

<sup>1</sup> Institute of Social Medicine, Medical School of the University of Belgrade, Serbia and Montenegro

<sup>2</sup> Institute of Gynecology and Obstetrics, Clinical Center of Serbia

<sup>3</sup> Institute of Statistics and Health Research, Medical School of the University of Belgrade, Serbia and Montenegro

## Adolescent substance abuse, the importance of family, school and peers: data from the health behaviour in school children

Submitted: 8 March 2004

Accepted: 3 December 2004

### Summary

**Objectives:** To determine the possible factors associated with adolescent substance use in a country having recently experienced war.

**Methods:** The survey applied the World Health Organization research protocol for cross-national survey – HBSC: a cross-sectional study among 1540 15-year old adolescents in Belgrade was conducted. The research instrument was a self-administered questionnaire.

**Results:** Substance abuse is associated with living in a single parent family, living in a family without support, having a poor commitment to school, displaying aggressive behaviour, and spending a lot of time with friends.

**Conclusions:** Factors associated with adolescent substance use include social background, family, school and peers. Such associations could help to focus on better measures to eliminate or reduce the risk of substance use.

**Keywords:** Adolescence – Substance use – Family – School – Peers.

The past 10 years of political, social and cultural transition combined with the devastating impact of conflict have resulted in a deterioration of all aspects of Serbian life. This has increased the vulnerability of adolescents to risk behaviour. The period of adolescence after 1990, coincided with a very difficult period with regard to political changes. Citizens lived surrounded by war, bombarded with incessant and aggressive war propaganda with constant images of human suffering and continuous exposure to violence and crime. Families were torn apart by problems of economic survival. With teachers who were in peril themselves, adolescents

were often left with minimal support, no role models, and only vague values for what was right and wrong. Many of structural amenities that a community usually provides for young people, family and school, were either denied or compromised. The basic institutions of society, family and school lost their traditional importance. It is possible that great numbers of adolescents in Serbia developed one or more risk behaviours as a consequence of the above mentioned factors (Zivkovic 1995; Wong 2002).

The aim of our study was to focus on a possible association of family, peer and school factors with adolescent substance use. Family factors are especially important in shaping early development which in turn, may serve to protect against the early onset of substance use. School, because it is an important setting in which both the physical and psychosocial development of the adolescent occur, plays a crucial role as a place to monitor current health-related behaviours. Finally, the adolescents' peer group is an important factor as the adolescent finds support and encouragement within such a group.

Indeed, adolescence is a critical age for the development of coping behaviours and responses. This period is characterized by rapid physical, psychological, sociocultural and cognitive changes, and is unfortunately fraught with many threats to health. Much of the adverse health consequences experienced by adolescents are, to a large extent, the result of "risk behaviours". The initiation of risky behaviour is occurring at a progressively younger age (Office of Disease Prevention and Health Promotion 1993). As a result of these trends, many adolescents may be vulnerable to experiment and initiate risk behaviours that have deleterious consequences during adolescence and later (DiClemente et al. 1996).

Risk behaviours and their associated adverse health outcomes represent a serious threat to life time health. Substance

use is risk taking behaviour, it is also addictable, may be associated with other problems, and therefore poses a possible future serious problem for the society. Alcohol and tobacco are the most commonly used substances. The adverse health consequences of these behaviours have been recognized as important issues in public health. Tobacco use alone accounts for several million preventable deaths each year in the developed world. Alcohol and drug use have also been associated with a number of social and economic problems during adolescence (Currie 1998).

Based on a growing body of research evidence adolescent substance use is influenced not by a single factor, but many. Risk factors can be divided as having their origin in several social groups: individual, family, peer, school and community (Borelam & Shaw, 2000).

## Methods

A survey was conducted applying the WHO research protocol for a cross-national survey "Health behaviour in school aged children" (HBSC), as a cross-sectional study among Belgrade adolescents (Currie 1998). Data collection was carried out in September 1999. It was a research project that aimed to gain new insight into and increased understanding of health behaviour, lifestyles and their context regarding young people.

