

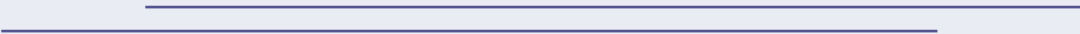


# Health of adolescents and young adults

1<sup>st</sup> workshop of the Kosice Institute for Society and Health

November 3<sup>rd</sup>, 2005

Kosice Institute for Society and Health, Faculty of Science, P.J.Safarik University,  
Department of Social Medicine, University Medical Center Groningen, University of Groningen



Health of adolescents and young adults  
the 1<sup>st</sup> workshop of the Kosice Institute for Society and Health



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Published by: Kosice Institute for Society and Health  
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ISBN: 80-967901-4-5

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### Acknowledgment

This publication was supported by:

- Research grant agency of the Ministry of Education and Slovak Academy of Sciences under contract VEGA 1/1408/04;
- Research and Development Support Agency under contract No. APVT-20-028802 and No. APVT-20-003602
- University Medical Center Groningen, University of Groningen, The Netherlands

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## Opening



**Jitse P. van Dijk, MD, PhD**

Scientific Director KISH

It is a great pleasure for me to open this very first workshop of the Kosice Institute for Society and Health, the KISH; especially those from outside KISH are welcomed. The workshop will focus on **'Health of adolescents and young adults'**

Before going into the workshop's details, I should give somewhat more information about KISH. KISH is an interdisciplinary research institute: several departments, two faculties and some hospitals are collaborating in this research institute to strengthen each other, and to have some profit from the existing infrastructure in the process of creating international output.

These main participants are:

1. Faculty of Science                      Institute of Social Sciences
2. Medical Faculty                         Dept of Neurology  
    Dept of Social Medicine
3. University Hospital                      Transplantation Centre
4. East Slovak Centre for Cardiac and Cardiovascular Diseases
5. Railways Hospital                        Dept of Neurology

KISH has two main research lines. The one focuses on the theme 'Youth & Health' while the other one focuses on 'Chronic Disease'.

KISH is aiming for two main goals, related to its position in the two fields of research in which it is active. The first goal is that it wants to be 'the best in Central Europe' in both fields; the second goal is that it wants to be 'significant in Europe'. A few years ago, at the moment when these goals were formulated, both seemed to be unattainable. But for the moment the quality of KISH's output through 2005 ranks within the top 30% of the world's output. During the last two years KISH has made, in my opinion, great steps ahead in order to achieve its aims.

In the past five years a lot of knowledge on today's topic, **'Health of adolescents and young adults'** has been accumulated. Through publishing about scientific problems in this field, mainly people in other countries, specialists who are studying the same or related problems, are reached. We have been looking for a way to translate our accumulated knowledge to people more or less in our sphere, to people who might be interested in our results. These results focus on youth in Kosice, so they could be of interest to everybody who has some relationship to this group, for example educators, health promoters, people in patient care or those in prevention.

Today's program has three main lectures and six shorter presentations. The first main lecture is by an invited speaker from the Netherlands, Dr Berrie Middel. He will be talking about the design of the study 'Measuring the effect of health promoting strategies'. Dr Olga Orosova's topic is 'Promoting health to adolescents and young adults', and Dr Andrea Madarasova Geckova will focus on the subject of her habilitation research 'Inequality in health among adolescents and young adults'. After the break six more speakers will read their ten-minute papers, and Dr Iveta Rajnicova Nagyova will present the next workshop on Chronic Disease.

## Measuring the effect of health-promoting strategies



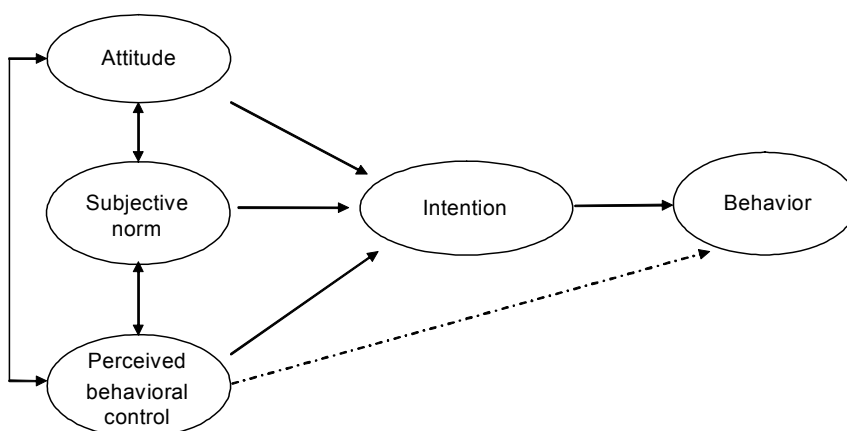
Berrie Middel, PhD

I feel honoured to give a lecture on research methodology, especially on research design and to stress the opportunities to control for confounders. This is an essential part in the process of developing research proposals since the outcomes of KISH research activities have to meet the standards of international scientific journals. One of the KISH studies will be used in my appraisal of its internal validity and I will address questions that reviewers of scientific journals normally pose when they assess the quality of a submitted paper. My presentation is structured across the following questions:

- Do the investigators have a theoretical framework?
- Is the study based on a (Randomized) Controlled Design?
- Which factors may have biased the outcomes of the evaluation?

The KISH research project ‘Efficacy of a health-promotion programme among university students in Košice’ was the subject of my critical appraisal. After reading the research proposal, the research questions and the concepts or constructs that will be used, it was possible to relate the study to the widely-used theoretical model of Ajzen<sup>1</sup>. This model is known as the theory of planned behaviour (TPB) that comprises three basic determinants of behaviour. Subjects compare themselves continuously with others and consider their behaviour in terms of a particular outcome (e.g. by drinking alcohol I will become a member of this group). The evaluation is an appraisal of this outcome (I like being a popular person). These considerations and evaluations are the components of an attitude in this model. Explicit or implicit approval or rejection by a social (peer group) norm is an important modifying factor.

Figure 1: Theory of planned behaviour<sup>1</sup>



Perceived behavioral control = Interpersonal Behaviour

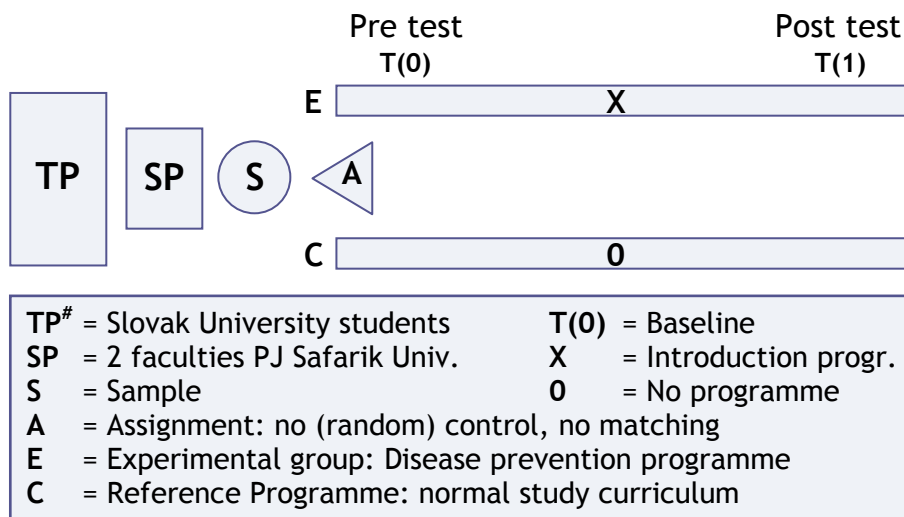
Subjective norm = social norm = Peer group characteristics

Attitude = motivation to smoke

Some of the measures that are used to assess these concepts in this study may fit fairly well in this model. The researchers may consider using this conceptual model in their analysis. The design of the study is a controlled experimental longitudinal observational study. The health-promotion intervention is clearly described and has been integrated in the faculty's curriculum and is aimed at reducing the prevalence of risky, health-related behaviour among university students. A convenience sample from the population of university students will be used. Students from the Medical Faculty and from the Faculty of Natural Sciences will be selected. Participants in the experimental group in which the health-promotion intervention will be performed are included when they express interest in health promotion.

The control group consists of 50% more interested and 50% less (non-) interested in Health Promotion. Unfortunately the participants in the control and experimental groups were not matched in order to avoid initial baseline differences in smoking, drinking and sexual behaviour. The design is shown in figure 2.

