3.6)	17.8 ( $\pm$ 3.2)	43.0 ( $\pm$ 6.1)	30.5 ( $\pm$ 4.4)
Gender						
Boys	64.4 ( $\pm$ 5.9)	21.3 ( $\pm$ 3.5)	31.3 ( $\pm$ 6.2)	9.0 ( $\pm$ 3.3)	51.1 ( $\pm$ 8.1)	26.2 ( $\pm$ 4.9)
Girls	73.4 ( $\pm$ 4.3)	13.2 ( $\pm$ 3.3)	42.7 ( $\pm$ 4.6)	10.5 ( $\pm$ 2.4)	36.8 ( $\pm$ 6.1)	36.2 ( $\pm$ 6.6)
Age						
13 years	60.4 ( $\pm$ 6.6)	20.8 ( $\pm$ 4.7)	27.8 ( $\pm$ 6.4)	9.0 ( $\pm$ 3.3)	25.7 ( $\pm$ 10.2)	29.0 ( $\pm$ 7.3)
14 years	61.1 ( $\pm$ 6.3)	20.6 ( $\pm$ 5.1)	26.9 ( $\pm$ 5.2)	10.5 ( $\pm$ 2.4)	30.3 ( $\pm$ 6.8)	24.9 ( $\pm$ 5.1)
15 years	74.1 ( $\pm$ 4.1)	16.3 ( $\pm$ 4.6)	43.0 ( $\pm$ 5.6)	20.7 ( $\pm$ 5.2)	44.4 ( $\pm$ 8.0)	35.9 ( $\pm$ 8.2)
16 years	83.3 ( $\pm$ 4.7)	10.5 ( $\pm$ 3.2)	54.1 ( $\pm$ 7.9)	32.6 ( $\pm$ 8.9)	59.3 ( $\pm$ 11.1)	41.1 ( $\pm$ 11.9)

ly but not significantly more girls than boys ( $P>0.5$ ). Around 1/5 of the pupils had smoked their first cigarette before the age of 10 years. Smoking initiation before this age was reported by 1.5 times more boys than girls and twofold more 13 year-old than 16 year-old pupils ( $P<0.5$ ).

Current cigarette use (defined as “the percent of pupils who smoked cigarettes on one or more days during the past 30 days”) is reported by about 4 of 10 respondents. Half of them are regular smokers who “smoked cigarettes on more than 20 of the past 30 days”. The prevalence of current and regular smoking depend significantly on age, with the largest percentage in the group of 16 year-olds ( $P<0.05$ ). Significant gender and age related differences are found in terms of intensive smoking, defined as “percent of current smokers who smoke 6 and more cigarettes per day” ( $P<0.05$ ).

Almost one third of those who have never smoked indicate their susceptibility to start smoking (defined as “have never smoked, but might initiate smoking within the next year”). This percentage increases significantly in the 16 year-old group ( $P<0.5$ ).

Approximately two-thirds of current smokers expressed a desire to quit smoking and 96.6% of these had received some help to stop smoking. The majority tried to quit during the previous year, but were unsuccessful (tabl. 2). There is no statistically significant difference between boys and girls but 1.5 times more students aged 16 years than those aged 13 years want to quit ( $P<0.05$ ). Early signs of nicotine dependency (defined as “always have or feel like having a cigarette first thing in the morning”) are established in about 2 out of 10 current smokers, with the significantly greatest rate in the oldest age group (tabl. 2).

Passive smoking

With 75.5% of all the studied population living in families with one or both parents smokers, current smokers are significantly more likely than those that never smoked to be exposed to parental cigarette smoke in home ( $P<0.05$ ) (tabl. 3).

Similarly, ETS exposure in public places is significantly higher for current smokers compared to those that never smoked ( $P<0.05$ ). This pattern held for both boys and girls and for all age groups (tabl. 3).

