

Introduction

Tobacco use is one of the chief preventable causes of death in the world. Smoking already kills one in 10 adults worldwide. By 2030, the proportion may be one in six or 10 million deaths per year, more than any other single cause (1). About 1 billion tobacco-related deaths are projected for the 21st Century (2). About 70 % of those deaths will occur in developing countries and countries in transition, Serbia being one of these. Most people begin using tobacco before the age of 18. Over 30% of children smoked their first whole cigarette before the age of 10. One-half of young people who continue to smoke will die from smoking-related causes (3).

The European region, as defined by the World Health Organization (WHO), with only 15% of the world's population, faces nearly one third of the worldwide burden of tobacco-related diseases. While worldwide smoking prevalence has fallen from 45% to 30% over the past 30 years and has currently stabilized, in the European Region it remains at a level that is devastating for public health and for the health and well being of future generations. The negative trends in smoking prevalence among young people, women and lower socioeconomic groups, as well as the gap in tobacco control policies between Member States, are of particular concern. A lack of political will and the absence and ineffectiveness of tobacco control policies characterize a large part of the European region (4).

Health consequences of smoking

Before the advent of widespread smoking in the early 20th century, lung cancer was rare. The lung cancer epidemic that developed in the 20th century paralleled the increase in cigarette smoking, with about a 20-year lag, with twenty years being the latency period for lung cancer (5). If current patterns of smoking continue, about 500 million of the world's population alive today will eventually be killed by smoking, half of them in productive middle age (35 - 69), losing 20 to 25 years of life (1,2,6).

Smoking is an important risk factor for cardiovascular diseases (CVD) in middle age (7). The risk of lung cancer in non-smokers exposed to passive smoking is increased by between 20% and 30 %, and the excess risk of heart disease is 23% (3). All the toxins from cigarette smoke that reach a pregnant woman's blood go to her developing foetus and cause damage. Carbon monoxide prevents the foetus from getting enough oxygen. The carcinogens in cigarette smoke also damage the genetic material-DNA in placental and foetal cells. As a result, smoking (and exposure to passive smoke) by a pregnant woman increases the risk of birth defects in her baby and also increases the probability of spontaneous abortion or stillbirth by about one-third. Women who smoke are 3 to 4 times more likely than non-smokers to take more than one year to become pregnant, three times as likely to be infertile, and also have earlier menopause. Tobacco also increases the chance of abnormalities in the male's sperm and reduces its density and speed. It also causes male impotence (5).

Environmental tobacco smoke has large health impact. In addition, an estimated 3,000 non-smoking Americans die each year from lung cancer, and up to 300,000 children have respiratory tract infections due to increased susceptibility after exposure to second hand smoke (8). The risk of death from coronary heart disease increases by up to 30% among those exposed to environmental tobacco smoke at home or a work (9).

Tobacco use in Serbia and health effects

The survey “Health Status, Health Needs and Health Care Use in Serbia”, carried out by the Public Health Institute of the Republic of Serbia, in co-operation with the republic’s municipal and regional Institutes of Public Health in the year 2000, showed that among the adult population almost every second man (47.5%) and every third woman (33.1%) smokes (10). The prevalence of female current smokers in Serbia is the highest in Europe (3, 11, 12).

The survey also found that over one in four (44.2%) women between the ages of 35 and 44 years, smokes. For women of childbearing age, just less than one-half (49.7%) smoke. The majority of female smokers is within the lower socioeconomic groups. Among divorced women, over half (51.3%) smoke; among unemployed women 47.6% smoke, and for those with a High school education, the prevalence of smoking is 44.2%. A greater proportion of females living in urban areas smoke (38.5%) as compared to the female population living in rural areas (26.0%). The survey also found that one third of pregnant women smoke (13).

The results of another smoking prevalence survey, this one conducted in September 2002, showed that the 44.0% of the adult population are smokers, while 56.1% of respondents reported having smoked at least 100 cigarettes in their lifetime. The prevalence of current smokers is somewhat lower (43.4%) in urban areas than other areas (46.1%). Regionally, smoking prevalence is lowest in Belgrade (39.5%) and highest in Central Serbia (47.6%). Smoking prevalence is higher among men (52.9%) than among women (36.9%). The majority (56.2%) started to smoke at a young age. They had their first cigarette at 19 years of age, although a significant percent (14.0%) started at age of 14 years (14).

A school-based smoking prevalence study carried out in the year 2000 in Serbia indicates that almost one-half of students (49.1%) are current smokers (15). The prevalence among school children aged 15 years of age was 27.0% (16).