Figure 2: Design of the study



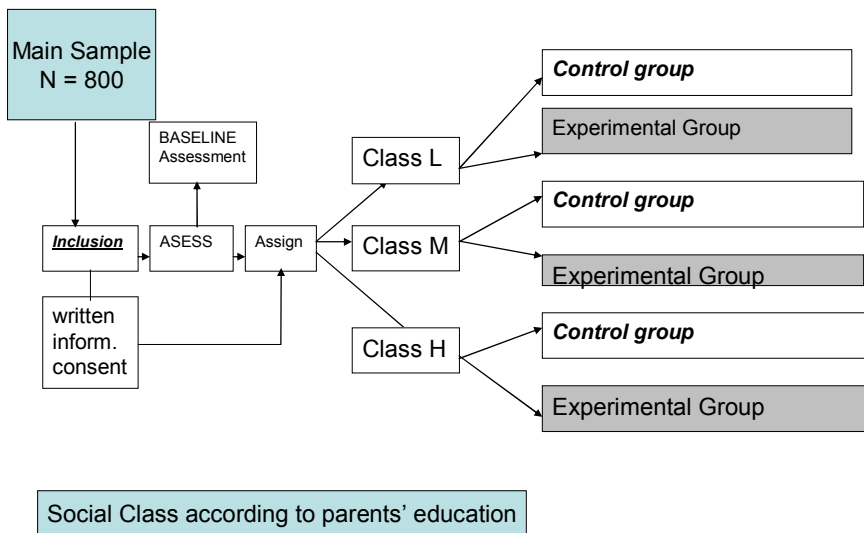
# Target Population

In my role as editor of an international scientific journal I have several questions concerning the internal and external validity of this study. Selection bias may occur since only subjects with some interest in health promotion are included in the experimental group. Medical students may have meaningful different attitudes towards health compared with natural science students, since medical students have different information on health and disease. A so-called Hawthorn effect may become introduced during the study as participants of the programme talk about their experiences in it, which may lead to dissemination of the programme's mission and content and induce awareness among students who not participate.

In this longitudinal study there may be more losses to follow-up among natural science students, affecting the outcome of group comparisons at t1. Self-report measures of risky behaviour may underestimate the prevalence of drinking behaviour, frequency of sexual intercourse, number of cigarettes smoked per day, and frequency of drug use. There is no information on the psychometric properties of the measures (e.g. sensitivity to detect change over time or responsiveness).

Since the socio-economic status (SES) of parents is associated with health-related lifestyle or risky health-related behaviour, the researchers planned to use for the control group a pre-stratification on SES (strata of: Low, Medium and High SES) and random assignment per stratum. Due to obstacles in practice it was not feasible to apply this assignment method. Using strata of relevant confounders (e.g. social class according to parents' education and gender) followed by randomisation per stratum (balancing technique) would create no initial differences between the experimental and control group on factors which are known to be associated with the outcome (health-related risky behaviour). Such a design is depicted in Figure 3.

Figure 3: A theoretical model of a study design with pre-stratification and random assignment (balancing)



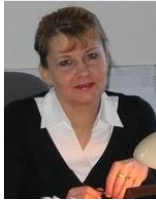
Of course, for an outsider it is easy to look for weaknesses in a study protocol. Despite its weaknesses this study has its strengths. Moreover, the outcome of this study will not become biased to a scientifically unacceptable extent. My remarks and suggestions are meant to give a broader view on designs, making colleagues sensitive to the risks with biased outcomes (backward-forward translation of reliable and validated measures that are widely used in our field), biased subjects or patients and biased observers (by not blinding them).

Developing internally-valid protocols needs much time, and when the time available for development of protocols is too short given the deadlines, it may lead to lower quality, and a reduced chance of getting the results published in journals with high impact. We should not forget that the results of our research have to be disseminated and implanted into practice.

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# Drug prevention and promoting health



Olga Orosova

Drug prevention programs have been offered by the University of P. J. Safarik, Faculty of Science to adolescents since 1997 and university students since 1999. These programs have been prepared in co-operation with FILIA, a non-governmental organisation active in this field, and have received the accreditation of Ministry of Education of the Slovak Republic<sup>1</sup>. The main aim of this contribution is to give an overview of the theoretical basis and research background of our educational prevention programs.

## Theoretical basis of drug prevention programs: Drug prevention periods

The history of prevention comprises three periods of program development<sup>2,3,4,5,6,7</sup>. The first period can be described as well-intended efforts driven by common sense, or intuition. The second period is described as being theory-driven. The third period is described as being research-driven.

During the second period a wide variety of theoretical psychological approaches are applied in drug prevention programs<sup>8,9</sup>, and sometimes several of them are used in one prevention program. Some of them are listed below:

### Adolescent Development Theory

This theory stresses the opportunity for building skills and positive habits, for developing personal and social self and the ability to think abstractly and to solve problems, and having the opportunity for practising new skills.

### Social Learning Theory

Modelling, observation and social interaction are stressed. It is expected that adolescents need to develop the internal skills of self-control, stress reduction, selfmanagement and decision-making. These skills can support adolescents' positive outward behaviours.

### Problem-Behaviour Theory

Behaviours are influenced by individuals' values, beliefs and attitudes, and the perception of friends and family about those behaviours. Skills in values clarification and critical thinking are therefore an important aspect of drug prevention programs.

### Social Influence Theory

Teaching children resistance skills is important in Drug Prevention Programmes according to the social influence theory.

### Cognitive Problem Solving

Teaching interpersonal problem-solving skills is important in Drug Prevention Programmes according to this theory.

### Multiple Intelligences (Including Emotional Intelligence)

Managing emotions and understanding one's feelings and the feelings of others are critical to drug prevention.

## Resilience and Risk Theory

This means that the development of social-cognitive skills, social competence and problem solving skills is important in Drug Prevention Programmes.

## Constructivist Psychology Theory

The learning process occurs through social interaction in peer learning and cooperative groups, so open discussion situations can play a relevant role in Drug Prevention Programmes according to the constructivist approach.

By teaching young people “how to think”, by developing their critical, creative thinking, by providing them with the tools for solving problems, making decisions and managing emotions, and by engaging them through participative methodologies, **skills development can become a means of empowerment, a means of adolescents’ and young people’s health promotion.** Most of what is known about what is effective in preventing adolescents from abusing drugs comes from school-based prevention research. School-based prevention efforts can be divided into four general approaches<sup>4,10</sup>:

1. **Information dissemination**, whereby it was found that prevention approaches primarily designed to increase information are not effective.
2. **Affective education**, whereby the focus of affective education approaches is on increasing self-understanding and -acceptance through activities such as values clarification and responsible decision making; improving interpersonal relations by fostering effective communication, peer counselling, and assertiveness; and increasing students’ abilities to fulfil their basic needs through existing social institutions. Although affective education approaches, in some instances, have been able to demonstrate an impact on one or more of the correlates of drug use, they have not been able to affect behaviour<sup>11, 12</sup>
3. **Social influence**, which was the first approach to produce an impact on behaviour, but also because it contained several of the core components still used in the most successful drug abuse prevention approaches, which are briefly described as: Drug resistance skills, Correcting normative expectations, Using peer leaders.
4. **Competence development, life skills training:**
  - Social skills: communication skills, negotiation/refusal skills, assertiveness, interpersonal skills for developing healthy relationships, cooperation skills.
  - Cognitive skills: decision-making/problem-solving skills, understanding the consequences of actions, determining alternative solutions to problems, critical-thinking skills, analyzing peer and media influences, analyzing one’s perceptions of social norms and beliefs, self-evaluation and values clarification.
  - Emotional coping skills: managing stress, managing feelings, including anger, skills for increasing internal locus of control (self-management, self-monitoring).

Affective education, social influence reflection, life skills development and competence development are also important health promotion strategies and drug prevention strategies. Drug information programs increased drug use in some studies<sup>5</sup>, so to prevent a problem before it happens, the risk factors that predict the problem must be changed<sup>13, 14</sup>.

## Indicators of the efficacy of Drug prevention programs

The main indicators of the efficacy of drug prevention programs are<sup>15</sup>:

- Change of attitudes. This means achieving more positive attitudes to healthy lifestyle or lifestyle without drugs after the drug prevention/intervention or health promotion program.
- Behaviour indicators. This means achieving a lower level of risky behaviour after the drug prevention/intervention or health promotion program.
- Change of mediating variables. This means achieving a protective level of mediating variables/change agents after the drug prevention/intervention or health promotion program (Mediating variables/change agents are: Lifestyle / Behaviour Incongruence, Normative Beliefs, Commitment, Beliefs about Consequences, Resistance Skills, Goal-Setting Skills, Decision Skills, Alternatives - enjoyable activities, Self-Esteem, Stress Management Skills, Social Skills, Assistance Skills)<sup>15</sup>.

**Key Elements of Drug Prevention Programs** at the University of P. J. Safarik in Kosice, Faculty of Science, Institute of Social Sciences, KISH

- **Theoretically-valid program content**<sup>9</sup>: Constructivist Psychology Theory is used as the theoretical approach of these programs.
- **Comprehensive approaches**: Strategy of knowledge building, social influence and life skills / competency development strategy are used in these programs.
- **Interactive training techniques**: Constructivist questions and methods of applied social psychology are used in these programs.
- **Well-trained implementers and continuing evaluation** (research projects of UPJS, Faculty of Science, ISS, KISH), as the next most important key elements of these drug prevention programs, are presented in Table 1. The efficacy of the peer drug prevention program was explored as one of the NGO FILIA projects. The main aim of the bilateral project of the University of P. J. Safarik in Kosice together with the University of Groningen<sup>16</sup>, and the VEGA project is to explore the efficacy of Drug and AIDS prevention programs among university students.

## Research background of our drug prevention programs, and some of our research findings

**Adolescent's smoking behaviour** was explored. Novelty, enjoyment-seeking and peer influence were the most important reasons for taking up smoking<sup>17</sup>. Peer influence and relaxation were the most important reasons for continuing to smoke<sup>18</sup>. Negative affect control (anxiety and anger) was the most important reason for actual smoking<sup>18</sup>.