Knowledge and attitudes and beliefs about smoking

Almost two-thirds of all the pupils (61.6%) had received some form of education in school about the con-

**Table 2.** Cessation and addiction (prevalence estimates  $\pm$  SE).

	Current smokers		
	Percent desire to stop	Percent tried to stop this year	Presenting early signs of nicotine addiction
Total	63.6 ( $\pm 4.8$ )	71.0 ( $\pm 4.0$ )	18.7 ( $\pm 4.0$ )
Gender			
Boys	62.1 ( $\pm 6.2$ )	66.4 ( $\pm 6.1$ )	20.3 ( $\pm 5.7$ )
Girls	64.7 ( $\pm 6.2$ )	75.1 ( $\pm 5.1$ )	17.4 ( $\pm 4.9$ )
Age			
13 years	43.8 ( $\pm 11.3$ )	57.1 ( $\pm 11.6$ )	13.2 ( $\pm 7.9$ )
14 years	64.7 ( $\pm 9.1$ )	69.3 ( $\pm 9.5$ )	13.4 ( $\pm 5.5$ )
15 years	64.8 ( $\pm 8.1$ )	72.5 ( $\pm 6.8$ )	18.9 ( $\pm 6.1$ )
16 years	70.1 ( $\pm 4.8$ )	76.3 ( $\pm 3.7$ )	25.2 ( $\pm 9.0$ )

**Table 3.** Passive smoke exposure (prevalence estimates  $\pm$  SE).

	Exposed to smoke from others in their home		Exposed to smoke from others in public places	
	Never smoked	Current smokers	Never smoked	Current smokers
Total	56.7 ( $\pm 3.6$ )	78.8 ( $\pm 3.9$ )	62.1 ( $\pm 3.4$ )	92.3 ( $\pm 2.4$ )
Gender				
Boys	53.0 ( $\pm 5.6$ )	80.4 ( $\pm 7.2$ )	61.2 ( $\pm 5.4$ )	94.1 ( $\pm 2.8$ )
Girls	61.4 ( $\pm 5.6$ )	77.6 ( $\pm 4.5$ )	63.3 ( $\pm 6.5$ )	91.4 ( $\pm 3.2$ )
Age				
13 years	52.2 ( $\pm 6.8$ )	82.9 ( $\pm 6.9$ )	55.1 ( $\pm 7.4$ )	86.9 ( $\pm 7.3$ )
14 years	60.3 ( $\pm 6.4$ )	81.1 ( $\pm 7.4$ )	61.1 ( $\pm 5.5$ )	89.6 ( $\pm 6.0$ )
15 years	51.9 ( $\pm 8.6$ )	74.5 ( $\pm 7.7$ )	61.8 ( $\pm 6.7$ )	92.6 ( $\pm 3.7$ )
16 years	61.2 ( $\pm 13.3$ )	80.8 ( $\pm 6.5$ )	81.8 ( $\pm 8.2$ )	97.2 ( $\pm 2.1$ )

sequences of smoking. The greatest proportion of the respondents, significantly more non-smokers than current smokers “definitely think that cigarette smoking is harmful to their health” (tabl. 4). Two-thirds of those who never smoked and over half of the current smokers know that smoke from others is harmful to them as well as smoking themselves.

The attitudes of adolescents towards banning smoking differ significantly in relation to their smoking behavior (tabl. 4). Over twice as many of those who had never smoked than current smokers accept that smoking should be banned in public places ( $P<0.05$ ).

Current smokers are significantly more likely than those who never smoked to think that boys and girls who smoke are more attractive than non-smokers ( $P<0.05$ ) (tabl. 5).