CVD and carcinomas are two main causes of premature mortality in Serbia as in much of the rest of Eastern and Central Europe. A recent burden of disease study in Serbia calculated the attributable mortality burden of tobacco use for cancers of oral cavity, oesophagus, pancreas, bladder and cervix, ischemic heart disease, cerebral vascular diseases (stroke) and chronic obstructive pulmonary disease (1, 10). A total of 106,000 deaths were recorded in the Republic of Serbia in 1999. Smoking-attributable mortality (SAM) accounted for 10% of all deaths (14).

In Serbia, tobacco cited as the risk factor associated with the greatest number of health problems and is responsible for 13.7% of the total years of life lost (YLL) due to mortality (18% for males; 7.9% for females) (10). The study also indicated that burden is greatest in lower ages and declines with an increase in age.

Most of the tobacco-related morbidity and mortality is due to lung cancer, ischemic heart disease, stroke and chronic obstructive pulmonary disease (COPD). Smoking cigarettes is responsible for 62% (age group 80 years and over) to 90.6% (age group 35 to 39 years) of total YLL for males and 18.1% (age group 80 years and over) to 80.2% (age group of 35 to 39 years) of total YLL for females who died from lung cancer. For COPD the proportion of total YLL attributable to tobacco for males is 54.2% for the age group of 80 years and over, and 87.4% for the age group of 35 to 39 years; for females the proportion of total YLL attributable to tobacco is 17.2% for the age group of 80 years and over, and 79.2% for the age group of 35 to 39 years.

The greatest proportion of tobacco burden is associated with lung cancer: more than 80% of total disability-adjusted life years (DALY) attributable to lung cancer for males, and 90% for females. The values for younger age groups for females were greater than those for males. For other two selected conditions, ischemic heart disease and stroke, the attributed burden due to tobacco for males was two times higher than for females. The number of YLLs for those conditions was much higher for males, than for females and also connected to younger age group than for females, especially for ischemic heart disease (10).

Legislation

In the Republic of Serbia there are three laws that regulate the manufacturing, advertising and marketing, and place of consumption of tobacco products. The first, a law passed in 1991 about the sale of food products, includes regulations concerning tobacco advertising. According to Article 17, the advertising of tobacco products is banned if the slogan used includes the words “cigarette”, “tobacco” or “smoking”, or their synonyms. The law states that “the advertising of tobacco and tobacco products is restricted in the press, radio and television, movies, billboards, stickers, in public places, in books, magazines, calendars and clothes...”(11). In practice, however, there are ways of circumventing this regulation. For example, there are several TV ads and billboard campaigns that employ indirect advertising techniques: Fast cigarettes (“Fast-internet”, “Buy it in the kiosk but it’s not news”), Lucky Strike (“I choose”); Davidoff (“The more you now”); President (“Taste freedom”); West (“The power Brand”, “Test it”); and Gauloise (“Liberty”). Cultural and sporting events continue to be sponsored by tobacco companies (Lucky Strike Hot Summer Cool Jazz Festival; Lucky Strike Urban Experience, Winston as sponsor of the Yugoslav National Basketball League as Winston YUBA League, etc.). In the last three years advertising has become more aggressive, engaging several youth celebrities in promotional campaigns.

The second law (first enacted in 1988, revised in 1991, and revised for a second time in 1995) regulates smoking in public places. Under this legislation, smoking is banned in all public places (schools, health institutions, official buildings). This law is however impossible to enforce in practice and is not obeyed. There is probably not a single person who was charged for not obeying the law.

In March 2003 a new Law on Tobacco Production and Sale was passed by the Republic of Serbia’s Parliament. It brought several major changes to the manner in which tobacco products are manufactured and sold. It includes a provision for banning the sale of tobacco products to persons below 18 years of age; cigarettes package and advertising must also carry a health warning. Stickers showing a red circle and a diagonal line across a package of cigarettes have been posted in all kiosks, to remind consumers and retailers about the age limit for the sale of tobacco. But the regulation remains largely ignored.

Smoking has been banned in buses for almost 30 years. The national airline (JAT) banned smoking on all flights starting in 2002. Nonetheless, there is no smoking ban in airports, train stations or bus stations.

Market for tobacco products

The cigarette market in the Republic of Serbia is supplied by a wide range of domestic and foreign brands. Almost 120 foreign brands are available in Serbia. Some are from

neighbouring countries (Macedonia, Bosnia & Herzegovina, Croatia) while others are manufactured by the major multinational companies (BAT, Reemstma, JTI, European Tobacco). Prior to year 2002, any legal entity could obtain a licence to import cigarettes. The new law requires a special permit for the production and importation of cigarettes (14).