**The Efficacy of peer drug prevention program** was explored. It was found that the peer drug prevention program has some impact on the emotional component of attitudes to drug prevention and risk behaviour, especially tobacco consumption of adolescents. With regard to drug prevention, adolescents influence their classmates<sup>19,20</sup>.

**Helpfulness in the group experience** was explored<sup>1</sup>. Universality (the participation in group, not being lonely, the similarity of problems), family re-enactment and interpersonal learning - input were experienced by peer program participants as the most helpful factors to the group.

To explore **the efficacy of drug and AIDS prevention programs** is one of the main aims of VEGA project 1/1408/04 and bilateral projects with the University of Groningen<sup>16</sup>.

## Conclusions

Novelty, curiosity, enjoyment-seeking and peer influence are, according to the research results obtained, the most influential reasons encouraging adolescents to take up smoking. It is important therefore to focus primary prevention on health promotion, on encouraging a healthy way of life, and ways of spending free time that fulfil adolescents' need for novelty, curiosity and enjoyment-seeking, on maintaining non-smoking rather than preventing smoking.

Drug prevention programs can create an important opportunity for social support in solving similar problems, for interpersonal learning, for the promotion of sensitivity to social influences and social pressure, and for the development of coping strategies.

Table 1: Educational and research projects at the University of P. J. Šafarik in Košice, Faculty of Science, Institute of Social Sciences, KISH

Type of project	Name of project	Implementers /solvers	
Research	Psycho-social analysis of risk behaviour among university students. Efficacy of a drug and AIDS prevention program.	Principal investigator: Assoc. Prof. O. Orosova, PhD	UPJS in Kosice, Faculty of Science, ISS, KISH  <u>Project supported by:</u> Research grant agency of the Ministry of Education and Slovak Academy of Sciences SR, VEGA 1/1408/04 University in Groningen, NL <sup>16</sup>
	Drug and AIDS prevention program for university students	Principal investigator: Assoc. Prof. O. Orosova, PhD	UPJS in Kosice, Faculty of Science, ISS, KISH  <u>Project supported by:</u> Cultural and educational grant agency of the Ministry of Education SR Antidrug fund in Bratislava, KEGA 54/97 FILIA, n.g.o. Kosice
Educational	Peer-drug prevention program	Principal investigator: Assoc. Prof. O. Orosova, PhD	FILIA, n.g.o Kosice  <u>Project supported by:</u> The British Embassy in Bratislava Foundation for children of SR in Bratislava Antidrug fund in Bratislava FILIA, n.g.o.
		Lectors of workshops: Assoc. Prof. P. Jarcuska, PhD, MD Assoc. Prof. F. Longauer, PhD, MD N. Bobrov, PhD, MD S. Iannaccone, MD D. Caisova, MD C. Balak, MSc	UPJS in Kosice, Faculty of Medicine UPJS in Kosice, Faculty of Medicine UPJS in Kosice, Faculty of Medicine UPJS in Kosice, Faculty of Medicine FAIRA, Private psychiatry practice Crime - expertise institute of Ministry of Interior of the SR
		Supervisors of training parts: Assoc. Prof. O. Orosová, PhD F. Salonna A. Fotul L. Leško	UPJS in Kosice, Faculty of Science, FILIA, n.g.o. Kosice UPJS in Kosice, Faculty of Science, FILIA, n.g.o. Kosice FILIA, n.g.o. Kosice

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**This paper was supported by:**

- Research grant agency of Ministry of Education and Slovak Academy of Sciences under contract VEGA 1/1408/04;
- Research and Development Support Agency under the contract No. APVT-20-028802;
- University Medical Center Groningen, University of Groningen, The Netherlands

## Youth & Health



Andrea Madarasova Geckova, PhD

The research within the group Youth & Health is focused on health and health determinants among children, adolescents and young adults. Special attention is paid to inequalities in health in youth and their possible explanation, and risky behaviour of young people and its possible determinants as well as possible health-promoting strategies.

Three projects were successfully completed with the defence of PhD theses, one in the University of Groningen, the Netherlands (A. Madarasova Geckova) and two at J.A. Comenius University in Bratislava, Slovakia (M. Pudelsky, Z. Katreniakova). Five more projects are ongoing with the prospect of five PhD theses to be defended at the University of Groningen between 2006 and 2008 (M. Sleskova, F. Salonna, M. Sarkova, M. Humenikova, O. Kalina). In 2006 four more projects are planned to start.

### Youth & Health - in the past

#### Socio-economic inequality in health among Slovak adolescents

Research into socio-economic inequality in health and factors influencing health and health inequality among Slovak adolescents started in 1997 (inequality in health I.). The project followed very similar ones from Scotland<sup>1</sup> and the Netherlands.<sup>2</sup> Findings in Scotland and the Netherlands indicated no socio-economic health differences in this age. However, our findings confirmed socio-economic differences in health, health-related behaviour and social support among Slovak adolescents which were unfavourable for adolescents from lower socio-economic groups.<sup>3</sup>

#### Psycho-social context of health and illness among adolescents

On the basis of the data of the study “Socio-economic inequality in health among Slovak adolescents”, the psychosocial context of health and illness among Slovak adolescents was explored. High incidences of tiredness, headache, backache, skin disease and respiratory disease were reported.<sup>4</sup> Only one third of adolescents did not behave riskily - did not smoke, did not consume alcohol, had no experience with drugs and did sport in optimal frequency.

#### Mental health of school children and efficiency of health promotion at schools in Slovakia

In 1999 Safarik University in Kosice joined an international research project focusing on efficiency of health-promoting strategies applied in schools (Croatia, Hungary, Slovakia). A psychosocial training program for teachers (ENHPS - European Network of Health Promoting Schools) was prepared and implemented. The influence of the program on the mental health of children was evaluated. A comparison of children’s mental health between (experimental vs. control) and within schools was carried out for evaluation using data from a baseline measurement and two follow-up measurements. Our findings confirmed that special

training of teachers led to a positive influence on the mental health (psychological well-being, self-esteem) of children in the experimental group in Slovakia.<sup>5</sup>

Table 1 Overview of past projects

Project	Period	Main team
Socio-economic inequality in health among Slovak adolescents	1997-2002	<b>PhD student:</b> Andrea Madarasova Geckova <b>Supervisors of PhD study:</b> Prof. Doeke Post, Prof. Johan W. Groothoff Dr. Jitse P. van Dijk <b>University of Groningen</b>
Psycho-social context of health and illness among adolescents	1999-2002	<b>PhD student:</b> Marcel Pudelsky <b>Supervisors of PhD study:</b> Prof. Milan Beniak Assoc.Prof. Anna Volna <b>J.A. Comenius University, Bratislava</b>
Mental health of school children and efficiency of health promotion at schools in Slovakia	1999-2002	<b>PhD student:</b> Zuzana Katreniakova <b>Supervisors of PhD study:</b> Prof. Milan Beniak Assoc.Prof. Anna Volna <b>J.A. Comenius University, Bratislava</b>

## Youth & Health - ongoing projects

**Socio-economic health difference: a cohort study among adolescents (15 years) compared to a similar cohort 5 years ago and its follow up.**

A cohort of 15-year-olds five years ago (1997) is compared with its follow up (in 2002), now young adults of 19 years. Changes in health, socio-economic influences in the changes in health, and health-related behaviour and socio-economic health differences are analysed. Furthermore, two cohorts of adolescents (15 and 17 years old in 2002) are studied; the 15-year cohort (2002) is compared to a similar cohort 5 years ago (1997). Health-related behaviour and social support, including grand parents as a special source of social support, and personality are explored as factors of health and socio-economic health differences. Subjective indicators of socio-economic status were added as well (perceived economic stress). School environment was also measured.

**Unemployment as a determinant of differences in health and health-related behaviour among school-leavers**

Using data from the cross-sectional study of 2002, the influence of parental unemployment on differences in health and health-related behaviour of adolescents was explored in Slovakia, and a comparison of adolescents' health related to their parents' employment status in Slovakia with the Netherlands was made. Furthermore the person's own status (student, employed, unemployed) was related to his or her health. Using longitudinal data from 1997 and 2002 (a sub-sample of unemployed) the influence of unemployment of school-leavers on their health is still to be explored.

**Mental health of school children and efficiency of health promotion at schools - a transcultural and longitudinal study.**

A psychosocial training program for teachers (ENHPS - European Network of Health Promoting Schools) focusing on health promotion at schools was carried out in Slovakia and Hungary. The Hungarian data are compared with Slovak data with the aim of comparing the mental health of children in Hungary and Slovakia. A two-dimensional structure of GHQ-12 and Rosenberg Self-Esteem scales was confirmed for Slovak and Hungarian 11-year old children. At this age differences in mental health between Hungarian and Slovak children can be found. Using longitudinal data (samples from 2000 and 2003) the mental health of Slovak children is explored.

**Efficacy of a drug and AIDS prevention program among university students**

The efficacy of a program for drug and AIDS prevention is explored comparing an experimental and a control group with regard to changes in their attitudes towards risky behaviour, occurrence and frequency of their risky behaviour and changes in their peer-group characteristics. The mediators of the program's efficacy are explored as well (socio-demographic, social and personal characteristics of participants).