A total of 64 public schools, and school classes at the appropriate grade levels were randomly selected. Thus, cluster sample design was used; and once the first level of sampling occurred at the school or school class level, then all adolescents in an appropriate age group were surveyed. Minimum sample size derived from HBSC recommended protocol was 1536 adolescents. This sample size assumes 95% confidence interval and a design effect of 1.44 (Currie 1998). A total of 1540 adolescents, aged 15 years, were included in this study. The research instrument was a self-completion questionnaire with several groups of questions: demographic characteristics such as age, sex, family structure, risk behaviour such as tobacco use, alcohol and drugs consumption, family relations and support, peer relations and support, and perceptions of school and the school's influence (Currie 1998). Questionnaires were administered to adolescents by a trained interviewer at school. Research teams worked out a procedure to ensure the students' anonymity and the overall questionnaire was successfully conducted in 89.16% of the study population.

To determinate the prevalence of current tobacco use adolescents were asked, "how often do you smoke at present?" Only those who reported smoking at least once a week were referred to as current smokers. In addition the adolescents

participating in the survey were asked about their use of alcohol. Specifically, they were asked how frequently they took alcoholic drinks, and whether they had ever been drunk. Current consumption of alcohol was defined as drinking some kind of alcoholic beverage at least every week. The term "illicit drugs" includes substances like: marijuana, a combination of alcohol and pills, inhalants and cocaine. Any frequency of the use of drugs above mentioned in a life time were taken into account and analyzed.

Data were analyzed by methods of descriptive statistics, Chi-square test regarding differences by sex, and multivariate logistic regression. Associations between variables were initially tested using Chi-square tests. Logistic regression was used to identify the odds ratios OR for adolescent substance use, without adjusting according to sex. Dependent variables were current tobacco use, current consumption of alcohol and lifetime experience in use of drugs. Independent variables from family were: living in a single parent family, and in a family without social support. The independent variable from the school setting was a low commitment to school and independent variables from peer group were spending a lot of time with friends, communication with the opposite sex, and bullying others. Independent variables were dichotomously constructed. The OR and 95% confidence intervals were obtained, and p-value < 0.05 was taken as the minimum level of significance.

## Results

A study included a total of 1540 15-year old adolescents, 822 female and 718 male.

*Substance use.* The current prevalence of cigarette smoking was 14.8% with non significant difference according to sex observed (129 female and 99 male smokers).

5.6% of students consumed alcohol regularly. The percentage of students reported to having "been drunk" were 34.9% of males and 13.2% of females, with significant difference by sex. Having five or more drinks in a row was found commonly among students who use alcohol with 25% of males, regularly drinking alcohol, in particular on weekends.

Lifetime experience of illicit drug use was 14% for boys and 8.5% for girls, with significant difference according to sex. The most prevalent illicit drug was marijuana. Half of the students who had experience with drugs used marijuana, 11.3% used a combination of drugs (alcohol and pills), 9.4% used inhalants and 4% used cocaine. Asked about the places where they usually used drugs most of the students reported their friend's apartments and private parties (45%), at school (12.5%) and at nightclubs (8%).

*Associations with substance use.* Smoking was found to be associated with living in single parent families, living in families without social support, spending a lot of time with friends, and hence being away from home and away from the influence of their parents; having an easy communication with students of opposite sex and a poor commitment to school (Tab. 1).

Factors associated with adolescent drinking behaviour are: spending a lot of time out with friends, aggressive behaviour (bullying), and poor commitment to school (Tab. 2).

Drug use was associated with living in single parent family as well as living in a family without support, having an easy communication with students of the opposite sex, aggressive behaviour (bullying others), and a poor commitment to school (Tab. 3).

*School, peers and family factors.* 55% of students had a very good school performance, 25% a good one, 15% an average one and 5% of students were below the average school performance. Nearly 15% of students had a poor commitment to school, and attended school for the reason of “hanging out” with friends. Extra assistance from their teachers was available to only half of the students. Male students com-

monly fail to attend their classes. However 20% of all students did it at least once.