**Table 4.** Health effects knowledge and attitudes toward smoking bans (prevalence estimates  $\pm$  SE).

	Knowledge about the negative health effects of active smoking		Knowledge about the harmful effect of passive smoking		Percent who think smoking should be banned from public places	
	Never smoked	Current smokers	Never smoked	Current smokers	Never smoked	Current smokers
Total	82.9 ( $\pm$ 4.5)	67.6 ( $\pm$ 3.9)	67.3 ( $\pm$ 3.5)	54.0 ( $\pm$ 4.6)	83.6 ( $\pm$ 2.6)	31.7 ( $\pm$ 3.9)
Gender						
Boys	84.4 ( $\pm$ 4.6)	64.2 ( $\pm$ 7.7)	68.0 ( $\pm$ 4.1)	52.7 ( $\pm$ 7.4)	86.5 ( $\pm$ 3.4)	30.4 ( $\pm$ 7.2)
Girls	81.5 ( $\pm$ 7.1)	70.6 ( $\pm$ 4.6)	66.8 ( $\pm$ 7.2)	55.5 ( $\pm$ 6.0)	79.9 ( $\pm$ 4.3)	32.3 ( $\pm$ 4.9)
Age						
13 years	81.6 ( $\pm$ 7.7)	61.2 ( $\pm$ 10.4)	67.1 ( $\pm$ 7.5)	46.2 ( $\pm$ 9.2)	85.2 ( $\pm$ 5.3)	26.8 ( $\pm$ 7.9)
14 years	82.9 ( $\pm$ 7.3)	68.0 ( $\pm$ 6.2)	66.7 ( $\pm$ 6.0)	46.1 ( $\pm$ 6.1)	85.5 ( $\pm$ 3.1)	37.0 ( $\pm$ 7.1)
15 years	84.8 ( $\pm$ 7.4)	70.1 ( $\pm$ 5.2)	70.1 ( $\pm$ 7.4)	62.8 ( $\pm$ 7.0)	82.2 ( $\pm$ 8.0)	30.3 ( $\pm$ 6.2)
16 years	89.7 ( $\pm$ 8.1)	68.6 ( $\pm$ 6.4)	67.8 ( $\pm$ 8.1)	54.9 ( $\pm$ 5.9)	77.8 ( $\pm$ 11.5)	29.9 ( $\pm$ 9.8)

**Table 5.** Attitudes about smoking (prevalence estimates  $\pm$  SE).

	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 smoked	Current smokers	Never smoked	Current smokers	Never smoked	Current smokers	Never smoked	Current smokers
Total	21.3 ( $\pm$ 3.7)	16.5 ( $\pm$ 3.7)	17.5 ( $\pm$ 3.0)	17.8 ( $\pm$ 3.7)	7.9 ( $\pm$ 2.2)	15.7 ( $\pm$ 3.5)	5.9 ( $\pm$ 1.7)	14.6 ( $\pm$ 3.2)
Gender								
Boys	19.9 ( $\pm$ 4.4)	19.2 ( $\pm$ 7.0)	16.2 ( $\pm$ 4.0)	21.5 ( $\pm$ 5.7)	7.2 ( $\pm$ 3.2)	19.6 ( $\pm$ 4.9)	6.3 ( $\pm$ 2.4)	18.0 ( $\pm$ 4.1)
Girls	22.9 ( $\pm$ 5.7)	14.5 ( $\pm$ 4.2)	19.1 ( $\pm$ 4.6)	14.9 ( $\pm$ 4.5)	8.7 ( $\pm$ 3.2)	12.8 ( $\pm$ 4.2)	5.2 ( $\pm$ 3.2)	12.5 ( $\pm$ 4.1)
Age								
13 years	22.0 ( $\pm$ 5.7)	26.6 ( $\pm$ 7.6)	17.3 ( $\pm$ 6.2)	28.3 ( $\pm$ 9.3)	10.4 ( $\pm$ 5.4)	26.7 ( $\pm$ 7.3)	6.1 ( $\pm$ 4.1)	26.1 ( $\pm$ 8.7)
14 years	23.2 ( $\pm$ 5.2)	21.2 ( $\pm$ 5.5)	17.6 ( $\pm$ 4.4)	22.0 ( $\pm$ 8.1)	6.7 ( $\pm$ 3.5)	20.3 ( $\pm$ 6.8)	5.0 ( $\pm$ 2.9)	19.0 ( $\pm$ 6.9)
15 years	17.1 ( $\pm$ 7.1)	13.3 ( $\pm$ 4.8)	17.3 ( $\pm$ 8.0)	14.7 ( $\pm$ 5.3)	8.7 ( $\pm$ 5.1)	12.3 ( $\pm$ 5.4)	6.5 ( $\pm$ 4.4)	12.7 ( $\pm$ 4.7)
16 years	20.1 ( $\pm$ 12.1)	12.0 ( $\pm$ 6.8)	19.3 ( $\pm$ 11.1)	12.5 ( $\pm$ 6.6)	3.7 ( $\pm$ 7.1)	10.2 ( $\pm$ 4.3)	5.1 ( $\pm$ 7.0)	7.3 ( $\pm$ 3.6)