**Psychosocial analysis of risky behaviour among adolescents and young adults**

The central issues of this project are the analysis of risky behaviour incidence (smoking, alcohol consumption, drug use, lack of physical exercise, risky sexual behaviour) and the analysis of risky behaviour change among adolescents and young adults using cross-sectional and longitudinal data. Incidence of and changes in risky behaviour will be explored with regard to selected socio-demographic, social and personality and health characteristics of respondents. Particular attention will be focused on research into the motivation to smoke and changes in motivation to smoke using longitudinal data.

Table 2 Overview of ongoing projects

Project	Period	Main team
Socio-economic health difference: a cohort study among adolescents (15 years) compared to a similar cohort 5 years ago and its follow up.	2002-2006	<b>PhD student:</b> Ferdinand Salonna <b>Supervisors of PhD study:</b> Prof. Sijmen A. Reijneveld Prof. Johan W. Groothoff Dr. Jitse P. van Dijk Dr. Andrea Madarasova Geckova <b>University of Groningen</b>
Unemployment as a determinant of differences in health and health-related behaviour among school-leavers	2002-2006	<b>PhD student:</b> Maria Sleskova <b>Supervisors of PhD study:</b> Prof. Sijmen A. Reijneveld Prof. Johan W. Groothoff Dr. Jitse P. van Dijk Dr. Andrea Madarasova Geckova <b>University of Groningen</b>

Mental health of school children and efficiency of health promotion at schools- a transcultural and longitudinal study.	2002-2006	<b>PhD student:</b> Maria Sarkova <b>Supervisors of PhD study:</b> Prof. Wim J.A. van den Heuvel Dr. Jitse P. van Dijk Dr. Andrea Madarasova Geckova Dr. Zuzana Katreniakova Assoc.Prof. Olga Orosova <b>University of Groningen</b>
Efficacy of a drug and AIDS prevention program among university students	2004-2007	<b>PhD student:</b> Maria Humenikova <b>Supervisors of PhD study:</b> Prof. Sijmen A. Reijneveld Dr. Jitse P. van Dijk Dr. Andrea Madarasova Geckova Assoc.Prof. Olga Orosova <b>University of Groningen</b>
Psychosocial analysis of risk behaviour among adolescents and young adults	2005-2008	<b>PhD student:</b> Ondrej Kalina <b>Supervisors of PhD study:</b> Prof. Sijmen A. Reijneveld Dr. Jitse P. van Dijk Dr. Andrea Madarasova Geckova Assoc.Prof. Olga Orosova <b>University of Groningen</b>

## Youth & Health - plans

For the near future we plan to continue with our research mainly into socio-economic differences in health and health-related behaviour and their determinants as well as possible ways of reinforcing health and healthy behaviour; for this reason our efforts will be focused on health-promoting strategies among adolescents and young adults and their efficacy.

Our aim is to explore individual, interpersonal, social and societal factors of drug use, as well as drug abuse prevention. We plan to use new as well as already collected data, which will enable us to compare several cohorts of adolescents as well as longitudinal monitoring of drug use by adolescents and young adults. For this purpose we need a new data collection among 15-year-olds from three different regions in Slovakia including a subsample of socio-economic disadvantaged adolescents, a follow-up of the 15-year-olds from 1997, and a follow-up of the university students from 2004. This effort should be the basis for four more PhD projects in this field.

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This paper was supported by:

- Research grant agency of Ministry of Education and Slovak Academy of Sciences under contract VEGA 1/1408/04;
- Research and Development Support Agency under the contract No. APVT-20-028802 and No. APVT-20-003602
- University Medical Center Groningen, University of Groningen, The Netherlands

# Inequality in health among adolescents and young adults



Andrea Madarasova Geckova, PhD

Research within the group Youth & Health is focused on health and health inequalities. Experience with research into inequality in health already has a history of nearly ten years in our team (since August 1997). We started with one research project and very little knowledge, and now several researchers are working on various projects, including the project named EUROTHINE (Tackling socio-economic inequalities in Europe, project leader: Prof. J. Mackenbach, Rotterdam, The Netherlands), which has European relevance.

The aim of this paper is to present briefly several definitions of socio-economic inequalities in health (SEIH), research into SEIH including historical evidence as well as contemporary knowledge about the size, nature and explanation of SEIH and possible strategies for reducing them, the age specificity of SEIH, the reasoning for such research, and finally the principal research issues and main recent findings of our group related to SEIH among adolescents and young adults.

## Definition of SEIH

We may definitely observe many health differences in population subgroups, but not all of them are health inequalities. One of the most accepted definitions states<sup>1</sup> that inequalities in health are **systematic differences in health between people with higher and lower socio-economic status (SES), which are avoidable and unfair**. People with lower SES suffer from worse health. People may probably not avoid natural, biological variations in health, but they may avoid exposure to health hazards in their environment, so differences caused by different exposure to health hazards are avoidable, and if these differences are also unfair, then there are inequalities<sup>2</sup>. Discussion is about health related behaviours. Smoking for example is definitely avoidable, but is it unfair? The question is whether all types of health-damaging behaviours are really freely chosen, or whether it is unfair that somebody grows up in an environment which 'imprints' him/her with an unhealthy life style.

There are also definitions emphasizing the existence of a '**social gradient**'<sup>3</sup>. Socio-economic inequalities in health are **more than just differences in health** between poor and rich. The health of each higher socio-economic group is better than that of the lower one. This means we may observe a gradient in health related to socio-economic characteristics.

There is also an approach focusing on **socio-economic disadvantage**<sup>4</sup>, trying to identify socio-economic disadvantaged groups instead of focusing on socio-economic inequalities in health. People depending on social benefits, with "life minimum" income, incomplete families, for example single mothers, retired, elderly, unqualified, migrants from poor rural areas working in industrial urban areas, unemployed, health disadvantaged, people living in distant rural areas, ethnic minorities, immigrants, and many other subgroups are at high risk of socio-economic disadvantage, which means not only financial strain, but also risk of

**social exclusion** including intolerance, discrimination and hostility, with negative consequences on health. Moreover socio-economic disadvantage has a tendency to **cumulate its negative effect** during life - disadvantage in the past increases the risk of disadvantage (failure) in the future.

## Research into SEIH

Differences in mortality between rich and poor were explored as early as in the 18<sup>th</sup> century by J.P. Frank<sup>5</sup>. Great researchers of the 19<sup>th</sup> century, like L.R. Villermé, E. Chadwick, W. Farr, J. Snow, R. Virchow or A. Grotjahn significantly contributed to the body of knowledge in this field<sup>5</sup>. Since medical sociology was established, socio-economic factors of health have been explored. There have been important contributions from B.J. Stern, O.D. Duncan and W.H. Sewel<sup>5-7</sup>. Sociological research of inequalities in health was developed mainly in the 1950s-60s<sup>6</sup>. Two documents published in the 1980s became milestones: the report on the health of the British population written by P. Townsend and N. Davidson - known as a 'The Black Report'<sup>8</sup> - and a document about WHO health policy known as 'Targets for Health of All'<sup>9</sup>. At the present time, socio-economic inequalities are an important topic of research as well as policy. They are seen as one of the biggest public issues.

Studies across Europe as a whole confirm the presence of SEIH everywhere<sup>2,10</sup>. People with lower SES have higher morbidity rates in terms of self-rated health, chronic conditions, and disability<sup>2</sup>. People with lower SES have higher mortality rates<sup>2</sup> as well. Thanks to participation in EUROTHINE, for the first time Slovak mortality data are available for exploring socio-economic inequalities in mortality. Socio-economic inequalities in life expectancy usually amount to 3-7 years, differences in disability-free life expectancy amount to more than 10 years between the highest and lowest socio-economic groups<sup>2</sup>.

After a period of monitoring SEIH, the attention shifted towards a possible explanation of SEIH. The question is how childhood circumstances, material factors, health related behaviours and psychological factors contribute to the explanation of SEIH. The most famous explanation approach is the natural health selection vs. social causation hypothesis, discussed mainly in the last century<sup>11-12</sup>. In recent literature the focus on life-course perspective as well as exploration of specific determinants are present<sup>5</sup>. Explanation may be partly different in different European countries<sup>2</sup>. The important thing is to find the common factors, but there can be differences as well. While premature mortality in Northern Europe may be caused by cardiovascular disease risk factors like nutrition and smoking, the cause of premature mortality in Southern Europe may be excessive alcohol consumption<sup>2</sup>.

Recently, a lot of attention has been focused on systematic development of strategies to reduce SEIH and measuring the efficiency of the strategies used<sup>2</sup>. Science may try to find the causal pathway which leads to inequality. With the help of what science clarifies, it is then the task of policy to reduce inequalities.

## Why adolescents and young adults?

The KISH research team concentrates on adolescents and young adults. There are several indications that SEIH are present in childhood, diminish during adolescence and again re-emerge in early adulthood, then deepen during adulthood till the age of 75, when they again disappear<sup>5,13</sup>. There are several reasons which lead us to concentrate on adolescents and young adults.

According to Starfield et al. 2005 'studies of social gradients in adolescence have the potential for providing better understanding of pathways than is the case earlier in life or later in life'<sup>14</sup> (p.355). SEIH should be considered with a life-long perspective. Accumulation of disadvantage in the past has a strong effect on the present and future<sup>4,15-16</sup>. Transition from childhood to adulthood involves changes in at least three fields that are highly relevant for SEIH, namely: completion of education, entering the labour market, and establishing a life style, but also value system and coping style. Finally, the efficiency of strategies trying to reduce SEIH is higher when they are applied earlier<sup>16</sup>. Adolescence offers many entry points for such strategies (e.g. educational system, entering labour market, establishing life-style, youth subcultures).