Making new friendships was easy for more than 90% of both male and female students. Being withdrawn by classmates was present in 1.5% of students. Having more than one friend is common among Belgrade adolescents with 70% having three or more close friends. There was a significant difference according to sex noted in the way students spent time with friends after school. 58% of male students, and 40% of female students went out with friends three to seven times a week. 60% of students reported no difficulty interacting with friends of the opposite gender. 15.6% of the male students displayed bullying behaviour in comparison to 5.5% of the female students.

84.2% of students live with both parents, 11.7% live only with their mother, 2.3% live only with their father, and the remainder (1.8%) live in a non-parent family. Both female and male students found it easy to communicate with their mothers (80%) but only 60% can openly speak with their fathers). 30% of students reported a burden with respect to expectations from their family. Half of the students maintained that they did not receive social support from their parents.

**Table 1** Odds ratios of adolescent current smoking, (n = 1540), according to risk factors from family, school and peers setting. Belgrade, 1999

	% Current smokers* (n = 228)	% Non smokers* (n=1312)	OR**	95% CI***
Single parent family	20	14	1.2	1.0–1.4
Family with support	37	51	0.6	0.4–0.8
Low commitment to school	21	13	1.5	1.2–2.0
Spending a lot of time with friends	72	50	1.3	1.1–1.4
Poor communication with friends of opposite sex	27	40	0.6	0.5–0.9

\* Current smokers: smoking at least once a week; non smokers: others.

\*\* Odds ratio from multiple logistic regression model adjusted for family structure, family support, relation to school, spending time with friends, communication with friends of opposite sex, aggressive behaviour.

\*\*\* Confidence Interval

**Table 2** Odds ratios of adolescent current alcohol drinking, (n = 1540), according to risk factors from school and peers setting. Belgrade, 1999

	% Current alcohol users* (n = 86)	% Non current alcohol users* (n = 1454)	OR**	95% CI***
Low commitment to school	22	12	2,0	1.2–3.6
Spending a lot of time with friends	91	31	2.8	1.5–5.2
Bully others	22	9	2.1	1.1–4.2

\* Current alcohol users: drinking alcoholic beverage at least every week; non current alcohol users: others.

\*\* Odds ratio from multiple logistic regression model adjusted for family structure, family support, relation to school, spending time with friends, communication with friends of opposite sex, aggressive behaviour.

\*\*\* Confidence Interval.

**Table 3** Odds ratios of adolescent life time drug experience, (n = 1540), according to risk factors from family, school and peers setting, Belgrade, 1999

	% Life time experience* (n = 167)	% No drug experience* (n = 1373)	OR**	95% CI***
Single parent family	22	12	1.8	1.0–3.1
Family with support	36	52	0.6	0.4–0.8
Low commitment to school	21	13	1.6	1.2–2.3
Poor communication with friends of opposite sex	26	41	0.6	0.4–0.8
Bully others	21	10	1.8	1.1–2.9

\* Life time drug experience: any frequency of drug use; no drug experience: others

\*\* Odds ratio from multiple logistic regression model adjusted for family structure, family support, relation to school, spending a time with friends, communication with friends of opposite sex, aggressive behaviour.

\*\*\* Confidence Interval.

## Discussion

Adolescent substance use is serious problem in many countries (Walzels et al. 2003).

Data from HBSC Study from other European countries indicate that differences according to sex in current use of tobacco are particularly marked in most eastern European countries. In Baltic states and Slovakia, nearly 30% of adolescents smoke once a week (King et al. 1996). Female adolescents from East European countries reported lower rates of smoking (King et al. 1996). Contrary prevalence of reported smoking in West European countries was higher for females than for males at the age of 15 (King et al. 1996). No significant difference in smoking according to sex was found in our study. Studies from Poland, Czech Republic and Russia where current prevalence of cigarette smoking was 14.8% (Mazur et al. 2003) are in accordance with the results of our study.