The highest rate in the category of those who associate attractiveness of boys and girls with smoking was in the 13–14 year-old current smokers ( $P < 0.05$ ). Slightly more of those who never smoked than current smokers believe that boys and girls who smoke are more popular (have more friends than non-smokers) (tbl. 5) and there was no statistical difference between the sexes, but in the current smokers group significantly more positive answers were given by the 13 year-olds than by their 16 year-old counterparts ( $P < 0.05$ ).

## DISCUSSION

Data from GYTS-Bulgaria reveal a high rate of smoking experimentation among the studied population of 13–16 year-olds. When comparing these results with those of the 75 sites previously surveyed, Bulgarian stu-

dents reflect one of the highest experimental smoking prevalences.<sup>8</sup> Evidence from available literature point on the fact that even experimental tobacco use in early adolescence significantly increases the risk of adult smoking.<sup>10</sup> The response to the survey question about the age at which the first cigarette was smoked reveals that almost the half of the students who completed the survey had experimented with tobacco before the age of 13 years (48.5%). What is more alarming is the finding that 21.3% of the boys report smoking their first cigarette before the age of 10 years and 7.5% before the age of 7 years. A significant gender difference is found in terms of the age of smoking initiation, with the average age for boys significantly lower than that for girls. These findings are consistent with the conclusions of previous Bulgarian tobacco prevalence studies of children and adults.<sup>2,3,7</sup> Early initiation of smoking found in this study is of particular concern because adolescents

who start smoking at a younger age are more likely to become regular smokers as adults and less likely to quit.<sup>5,10</sup> Thus, prevention of the onset of adolescent smoking should be one of the essential components of the efforts to reduce overall prevalence of smoking and its consequences in terms of smoking related morbidity and mortality.

Current cigarette use was reported by more than the half of the pupils who had ever tried a cigarette. The current smoking prevalence is slightly, though not statistically significantly, higher for girls than for boys. This is probably due to the greater receptivity to focused advertising and on the concerns of weight control, relevant for girls of this age (as the results also show that 55.7% of the girls think that smoking would help to lose weight). Given that Bulgarian adult males still are more likely than adult females to smoke,<sup>3,4</sup> the tendency in adolescent smoking, shown in this survey is an indicator of the potential growth of the tobacco epidemic among women. Current smoking depends on age – more than half of the pupils, aged 16 years are smokers. Comparing these data with the most recent population based ESPAD study, the prevalence of tobacco use shows a stable trend for Bulgarian 9th graders at the national level over the last 5 years – the proportion of current smokers was respectively 48.6% in our study and 49.8% in ESPAD.<sup>7</sup>

GYTS-Bulgaria, as previous studies of youth tobacco use conducted in this country,<sup>7</sup> found that the large majority of girl current smokers started smoking later and smoke fewer cigarettes than the boys – respectively smoked 15.5% of the girls and 24.5% of the boys more than 6 cigarettes daily. The number of cigarettes smoked during the last month is strongly age dependent as well – 7.6% of the pupils aged 13 versus 32.8% of those aged 16 years smoked more than 6 cigarettes daily. Overall, the intensity of smoking in Bulgaria is the highest of all the countries studied in the frame of GYTS.<sup>8</sup>

Almost two-thirds of current smokers (63.6%) reported a desire to stop smoking but the results indicate a high failure rate among this group (71.0%) when they attempted to quit smoking, even though 96.6% of them received smoking cessation counseling and help. There are reasons to believe that nicotine dependence can be a significant barrier to quitting among adolescent smokers, yet only 2 out of 10 pupils (18.7%) report withdrawal symptoms. No Bulgarian data are available in the field of adolescent nicotine addiction. A recent Canadian survey points to the fact that symptoms of nicotine dependence exist even in the early stages of smoking on-

set, even before daily use, with approximately 20% of adolescents reporting symptoms within 1 month of initiating monthly smoking.<sup>11</sup> In spite of the fact that the pupils had received some information in school and were aware of the dangers of smoking, the majority of survey respondents (85.3%) underestimated the addictive nature of smoking. A health education approach should be focused not only on the long-term health consequences, but additionally young people should be given the knowledge, skills and tools to address the problem of addiction as well.