## SEIH in adolescence and young adulthood - main issues

While there are no doubts about the presence of SEIH in childhood or adulthood, the presence of SEIH in adolescence is questionable<sup>13-15</sup>. Several authors have confirmed the presence, but others insist on absence of SEIH during adolescence. Our findings indicate that absence may in fact mean presence, but of lower magnitude<sup>17-18</sup>.

Inconsistency of findings may be caused by problems with measuring socio-economic status<sup>5,15</sup>. Socio-economic characteristics of parents are losing their validity, but respondents' characteristics are not valid enough yet.

Another issue is that probably not all aspects of health are affected, or to be more precise, not all aspects of health are affected to the same extent. This may be particularly due to the fact that the main determinants of health need some time to cause serious health damage. For example, asthma or lung cancer as a consequence of smoking<sup>14</sup>.

The intergenerational nature of SEIH, i.e. the disadvantaging psychosocial heritage, should be considered in research into SEIH among adolescents and young adults<sup>4</sup>. During adolescence and young adulthood, the important contribution of school environment factors - risky or protective - should be considered<sup>15</sup>. It is important to consider not only material or health-related, but also psycho-social determinants of SEIH<sup>15-19</sup>. Moreover, it seems to be not just financial strain, but also income differences in the country and social capital, i.e. macro level factors, which may be important<sup>20-22</sup>.

## SEIH in adolescence and young adulthood - our recent findings

Our starting point were results based on data collection performed in 1997: Socio-economic differences in health as well as in health-related behaviour or social support were confirmed among Slovak 15-year-old adolescents<sup>17,23-27</sup>.

Recent findings based on following-up this group of respondents in 2002 indicate different changes in health and health-related behaviour in different socio-economic groups<sup>18,28-29</sup>.

The negative influence of own unemployment on the perceived health of young adults was confirmed. Nevertheless, strong influence was found only for long-term well-being, while the influence on other health indicators was rather weak and mediating effects of financial situation and social contacts were found<sup>30</sup>.

Parental long-term unemployment (especially of fathers) negatively affects adolescents' health and this negative effect remains even when the effect of social

class and financial strain is taken into account<sup>31</sup>. The effect of parental unemployment on adolescents was compared in Slovak and Dutch samples<sup>32</sup>.

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This paper was supported by:

- Research grant agency of Ministry of Education and Slovak Academy of Sciences under contract VEGA 1/1408/04;
- Research and Development Support Agency under the contract No. APVT-20-028802 and No. APVT-20-003602
- University Medical Center Groningen, University of Groningen, The Netherlands

# Factors influencing motivation to participate in a Prevention Program



**Maria Humenikova**

Humenikova Maria, Orosova Olga, Madarasova Geckova Andrea, Salonna Ferdinand, van Dijk Jitse P., Reijneveld Sijmen A.

## Introduction

Available evidence from many studies in the last two decades suggests that school health promotion interventions can be effective in transmitting knowledge, developing skills, and supporting positive health behaviour<sup>1</sup>. The efficiency of a training program strongly depends on attracting the target groups and their motivation to participate in the intervention. Voluntary participation is one of the important indicators of prevention program efficacy<sup>2</sup> and the decision to take part in such program presumes some level of health awareness, the ability to distinguish what is good, the willingness to invest some time and effort in it, and the ability to benefit from opportunities gained from participation in the program as well.

Our aim is to explore whether a campus health promotion program attracts students. It explores the determinants of interest to participate in such program among university students. It examines whether students' gender, socio-economic status and health behaviour have any effect on their interest in participation in such a program.

## Methods

The research sample consisted of 828 university students (352 men, 476 women, mean age 20.5 years) in Kosice, Slovakia. Data were collected in 2004.

To detect differences among males and females in interest in participation in prevention program, the chi-square test was used.

The effects of gender, socio-economic status (SES) and health-risk behaviour on motivation to participate in a prevention program were explored using multinomial logistic regression. The outcome variable had four possible values: not willing to participate (reference category), willing to participate, not decided yet, not answering. Father's and mother's education (university; secondary education with school leaving examination; primary education and secondary education without school leaving examination) were used to measure socio-economic status. Four dichotomous indicators of health-risk behaviour were measured: smoking (did not smoke / smoked at least one cigarette during the last week), binge drinking (being not drunk / being drunk during the last month), lack of physical exercise (doing sport at least once a week / less than once a week) and risky sexual behaviour (not having sex under risky conditions / having sex in risky conditions like after a short-time date, under the influence of alcohol or drugs).

With the aim of exploring the motivation to participate in a prevention program, an additional deeper data collection was performed. In the autumn of 2004 one university-based prevention program started in which 47 students enrolled. After the start of the program they were asked to write down on a blank paper the reasons why they had decided to participate in the program.

The reasons are presented in table 2. This additional question was presented just to participants - for those who enrolled and took part in the program (n=47).

## Results

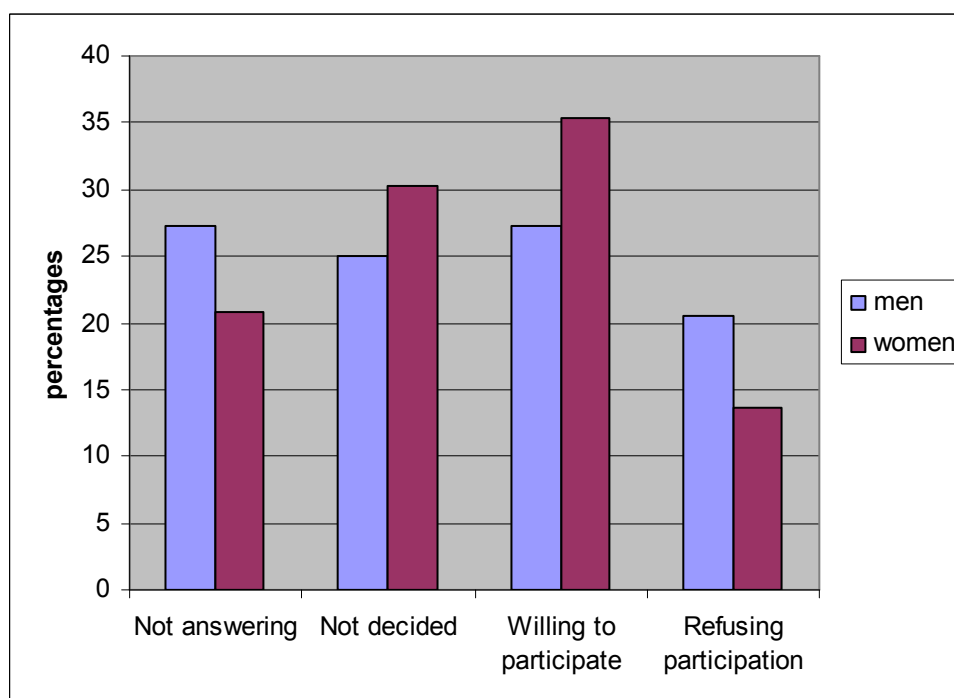
As can be seen in table 1, willingness to participate in the program was expressed by 31.8% of respondents, 16.5% of respondents did not want to participate, 28.1% were not decided yet and 23.6% of respondents did not answer this question.

Table 1: Willingness to participate in a prevention programme

Interest to participate	Total	Female	Male
Willing to participate	31.8%	35.3 %	27.3%
Refusing participation	16.5%	13.7%	20.5%
Not decided	28.1%	30.3%	25%
Not answering	23.6%	20.8%	27.3%
<b>Total</b>	<b>828</b>	<b>476</b>	<b>352</b>

Using the chi-square test, statistically significant differences among men and women in willingness to participate was confirmed. More males than females refused to participate in a program (see Graph 1).

Graph 1: Willingness to participate in a prevention programme among men and women



Using the chi-square test and multinomial logistic regression, significant effects of gender, mother's education, smoking and binge drinking on motivation to participate in the program were confirmed. Females in comparison to males have a significantly higher probability of being willing to participate in a prevention program than the probability of refusing participation. Respondents from lower SES groups (based on mother's education) have a significantly higher probability of

being not decided yet or of being willing to participate in a prevention program than the probability of refusing participation in comparison to respondents from higher SES groups. Non-smokers and binge drinkers have a significantly higher probability of not answering than of refusing participation in comparison to smokers and those who had not been drunk.

The participants' answers to the question “why did you decide to take part in the program?” are shown in table 2. The most frequent answer was the desire for experiencing something new. Meeting new people was in second place, just as interest in drug and sexually-transmitted diseases. Peer influence as a strong factor is reflected in 17% of the participants' answers; the possibility of obtaining credits for their course at the university persuaded 14% of respondents.

Table 2: Reasons for participation in the program (n=47)

Response	Percentages
I wanted to experience something new	49%
I wanted to get to know new people	29%
I am interested in the "drug and STD" information	29%
I've been interested in psychological issues	20%
My friends have persuaded me to enroll	17%
Possibility of getting course credits	14%
I wanted to learn more about myself	9%
I wanted to learn to cope with my own problems and problems of others	9%
Just for fun	9%
I took part in a similar program and I was very content with it	6%
I wanted to practise speaking with new people	3%

## Discussion and conclusions

Lower socio-economic status and female gender contribute to higher motivation to participate in a health promotion program. Findings that women are more interested in prevention programs are in accordance with other studies of participation in health education<sup>3,4</sup>. It is important to look for attractive benefits that could be offered to male subgroups and which would encourage them into participation. A possible explanation for higher interest in participation among groups with lower socio-economic status may be that those with lower SES were more in need of a new perspective on their lives; they are a minority among university students and participation in the program may serve as a gate to the community of peers originating from a different, higher SES culture.