Alcohol use was more common among male than female adolescents in nearly all countries. Prevalence rate of drinking alcohol at least once a week varies from 50% in Wales to 3% in Switzerland (King et al. 1996). The highest rates of multiple episodes of drunkenness were recorded in Denmark, Finland and Wales, while the lowest were recorded in Israel (Currie et al. 2000). Mazur et al. (2003) report 51% of 15 year old adolescents having been drunk at least once in a life time, and an estimate of 21% of them as regular alcohol users. Our results show low prevalence of alcohol use comparing to either Western or Eastern European studies.

The number of adolescents experimenting with drugs has decreased in USA, while in East European countries figures are slightly increasing (NIDA 2003; Wong 2002). Our data suggest lifetime experience of any illicit drug use among adolescents is 14% for the male and 8.5% for the female population.

Prevalence of substance use appears to be slightly lower than that published in reports from Western countries. An answer should be sought in the fact that the price of tobacco, alcohol and especially illicit drugs is high for vast majority of Serbian adolescents.

Substance use by adolescents is associated with family structure, school environment and peers. We emphasize the family structure (living in a single parent family, and living in a family without social support). Our results are in this issue are in accordance with previously published data (Griesbach et al. 2003; Klingon et al. 2001).

The school associated factor was poor commitment to school, whilst peer associated factors were easy communication with friends of opposite sex, aggressive behaviour (bullying others), and spending a lot of time with friends. This relationship has not differed dramatically from different studies published previously (Sale et al. 2003; Blanton et al. 1997). HBSC studies showed that strain at home and living in single parent families were linked to health risk behaviour. Adolescents who do not fare well academically and who have negative attitudes toward school are also at greater risk of cigarette smoking and alcohol drinking (Currie 1998; Currie et al. 2000).

Many studies have found that peers are extremely important in influencing to taking part in health risk behaviour (Sale et al. 2003). Results of previous HBSC studies show that spending evenings with friends away from home, and easy communicating to friends of opposite sex were highly linked to smoking and drinking (Currie et al. 2000).

Recognizing associations allows us to focus on measures to possibly eliminate, reduce, or somehow buffer the effect of exposure to the risk.

## Zusammenfassung

### Missbrauch von Substanzen bei Jugendlichen, Bedeutung von Familie, Schule und peers: Angaben aus Belgrad

**Fragestellung:** Ziel der Forschung ist, Faktoren zu bestimmen, die für den Substanzmissbrauch bei Jugendlichen mitverantwortlich sind.

**Methoden:** Die Forschung ist ein Teil des Projektes „Gesundheitliches Verhalten bei Schulkindern“, das gemäss dem Protokoll der WHO für internationale komparative Studien, bei 1540 Jugendlichen in Belgrad durchgeführt wurde. Es wurde ein Fragebogen benutzt, der von den Befragten selbst ausgefüllt wurde. Die Ergebnisse sind mit Methoden der deskriptiven Statistik analysiert worden, d.h. mittels Chi<sup>2</sup>-Tests sowie der logistischen Regression.

**Ergebnisse:** Die Ergebnisse deuten darauf hin, dass der Substanzmissbrauch mit folgenden Faktoren in Zusammenhang steht: „Leben in einer Familie mit nur einem Elternteil“, „Leben in einer Familie ohne Unterstützung“, „einem sehr niedrigen Engagement für die Schule“, „leichter Kommunikation mit Freunden des anderen Geschlechts“, „mit aggressivem Verhalten“ sowie „dem Verbringen eines grossen Teils seiner Freizeit mit den Gleichaltrigen“.

**Schlussfolgerung:** Es besteht ein Zusammenhang zwischen dem Substanzmissbrauch bei Jugendlichen und den verschiedenen sozialen Verhältnissen wie Familie, Schule und Gleichaltrige. Die Erkennung dieses Zusammenhangs wird uns die Fokussierung auf die Massnahmen ermöglichen, die den Expositionseffekt zum Risiko beseitigen, reduzieren oder auf irgendeine Weise schwächer machen können.