There are two major Serbian cigarette producers in the republic. DIN is Serbia's leading cigarette producer, accounting for 54% of the local market. In 2002, the company sold 11.3 billion cigarettes. Set up in 1930, DIN employs 2,493 workers. It markets 12 cigarette brands, including Best and Classic. In late 2000, DIN launched a €30 million investment programme, expected to allow the company to boost annual production capacity from 12 billion to 14.5 billion cigarettes.

Serbia's second-largest cigarette maker DIV sold 1.6 billion cigarettes in 2002. The company was founded in 1885 and has the capacity to produce some 2.5 billion of cigarettes per year. It employs 568 workers. In 2001, DIV held a nine percent market share in Serbia with its 13 cigarette brands including Morava, Formula and Vikend (17).

In September 2003, the Serbian Privatisation Agency and Phillip Morris signed a €518 million strategic partnership agreement between the Serbian tobacco company Tobacco Industry Nis (DIN) and Philip Morris (18). Philip Morris Holland B.V., a unit of Altria Group Inc., is the world's largest cigarette producer. Its leading cigarette brands include Marlboro, L&M, Parliament and Eve. In 2002, Altria Group reported \$80.4 billion in net revenues, with cigarette sales accounting for \$47 billion of the sum.

The Government also reached an agreement with British American Tobacco for the sale of DIV. British American Tobacco Serbia is part of British American Tobacco PLC. BAT PLC manages 84 cigarette plants in 64 countries worldwide, with annual cigarette sales of 777 billion units. In 2002, the group posted net revenues of €15.1 billion. Its top cigarette brands include Lucky Strike, Pall Mall, Dunhill, Rothmans, Lord and Kent.

Smuggling

The last decade, during the previous regime, illegal sales of cigarettes become a source of profits for individuals who were closely tied to the regime. The illegal sale of smuggled cigarettes in retail stores and on the streets was not prosecuted. During 2000, the new government began to address illegal imports. In that year, approximately 400,000 packs of cigarettes were seized during police/customs raids. The volume of seized contraband doubled during the following year (14).

The Economics of Tobacco

The tobacco industry uses economic arguments to persuade governments, the media and general population that smoking benefits the economy. It claims that if tobacco control measures are introduced, tax revenues will fall, jobs will be lost and there will be great hardship to the economy, but they never mention the economics costs which tobacco inflicts upon every country. For example in the USA (1999 year) smoking accounted for over 6% of total health care expenses (3).

A study on the economics of tobacco use in Serbia supported by the World Bank estimated that 2.4% of all costs paid by the Health Insurance Fund for primary health care services, hospital episodes and drugs is attributable to cigarette smoking (14). However, the study authors caution that the costs are very much undervalued. The calculation did not take into consideration out-of-pocket expenses for health services and drugs, nor the economic losses due to sick leave related to tobacco-related illness and the decline in economic productivity. The impact of smoking on other diseases, such as low birth weight and premature births, respiratory diseases (emphysema, bronchitis, TB) was also excluded. The costs do not include all costs attributable to long-term and home care for people suffering from smoking-related diseases, and the lost wages and productivity for both ill persons and the provider of care. Nor is there any value assigned to pain and suffering due to disability and premature death. The actual costs to the health care system and the society could be 10 times higher.

Policy and Interventions

Over the past few years there have been several campaigns about smoking prevention and cessation, based upon previous local and similar international campaigns and funded by international, national and local organizations. These have included: the international campaign QUIT & WIN, International Week of Resistance Campaign, Global Partnership for Tobacco Control Program, the 11th WCTOH Seed Grant “For clean air” Project (19, 20), Celebrate World and National No Tobacco Days, Campaign Tobacco free sports with the slogan “Find your challenge, do not hide behind a cigarette”, the two national campaigns against smoking “Extinguish cigarette-extend life” and “More vitamins, less nicotine” (21).

A school-based health education program focusing on the theme of tobacco has been conducted from many years in kindergartens and elementary schools in Serbia.

But these campaigns and actions may be of limited benefit. They are not grounded in any strategy for tobacco control and smoking prevention and cessation; and, they are campaign-focused. Their format and content are not based on lessons learned from previous campaigns nor on evidence from evaluations and assessments of their effectiveness or results attained. Therefore, there has been a lot of effort expended, but no demonstration of the impact of all these actions.

In March 2003, the Ministry of Health of Republic of Serbia established the National Committee for Smoking Prevention. Its mandate to prepare a program for tobacco control and to co-ordinate all activities directed to smoking prevention and smoking cessation. The Commission has also been delegated the responsibility of developing a strategic plan for tobacco control in the Republic of Serbia. The strategy is presently in draft form, and is expected to be presented to the Ministry of Health in early 2004.