Additional analysis within those already participating in the current program showed that important incentives for joining the program are social motivation, an opportunity to meet new people and make new friends; external benefits (e.g. possibility of obtaining course credits) and peer influence. Such knowledge might prove valuable in designing propagation of the program among students. The group of participants distinguished and perceived the program as an opportunity to meet new people to improve their own knowledge and social abilities. No-one expressed any explicit interest in learning something about his or her own health. Once we know what makes a prevention program attractive to the target group, we should attune to that and offer effective incentives for participation. In the delivery of health promotion university students appear to be an important target group. It is

good to use this age and life period in which young people are open and have relatively enough time for activities like this.

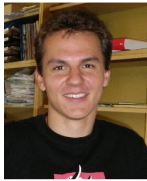
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This paper was supported by:

- Research grant agency of Ministry of Education and Slovak Academy of Sciences under contract VEGA 1/1408/04;
- Research and Development Support Agency under the contract No. APVT-20-028802
- University Medical Center Groningen, University of Groningen, The Netherlands

# Sexual risky behaviour among university students



Ondrej Kalina

Kalina Ondrej, Madarasova Geckova Andrea, Jarcuska Pavol, Humenikova Maria, Salonna Ferdinand, Orosova Olga, van Dijk Jitse P., Reijneveld Sijmen A.

## Introduction

Although sexual behaviour is an important part of health-related behaviour, literature related to determinants of risky sexual behaviour among young people is scarce. Several studies have shown that risky sexual behaviour may be associated with other types of unhealthy behaviour (binge drinking, drug use and smoking), or may be a consequence of reduced well-being or self-esteem<sup>1-4</sup>.

Adolescence is a developmental period marked by increased autonomy, affiliation with peers and frequent risk-taking behaviour<sup>5</sup>. In particular, the initiation of sexual behaviour and involvement with alcohol and other drugs often begin in adolescence<sup>6</sup>. Each year, 8 million cases of sexually-transmitted disease occur in people below the age of 25 years, and sexually-active adolescents have higher rates of sexually-transmitted disease acquisition than any other age group<sup>7</sup>. In line with this, adolescents and young adults in particular have been found to be at high risk for many negative health consequences related to sexual risk-taking behavior including unintended pregnancy, infection with sexually-transmitted diseases (e.g. chlamydia, syphilis) and infection with human immunodeficiency virus<sup>8-9</sup>.

This paper explores the influence of risky behaviour (binge drinking, smoking, having sex before age 16), gender and well-being on sexual risky behaviour among university students.

## Methods

The sample consisted of 830 (354 male and 476 female, mean age 20.5 years, SD 1.4) university students of medicine, science and technical branches. In April and November 2004 respondents completed a questionnaire during an obligatory lecture under the guidance of the field workers. Their participation was voluntary and non-anonymous.

Three types of risky behaviour were explored: being drunk at least once during the last month, smoking at least one cigarette per week and having sex before age 16. Psychological well-being was measured with the shortened 12-item version of the General Health Questionnaire (GHQ-12), (Goldberg 1972). The separate items focus on various aspects of respondents' psychological dispositions, for example problems with sleep, strain, happiness or stress. The questions compare how respondents' present state differs from their usual state. The GHQ-12 was scored as a four-point Likert scale giving a range of 0-36. A higher sum score means lower psychological well-being. Mean score was trichotomized: high (0 to 11), middle (12 to 23) and low (24 to 36) psychological well-being.

Having sex after a very short relationship or under the influence of drug or alcohol consumption was considered as risky sexual behaviour. The influences of

binge drinking, smoking, age at first sexual intercourse, gender and well-being on occurrence of risky sexual behaviour were explored using logistic regression.

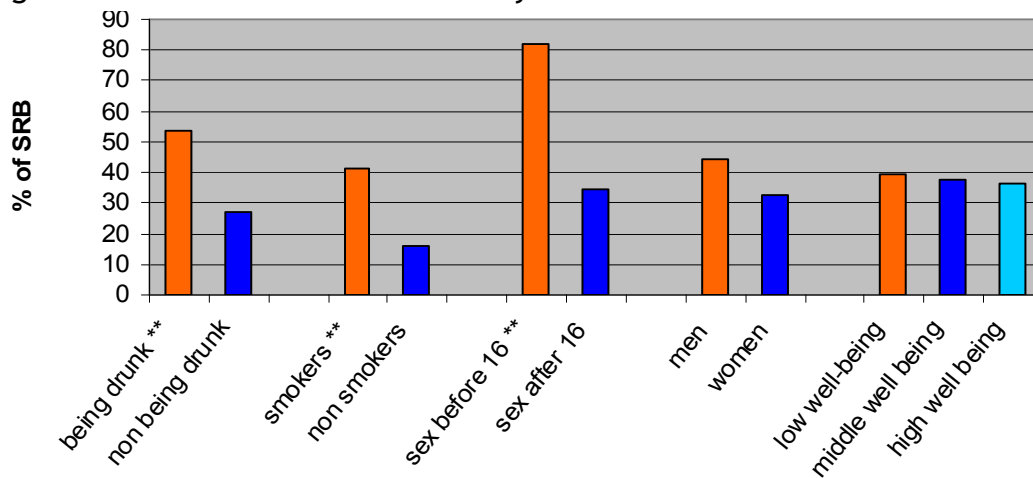
## Results

Nearly three quarters of respondents reported having sex, and of those 38% (n=168) reported a sexual risky experience. The incidence of binge drinking, smoking and having sex before age 16 significantly increased the probability of risky sexual behaviour. The contributions of gender and well-being to the variance of risky sexual behaviour were not significant. (Table 1 and Figure 1) Our model explained 15.9% of variance in risky sexual behaviour.

Table 1: Determinants of sexual risky behaviour

	Sig.	Exp(B)	CI 95%	
Being drunk	0,00**	2,59	1,68	4,01
Smoking	0,01**	2,54	1,25	5,15
Early sexual intercourse	0,00**	7,58	2,73	21,05
Gender	0,17	0,74	0,48	1,14
High well-being	0,82			
Middle well-being	0,76	0,92	0,53	1,58
Low well-being	0,53	0,83	0,45	1,51

Figure 1: Determinants of sexual risky behaviour



## Discussion and conclusion

Our study suggests that substance use (alcohol use) is one of the most consistent predictors of sexual risky behaviour. Sexual intercourse under risky conditions (e.g. being drunk, using drugs) is often without rational control. Furthermore, people with such experience could have a tendency to lack self-control, in which case an accumulation of risky behaviour is to be expected. Another explanation can be found in theories of sensation-seeking. These suggest that certain people have a predisposition to seek sensation, and are thus more likely than others to engage in a variety of risky behaviours<sup>10-11</sup>. Nevertheless, we consider such behaviour mostly in terms of risk factors: having sexual intercourse with somebody whom one does not know or being under the influence of alcohol or drugs.

In our sample early sexual intercourse (before 16) was a significant predictor of sexual risky behaviour. Several possible explanations can be discussed here. Adolescents and young adults may also drink or use drugs to give themselves “permission” to engage in risk-taking<sup>12</sup>. Our study findings suggest that smoking seems to be a “co-occurrence” predictor of sexual intercourse under risky occasion. In other words, where binge drinking was significant also smoking was significant. Such behaviour can be explained in terms of a cumulative tendency, where risky behaviour (smoking, drinking, drug use) coincide together. Consequently social environments that promote alcohol and other drugs use, may also promote the meeting of new sexual partners. These processes could result in intercourse with new or casual sexual partners or could result in earlier initiation of intercourse within a relationship.

The results suggest a prevalence of behavioural factors in sexual risky behaviour. Focusing on and describing behavioural factors (binge drinking, smoking and sex before age of 16) seems very important, particularly in adolescent and young adult ages. Moreover the high incidence of risky sexual behaviour among young people indicates the need for health-promotion programmes including sex education. Focusing on prevention in a related set of unhealthy behaviours instead of a single type of unhealthy behaviour would appear to be very important.

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This paper was supported by:

- Research grant agency of Ministry of Education and Slovak Academy of Sciences under contract VEGA 1/1408/04;
- Research and Development Support Agency under the contract No. APVT-20-028802
- University Medical Center Groningen, University of Groningen, The Netherlands

# The effect of social skills and smoking on mental health of adolescents



**Maria Sarkova**

Sarkova Maria, Katreniakova Zuzana, Nagyova Iveta, Madarasova Geckova Andrea, Orosova Olga, van Dijk Jitse P.

## Introduction

Adolescence is a transitional period marked by new social situations and new specific challenges in the lives of young people. An important social skill like assertiveness promotes personal well-being, equality in human relationships, enabling people to act in their best interests, and to stand up for themselves without undue anxiety<sup>1,2</sup>. Previous studies have shown that social skills are related to different indicators of psycho-social functioning like self-esteem and psychological well-being<sup>3,4,5,6</sup>. The efficiency of health-promotion programmes is highly dependent on accurate identification of significant and changeable health determinants in target groups. Several studies indicate that social skills and health-risk behaviour may fit these criteria. Adolescence is an important period for development as well as for practice of both social skills and health-risk behaviour with significant consequences for health<sup>7</sup>.