## Résumé

### L'abus de substances chez les adolescents : l'importance de la famille, de l'école et des pairs (Health Behaviour in School Children – Belgrade)

**Objectifs:** Déterminer les facteurs pouvant provoquer un abus de substances chez les adolescents dans un pays ayant souffert récemment de la guerre.

**Méthodes:** Le projet Health Behaviour in School Children a été réalisé parmi 1 540 adolescents à Belgrade selon le protocole de l'OMS, avec un questionnaire auto-administré.

**Résultats:** L'abus de substances est en lien avec la présence d'une structure familiale monoparentale ou avec l'absence de soutien familial, avec un comportement agressif, avec un investissement scolaire limité de même qu'avec le temps passé auprès des pairs.

**Conclusions:** Les facteurs en lien avec l'abus de substances chez les adolescents à Belgrade sont d'origine sociale comme par exemple la famille, l'école, les pairs. La mise en évidence de ces facteurs pourrait contribuer à améliorer les mesures prises pour éliminer ou réduire le risque d'abus de substances.

## References

- Blanton H, Gibbons FX, Gerrard M, et al. (1997). Role of family and peers in development of prototypes associated with substance use. *J Fam Psych* 11(3): 1–17.
- Borelam R, Shaw A (2000). Smoking, drinking & drug use among young people in England. London: Stationary Office Bookshops.
- Currie C (1998). Health behaviour in school-aged children: research protocol for the 1997–98 Survey. Edinburgh: University.
- Currie C, Hurrelmann K, Settertobulte W, Smith R, Todd J (2000). Health and health behaviour among young people: a WHO cross-national study. Copenhagen: WHO, Regional Office for Europe.
- DiClemente R, Hansen BW, Ponton EL (1996). Adolescent at risk, a generation in jeopardy. In: Handbook of adolescent health risk behaviour. New York: Plenum Press: 1–52.
- Griesbach D, Amos A, Currie C (2003). Adolescent smoking and family structure in Europe. *Soc Sci Med* 56: 41–52.
- King A, Wold B, Smith CT, Harel Y (1996). The health of youth. a cross-national survey. Copenhagen: WHO Regional Office for Europe.
- Klingon YS, O Sullivan AL (2001). The family as a protective asset in adolescent development. *J Holist Nurs* 19: 102–21.
- Mazur J, Kowalewska A, Wongarowska B (2003). Alcohol drinking and others risk behaviours among adolescent aged 11–15 years. *Med Wiekv Rozwoj* VII (1 pt 2): 75–8.
- NIDA (2003). Monitoring the future study. [www.nida.nih.gov/infobox/](http://www.nida.nih.gov/infobox/).
- Office of Disease Prevention and Health Promotion (1993). Intervention for adolescents at risk: prevention report, February/March. Washington, DC: United States Department of Health and Human Services, U.S. Public Health Service: 1–2.

*Sale E, Sambrano S, Springer JF, Turner CW* (2003). Risk, protection, and substance use in adolescents: a multi site model. *J Drug Educ* 33: 91–105.

*Walzels JJ, Kremers SP, Vitoria PD, de Vries H* (2003). The alcohol tobacco relationship: a prospective study among adolescent in six European countries. *Addiction* 98: 1755–63.

*Wong E* (2002). *Vulnerable Young People in South Eastern Europe*. Belgrade: UNICEF.

*Zivkovic M* (1995). *Zdravlje skolske dece*. Belgrade: Medical School.

---

**Address for correspondence**

**Aleksandra Jovic Vranes, MD**  
**Institute of Social Medicine**  
**Dr Subotica 15 (Silos)**  
**11 000 Belgrade**  
**Serbia and Montenegro**  
**Tel.: +38 111643839**  
**Fax: +38 111659533**  
**e-mail: aljvranes@yahoo.co.uk**



To access this journal online:  
<http://www.birkhauser.ch>

---