Exposure to ETS is extremely high for the survey sample. Current smokers are reportedly significantly more often exposed to ETS at home and in public places than those who never smoked (78.8% versus 56.7% and 62.1% versus 93.3%, respectively). Numerous studies provided evidence of the strong negative health consequences of passive smoking in children and adolescents.<sup>12</sup> In addition, parental smoking is an important factor influencing children's smoking behaviour and provides a negative role model within the home.<sup>7,10</sup> These issues need to be seriously considered when designing preventive measures.

There is inconsistency between the stated good knowledge about passive smoking health risks and the attitudes students manifest toward smoking bans, especially in the group of current smokers. Despite the generally well-known harmful effects of ETS (69.7% of all respondents), and because fewer adolescent-smokers smoke at home (11.8%), public places are preferred by current smokers for smoking without being disturbed. This is in line with the finding that the percentage of current smokers who think that smoking should be banned in public places is 2.5 times lower than that of those who never smoked.

The adolescent social environment exerts considerable influence on attitudes and beliefs about tobacco use. The perception of smoking/attractiveness for both genders is significantly higher for current smokers than for those who never smoked. About 4 times more current smokers than non-smokers (31.2% versus 7.6%), mainly girls (33.0%) and 13 year-olds (40.7%) state that a smoking man looks “intelligent” and “macho”. To a lesser extent students qualify a smoking woman as “intelligent” and “sophisticated” – more current smokers (23.7%), than non-smokers (4.7%). Girl current smokers (26.1%) and younger pupils (32.6%) are more likely to support this opinion. Thus, the results reflect the view that in Bulgaria, smoking is no longer considered a male at-

tribute and obviously illustrate the changing smoking patterns in the general adult population. On the other hand, it has been widely accepted that the more positive attitude toward smoking and smokers tend to be related to an increased likelihood of smoking.<sup>10</sup>

Inversely, for the majority of the population studied (80.8–81.7%), smoking is not related to the perception of popularity (e.g. having more friends). Equal proportions of current and non-smokers (17.8% and 17.5%, respectively) believe that girls who smoke have more friends. Very unexpected is the finding that those who never smoked (21.3%) are slightly more likely than current smokers (16.5%) to state that boys who smoke have more friends. Thus the perception of the social benefits of smoking may partly explain the high proportion (30.5%) of those who never smoked who believe that they are susceptible to starting smoking. This observation is another issue of serious public health concern.

In conclusion:

1. The results from YTS-Bulgaria provide new and unique information on tobacco and youth in Bulgaria. They contribute to reducing the gap in information regarding active and passive smoking prevalence, behaviour and attitudes, as well as other factors associated with tobacco use among youth.
2. The results obtained demonstrate that smoking in Bulgaria is largely a pediatric problem and a priority public health issue. Tobacco consumption among Bulgarian youth is the highest in the world and this suggests that youth smoking is an important target for public policy. The different smoking patterns in

boys and girls through adolescence provide an impetus for developing more effective gender- and age-specific interventions.

3. The results underline the imperative need for early-onset programs aimed at preventing or delaying initiation of tobacco use, as well as the need to develop a school-based smoking cessation curriculum for adolescents. Therapeutic interventions (behavioural and pharmacological smoking cessation) may also have a place in the treatment of adolescent tobacco dependence. Smoking cessation programs should be applied together with other interventions that are accepted as effective tobacco control methods (cigarette and tobacco product pricing, regulatory approaches, smoking bans, health education). Encouraging young smokers to quit in addition to preventing the great majority of highly susceptible non-smokers from starting would be an important first step.
4. Prevention strategies should involve not only the students themselves but their home, school and social environments as well.