The aim of this presentation is to explore gender differences in social skills, the effect of gender, social skills and smoking on psychological well-being, and the effect of gender and social skills on smoking.

## Methods

The study included 1 023 respondents consisting of 487 boys and 536 girls with mean age 14.9 years from 15 primary and 3 grammar schools in Kosice. Data were collected during May and June 2003.

Psychological well-being was measured using the 12-item version of the General Health Questionnaire<sup>8</sup>. The separate items focus on various aspects of respondents' psychological disposition, for example problems with sleep, strain, happiness or stress. The sum score ranged from 0 to 36 and higher score indicates worse mental health.

Social skills were measured using the Scale for Interpersonal Behaviour for Adolescents SIB-A<sup>9</sup>. The SIB-A was constructed as a multidimensional measure of assertiveness that assesses the degree of anxiety in specific social situations. Four dimensions of SIB-A are measured:

- display of negative feelings or negative assertion, like requesting change in another person's irritating behaviour, standing up for one's rights in a public situation (negative feelings). This dimension included the following items 2, 7, 9, 10, 15, 21, 24, 27, 30, 31, 36, 45 and 47 with the range of sum score: from 13 to 52.
- expression of and dealing with personal limitations, like requesting help and attention, ability to deal with criticism and pressure (personal limitations). This dimension included the following items 4, 11, 12, 13, 17, 22, 28, 33, 37, 39, 43, 44 and 46 with the range of sum score: from 13 to 52.

- initiating assertiveness, like introducing oneself, starting a conversation with a stranger or group of strangers, expressing one’s own opinion (assertiveness). This dimension included the following items 1, 3, 5, 25, 26, 29, 35, 38, 41 and 42 with the range of sum score: from 10 to 40.
- display positive assertion, like displaying feelings, the ability to deal with compliments, giving and receiving praise and compliments (positive feelings). This dimension included the following items 6, 8, 16, 18, 20, 23, 34 and 40 with the range of sum score: from 8 to 32.

The respondents evaluated each item on 4-point scale. Higher score indicates lower social skills.

Smoking experience in this adolescent group was measured using the question “Do you have some experience with smoking?” According to their answer, the respondents were categorised as non-smokers or smokers.

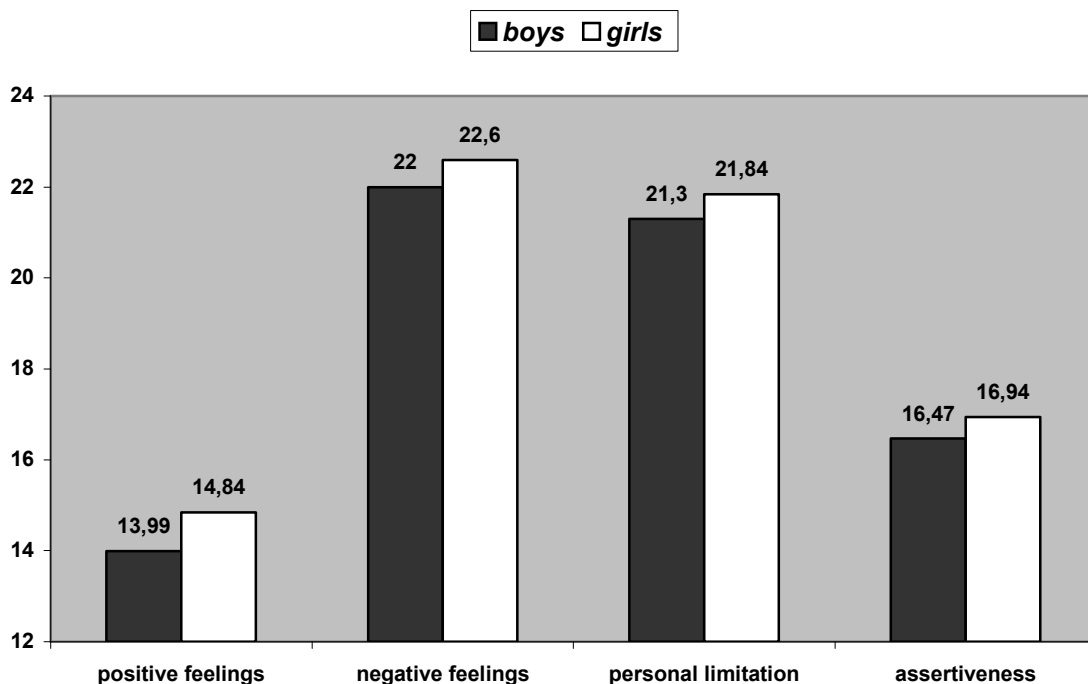
## Analysis

Gender differences in four dimensions of social skills were analysed using t-tests. The effects of social skills, gender and smoking on psychological well-being were analysed using linear regression, and the effects of social skills and gender on smoking were analysed using logistic regression.

## Results

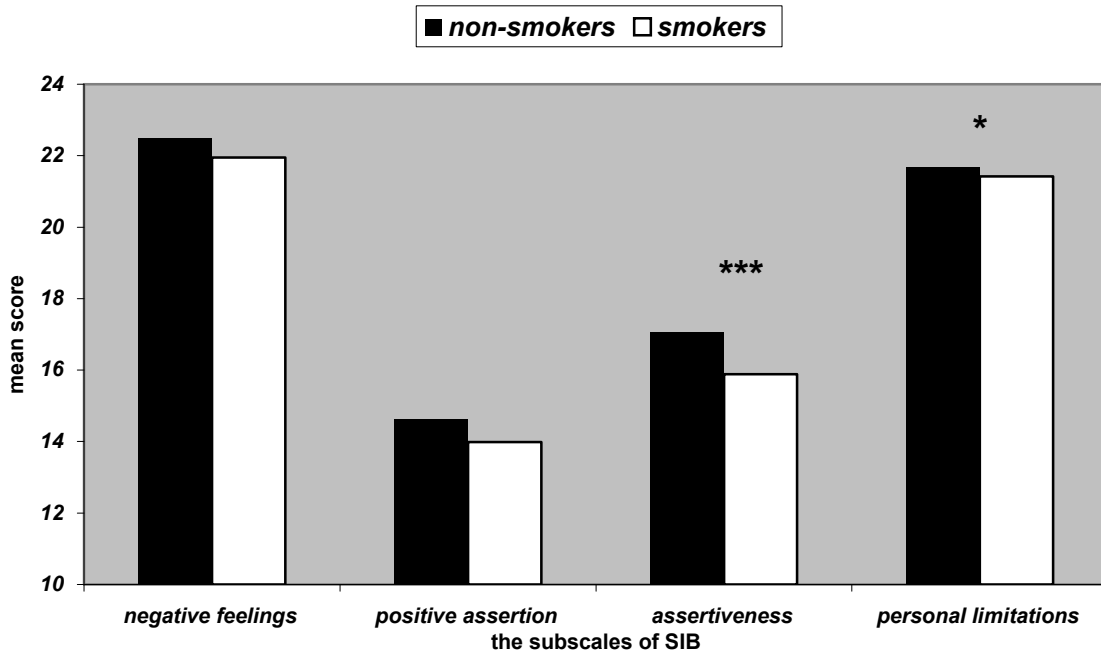
As shown in Figure 1, there are significant differences between boys and girls in the ability to display positive assertion and express and deal with personal limitations. Girls are characterized by lower ability in both dimensions in comparison to boys.

Figure 1: The gender differences on subscales of the SIB-A



Significant effects of gender, smoking and two dimensions of psychological well-being were confirmed. The respondents characterized by lower ability to display positive assertion and to express and deal with personal limitations reported worse mental health. Similarly smokers in comparison to non-smokers and females in comparison to males reported worse mental health. (Figure 2)

Figure 2: The comparison between non-smokers and smokers in the subscales of the SIB-A



As presented in Figure 2, a significant effect of two dimensions on the probability of being a smoker was found. Higher ability to express and deal with personal limitations and to initiate assertiveness increases the probability of being a smoker.

## Conclusion

In the present study the significant effects of gender, two out of four dimensions of SIB (displaying positive assertion and expression of and dealing with personal limitations) and smoking on psychological well-being of adolescents were confirmed. Females, respondents characterised by lower social skills and smokers displayed worse mental health. Higher ability to initiate assertiveness and expression of and dealing with personal limitations increased the probability of being a smoker.

Health-promotion programmes with target groups of adolescents are usually oriented towards prevention of risky behaviour. The present results show that health-promotion programs aiming to increase social skills of adolescents may stimulate their mental well-being and also health-related behaviour.

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**This paper was supported by:**

- Research grant agency of Ministry of Education and Slovak Academy of Sciences under contract VEGA 1/1408/04;
- Research and Development Support Agency under the contract No. APVT-20-028802 and No. APVT-20-003602
- University Medical Center Groningen, University of Groningen, The Netherlands

# How does the employment status of parents influence the health of Slovak and Dutch adolescents?



**Maria Sleskova**

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## Introduction

In recent studies parental unemployment has mostly been considered only as one of the indicators of socio-economic status or one of the negative family events<sup>1,2</sup>. Only a few studies have focused solely on parental unemployment and its consequences for children<sup>3,4</sup>. But if we want to understand what happens with a child when one or both parents are unemployed, we have to pay closer attention to the parental unemployment and not to leave it sidelined by the other socio-economic status indicators or other negative family events. In this presentation, therefore, the preliminary results of our research concerning solely parental unemployment will be presented.