The Global Youth Tobacco Survey

In 1998 the World Health Organization, in collaboration with the US Centers for Disease Control and Prevention (CDC) and UNICEF, initiated an international project called the Global Youth Tobacco Survey (GYTS), designed to enhance knowledge about smoking behaviour, knowledge and attitudes among young people. To date the survey has been completed about 150 countries including ten in the WHO European Region.

The GYTS provides a mechanism by which countries can monitor tobacco use among 13-15 year old young people and guide the implementation and evaluation of tobacco prevention and control programs. It aims to understand and assess students' attitudes, knowledge and behaviours related to tobacco use and its health impact, including cessation, environmental tobacco smoke, media and advertising, minors' access and school curriculum. The GYTS addresses the following issues:

- Determines the level of tobacco use
- Estimates the age of initiation of cigarette use
- Estimates levels of susceptibility to become cigarette smokers
- Exposure to tobacco advertising
- Identifies key intervening variables, such as attitudes and beliefs on behavioural norms with regard to tobacco use among young people which can be used in prevention programs, and
- Assesses the extent to which smoking prevention programs are reaching school-based populations and establish the subjective opinions of those populations regarding such interventions.

In early 2003, Serbia implemented the GYTS. This marked the first time that an internationally accepted research methodology was used to measure prevalence of tobacco use among youth in Serbia, and to examine as well youth attitudes and perceptions about tobacco and the factors that affect the decision to smoke.

Methods

Sampling

The GYTS is a school-based survey, employing a two-stage cluster sample design to produce a nationally representative sample of students in the 7th and 8th grades of elementary school, and the 1st year of secondary school. The target group is students aged between 13 and 15 years.

The first-stage sampling frame consisted of all schools (primary and secondary) containing any of 7th, 8th grades and the 1st grade of secondary school. Schools were selected with probability proportional to school enrolment size. Sixty schools were selected out of a total of 1616 schools.

The second sampling stage consisted of a systematic equal probability sampling, with a random start, of classes from each school that participated in the survey. All classes in the selected school were included in the sampling frame. All students in the selected classes were eligible to participate in the survey.

A weighting factor was applied to each student record to adjust for non-response and for the varying probabilities of selection. For the 2003 Serbia GYTS, 4,377 questionnaires were completed in 60 schools. The school response rate was 100%, and the student response rate was 89.8%. The overall response rate was 89.8%.

Questionnaire

The questionnaire consists of two main parts: 88 Core questions (developed especially for the European region) and 4 optional questions on the possible background factors associated with tobacco use. The questionnaire was translated from English into Serbian. The questionnaire contained 92 multiple-choice questions. The core questions focused on seven topics:

- Smoking prevalence
- Minor's access
- Cessation
- Knowledge and attitudes
- Tobacco-related school-curriculum
- Media and advertising, and
- Environmental tobacco smoke.

Data Collection

Prior to data collection, the principals of all selected schools received a letter requesting their permission to conduct the survey. The information package sent to the schools included a letter of support for the GYTS from the Ministry of Health and the Ministry of Education, a short description on the survey's purposes and procedures, emphasizing the assurance of privacy and information letter about the GYTS for the parents.

Survey procedures were designed to protect the students' privacy by allowing for anonymous and voluntary participation. The self-administered questionnaire was administered in the classroom. Students recorded their responses directly on an answer sheet using a special pencil, which could be scanned by a computer.

The Institute of Public Health of Belgrade and Institute of Public Health of Serbia coordinated data collection. The survey was implemented by a research coordinating team endorsed by the National Committee for Smoking Prevention of the Republic of Serbia. This two-person team carried out the logistics planning and training of the field surveyors. Additional logistical support was provided through the Canadian Public Health Association's Belgrade office, which also funded the GYTS in Serbia.

There were 90 interviewers, employees of the municipal and regional Institutes of Public Health. The survey was supervised by 16 district coordinators, from the Institutes of Public Health (Beograd, Cuprija, Kragujevac, Kraljevo, Leskovac, Nis, Novi Sad, Pancevo, Pozarevac, Sabac, Sombor, Sremska Mitrovica, Uzice, Vranje, Zajecar, Zrenjanin) and the Institute of Oncology.

Data collection was carried out in April 2003. All survey answer sheets and school and classroom header sheets were sent to the Institute of Public Health of Belgrade for validation. After carrying out a quality control of the scan able answer sheets as well as verification and completion of other documentation, the survey materials were packed and sent to the CDC. Data scanning and data-file compilation were carried out at the CDC.

Statistical Analysis

The EPI Info 2000 statistical software package was used for the complex sampling design and weighting factors in the data set, to calculate standard errors and prevalence estimates. Percentage prevalence is described in this report giving the 95% confidence intervals (CI) for the estimates.