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#### ΠΕΡΙΛΗΨΗ

##### Παγκόσμια Μελέτη για το Κάπνισμα στους Νέους – Βουλγαρία Επίπτωση, γνώσεις και στάση απέναντι στο κάπνισμα

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Η Παγκόσμια Μελέτη για το Κάπνισμα στους Νέους (Global Youth Tobacco Survey, GYTS) διεξήχθη στη Βουλγαρία το 2002 ως μέρος ενός διεθνούς Προγράμματος του World Health Organization/Tobacco Free Initiative, των US Centers for Disease Control και άλλων οργανισμών. Η GYTS σχεδιάστηκε για να καταγράψει την κατανάλωση του καπνού μεταξύ των νέων σε διάφορες χώρες του κόσμου, χρησιμοποιώντας κοινή προτυπωμένη μεθοδολογία και πρωτόκολλα συλλογής δεδομένων, γεγονός που διευκόλυνε την αξιολόγηση, την παρακολούθηση και τη σύγκριση των δεδομένων μεταξύ των διαφόρων χωρών. **ΣΚΟΠΟΣ** της μελέτης ήταν η εκτίμηση των προτύπων ενεργητικού και παθητικού καπνίσματος μεταξύ των βουλγάρων εφήβων, καθώς και των γνώσεων, της στάσης και της αντίληψής τους σχετικά με τη χρήση του καπνού, μέσα στο

πλαίσιο της μελέτης GYTS-Βουλγαρία. **ΥΛΙΚΟ–ΜΕΘΟΔΟΣ** Η μελέτη GYTS-Βουλγαρία ήταν μια συγχρονική μελέτη αυτοσυμπληρούμενου ερωτηματολογίου, σε σχολικό πληθυσμό που συμπεριέλαβε αντιπροσωπευτικό δείγμα του σχολικού πληθυσμού της χώρας 2.167 μαθητών (1.008 αγόρια και 1.136 κορίτσια) της 7ης, 8ης και 9ης τάξεως, ηλικίας 13–16 ετών. Χρησιμοποιήθηκε η βουλγαρική έκδοση του ερωτηματολογίου πολλαπλών επιλογών της GYTS, η οποία αποτελείται από 56 βασικές και 4 συμπληρωματικές ερωτήσεις. **ΑΠΟΤΕΛΕΣΜΑΤΑ** Η ανάλυση των ερωτηματολογίων έδειξε ότι 69,1% των μαθητών είχαν καπνίσει τσιγάρο σε κάποια χρονική στιγμή, ενώ το 37,4% αυτών ήταν ενεργοί καπνιστές κατά τη στιγμή της μελέτης. Τα 2/3 από αυτούς εκδήλωναν την επιθυμία να διακόψουν το κάπνισμα και το 71% είχαν προσπαθήσει ανεπιτυχώς να σταματήσουν το κάπνισμα κατά τη διάρκεια του περασμένου έτους. Το μεγαλύτερο μέρος του δείγματος των μαθητών είχε παθητική έκθεση στο κάπνισμα, στο σπίτι και στους δημόσιους χώρους. Η έκθεση αυτή αναφερόταν σημαντικά μεγαλύτερη μεταξύ των ενεργών καπνιστών, σε σύγκριση με αυτούς που δεν είχαν καπνίσει ποτέ ( $P<0,05$ ). Παρότι οι μαθητές γνώριζαν τις βλαπτικές συνέπειες που έχει το κάπνισμα στην υγεία, υποδιπλάσιο ποσοστό των ενεργών καπνιστών, σε σύγκριση με εκείνους που δεν είχαν καπνίσει ποτέ, είχαν αρνητική στάση απέναντι στο κάπνισμα των άλλων και πίστευαν ότι το κάπνισμα πρέπει να απαγορεύεται στους δημόσιους χώρους ( $P<0,05$ ). Η αντίληψη της ελκυστικότητας του καπνίσματος και στα δύο φύλα ήταν σημαντικά μεγαλύτερη μεταξύ των ενεργών καπνιστών, σε σύγκριση με εκείνους που δεν είχαν καπνίσει ποτέ ( $P<0,05$ ). Αντίθετα, στο 80,8–81,7% του πληθυσμού της μελέτης, το κάπνισμα δεν σχετιζόταν με κάποια αντίληψη δημοτικότητας. **ΣΥΜΠΕΡΑΣΜΑΤΑ** Τα αποτελέσματα της μελέτης έδειξαν ότι η κατανάλωση καπνού, μεταξύ των νέων της Βουλγαρίας, είναι από τις μεγαλύτερες που παρατηρούνται στον κόσμο, γεγονός που την καθιστά σημαντικό στόχο της πολιτικής Δημόσιας Υγείας. Επίσης, φάνηκε ότι υπάρχει επιτακτική ανάγκη εφαρμογής προγραμμάτων πρόληψης ή καθυστέρησης της έναρξης του καπνίσματος, καθώς και προγραμμάτων υποστήριξης των μαθητών να διακόψουν το κάπνισμα. Οι στρατηγικές πρόληψης πρέπει να απευθύνονται, όχι μόνο στους ίδιους τους μαθητές, αλλά και στις οικογένειές τους, στα σχολεία και στο κοινωνικό περιβάλλον τους.

**Λέξεις ευρετηρίου:** Γνώσεις για το κάπνισμα, Επίπτωση καπνίσματος, Έφηβοι, Κάπνισμα, Στάση απέναντι στο κάπνισμα

## References

1. The European Report on Tobacco Control Policy, Copenhagen, WHO Regional Office for Europe, 2002, Document EUR/01/5020906/8
2. BAEV S. Health status of population. *Statistics* 1997, 3:54–56 (in Bulgarian)
3. MERJANOV CH. A compromising leadership. Sv. Kl. Ohridski (eds), Sofia, 1995:574 (in Bulgarian)
4. NATIONAL STATISTICAL INSTITUTE. Census of Population Survey, Vol 6, Sample Surveys. Book 4, Health Status of the Population, 2001, 65 (in Bulgarian)
5. US DEPARTMENT OF HEALTH AND HUMAN SERVICES. Preventing tobacco use among young people. A report of the Surgeon General, 1994. Atlanta, Georgia, Public Health Service Centres for Disease Control and Prevention. Office on Smoking and Health, 1994 (US Government Printing Office No 5/N 017-001-00491-0)
6. PROKHOROV AV, HUDMON KS, STANCIC N. Adolescent smoking: Epidemiology and approaches for achieving cessation. *Paediatr Drugs* 2003, 5:1–10
7. MANOLOVA A, SABEVA S, KOTAROV G. Youth tobacco use in Bulgaria. 3rd European Conference on Tobacco or Health. Closing the Gaps-Solidarity for Health. 2002, Warsaw, Poland. B.7 Youth smoking: 45
8. THE GLOBAL YOUTH TOBACCO SURVEY COLLABORATIVE GROUP. Tobacco use among youth: A cross-country comparison. *Tobacco Control* 2002, 11:252–270
9. CORE 2001 GYTS QUESTIONNAIRE. Available at: [http://www.cdc.gov/tobacco/global/GYTS/questionnaire/GYTS\\_samplequestionnaires.htm](http://www.cdc.gov/tobacco/global/GYTS/questionnaire/GYTS_samplequestionnaires.htm)
10. TYAS SL, PEDERSON LL. Psychosocial factors related to adolescent smoking: A critical review of the literature. *Tobacco Control* 1998, 7:409–420
11. DiFRANZA JR, SAVAGEAU JA, FLETCHER K, OCKENE JK, RIGOTTI NA, McNEILL AD ET AL. Measuring the loss of autonomy over nicotine use in adolescents: The DANDY (Development and Assessment of Nicotine Dependence in Youths) Study. *Arch Pediatr Adolesc Med* 2002, 156:397–403
12. JAAKKOLA JJ, JAAKKOLA MS. Effects of environmental tobacco smoke on the respiratory health of children. *Scand J Work Environ Health* 2002, 28(Suppl 2):71–83

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