Previous research has confirmed the negative effect of parental unemployment on various aspects of children's lives, among others also on children's health<sup>5,6,4</sup>. There is also evidence that the effect of parental unemployment on children could be specific within each country<sup>7</sup>. There is a possibility that cultural environments and typical gender role distributions in different countries could be important factors influencing the association between parental unemployment and children's health. We therefore compared these associations between two countries with to some extent different cultural contexts: Slovakia and the Netherlands.

Regarding unemployment, there are several differences between Slovakia and the Netherlands. Firstly, the unemployment rate in these two countries is very different. At the time of data collection (1994-1998) the unemployment rate in Slovakia was around 14% while in the Netherlands it was much lower at only 7%. Secondly, it is not very common for women in Slovakia to consider themselves as housewives. The situation in the Netherlands is different. A high proportion of women consider themselves to be housewives, and being a housewife is the most frequent reason for not being employed in the Netherlands. Thirdly, unemployment benefit is much higher in the Netherlands. In Slovakia in the late 1990's the benefit was paid not longer than 12 months and came to around 50% of the previous wages. In the Netherlands the duration of benefit can be up to 4 years and at the time of data collection it came to about 70% of the previous wages. These three differences put Slovaks without paid jobs in a less favourable position than the Dutch.

Based on these arguments we settled on two main hypotheses. Firstly, we expected that both father's and mother's unemployment would have a negative effect on the health of adolescents. Secondly, because unemployment in Slovakia seems to be a more stressful event than in the Netherlands, we supposed that the negative effect of parental unemployment would be more visible among Slovak adolescents than among the Dutch.

## Methods

### Sample

The data set from Slovakia was collected in the autumn of 1998 at 31 secondary schools located in the Kosice region. The sample consisted of 2616 students aged 13.8 to 17.3 years (mean age 14.9) and was stratified by type of school and gender (52% male, 48% female). A response rate of 96.3% was achieved.

The data from the Netherlands were collected in November 1994 and January 1995 at 18 secondary schools in the three northern provinces of the Netherlands. The sample consisted of 2054 respondents aged 14.1 to 21.8 (mean age 16.3; 50.2% male, 49.8% female). This represents a response rate of 95%.

### Measures

Three indicators of health and one indicator of self-esteem were used in our study. These were a well-known one-item indicator of general health - self-rated health, the 12-item version of the General Health Questionnaire, a one-item indicator of long-term well-being, and the Rosenberg self-esteem scale. All indicators were dichotomized in order to use logistic regression analyses.

Parental employment status was divided into two categories: employed versus unemployed for father and mother separately.

## Results

Logistic regression was used to assess the effect of father's and mother's unemployment separately on the health of adolescents in the Slovak and Dutch samples. In Table 1 odds ratios for bad health are presented. Father's unemployment had a significantly negative effect on self-rated health and long-term well-being of Slovak males but had no effect on any aspect of Slovak females' health. In contrast, father's unemployment was associated with worse self-rated health of Dutch females, but was not a predictor of worse health among Dutch males.

The situation with regard to mother's unemployment was different. Having an unemployed mother was associated with lower self-esteem among Slovak males. No other significant effect of mother's unemployment on Slovak adolescents was found. In the Dutch sample, mother's unemployment was a significant predictor of poor long-term well-being both among males as well as females. There was no other association between mother's unemployment and adolescents' health in the Dutch sample.

Table 1: Effect of father's and mother's unemployment on adolescents' health. Odds ratios (OR).

	Slovak		Dutch	
	males	females	males	females
<b>Father's unemployment</b>				
Self-rated health	1.49*	1.40	0.93	1.87**
GHQ	1.13	0.96	1.5	1.16
Long-term well-being	2.01**	0.77	1.41	1.61
Self-esteem	1.38	1.21	0.89	0.96
<b>Mother's unemployment</b>				
Self-rated health	1.01	1.11	1.10	0.86
GHQ	0.95	0.80	0.91	0.78
Long-term well-being	1.03	1.05	1.69*	1.44*
Self-esteem	1.80**	1.15	1.18	0.95

\*  $p < 0.05$ ; \*\*  $p < 0.01$

## Discussion and conclusion

Firstly we found that parental unemployment had a negative effect on some aspects of health among both Slovak and Dutch adolescents. However, the negative effect of parental unemployment on adolescents' health was in general lower than we expected. This could be explained by the duration of unemployment, the importance of which was suggested in the previous research, where only long-term parental unemployment was an important predictor of worse health of adolescents<sup>6,7</sup>. Because in this study the length of unemployment was not available in the Dutch sample and consequently could not be considered, short-term unemployed parents could to some extent influence our results.

Secondly, it seems to be that father's employment status is more important for predicting the health of Slovak adolescents than Dutch ones. As was mentioned before, unemployment benefits are much lower in Slovakia than in the Netherlands. Poverty and economic stress have been found to have a negative impact on adolescents' health<sup>8,9</sup>. Because the father is usually the breadwinner of the family, the economic loss is probably significant in Slovakia and it more deeply affects the health of children. However, differences between Slovakia and the Netherlands were not as great as could be expected when taking into account financial stress. This suggests therefore that other stressors than finances probably affect children when their parents are unemployed.

Thirdly, mother's employment status seems to be more important for Dutch adolescents than for Slovak ones. This was a quite interesting result. But when we had a closer look at the data and we distinguished between housewives and unemployed women, we found that it was not "being unemployed" but rather "being a housewife" in the Netherlands that had a negative effect on adolescents' well-being. This raises the question of whether it is beneficial for 16-year-olds' well-being to have their mother at home the whole day. This issue has not been explored in the literature yet and this investigation would be useful in the future.

We believe that thanks to this study not only several answers but also several questions have been generated, which offer ideas for further research on parental unemployment, especially the mechanisms within families suffering from parental unemployment and the effect of parental unemployment on the health, behaviour, self-esteem, self-confidence and academic achievement of children among other aspects of children's lives.

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This paper was supported by:

- Research and Development Support Agency under the contract No. APVT-20-028802 and No. APVT-20-003602
- University Medical Center Groningen, University of Groningen, The Netherlands

# Social inequalities in changes of health-related behaviour among Slovak adolescents between 15 and 19



Ferdinand Salonna

Salonna Ferdinand, van Dijk Jitse P., Madarasova Geckova Andrea, Sleskova Maria, Groothoff Johan W., Reijneveld Sijmen A.

## Introduction

In the last three decades a number of studies describing the relationships between Socio-Economic Status (SES), Health-Related Behaviour (HRB) and health have been performed.<sup>1</sup> Undoubtedly HRB is a very important determinant of health as well as a contributor to socio-economic inequalities in health.<sup>2</sup>

Concerning HRB, adolescence is one of the most important periods of life. Adolescence is characterised by a strong tendency to experiment with risky behaviour. Search for novelty and courage for experiments are much higher in adolescence than in later life.<sup>3</sup> Even though it is illegal, many young people have experience with drinking alcohol before their 18<sup>th</sup> year of life, likewise with using drugs such as marijuana.<sup>3;4</sup> Most adult smokers took up regular smoking in the period of adolescence.<sup>5</sup> HRB established during this period tends to be maintained in adulthood.<sup>6;7</sup>

Generally, people with lower SES exhibit more risky behaviours, such as smoking, poor diet and physical inactivity, than those with higher SES.<sup>8;9</sup> On the other hand, no consistent socio-economic differences in alcohol consumption have been confirmed. The relation between SES and alcohol consumption is usually weak or reversed.<sup>10</sup> While binge drinking is associated with lower SES groups, some studies report that regular but moderate drinking is more common in higher SES groups.<sup>11</sup> Whatever the case, studies of socio-economic differences in HRB among adolescents often present inconsistent or even contradictory findings.

It is important to mention very considerable gender differences with reference to health-related behaviour. Generally, males exhibit more health-risky and less health-protective behaviour than females.<sup>12;13</sup> However, in recent years some studies have reported a remarkable increase in smoking among women; a sedentary lifestyle is also more common among them.<sup>12;14</sup>

The aim of this study was to describe the changes in HRB according to their SES in a cohort of Slovak young adults between their 15<sup>th</sup> and 19<sup>th</sup> years of life. Our attention is accordingly focused on the following research questions: Did HRB of adolescents change between the 15<sup>th</sup> and 19<sup>th</sup> years of life? Were the changes in HRB during adolescence related to SES? Which SES indicators were most predictive for evaluation of socio-economic differences in HRB?

## Methods

### Sample

Data for the baseline study (T1) were collected in autumn 1998. The sample consisted of 2616 (52.4% males) first grade students of 31 secondary schools located in Kosice, Slovakia. The mean age of the participants at baseline was 14.9 ( $\pm$  3.75)

years compared to 18.8 ( $\pm$  2.75) at follow up. Respondents who agreed at T1 to participate in the second wave (N=1850) received self-administered postal questionnaires by mail during December 2002 together with a stamped return envelope. One reminder was sent to those who did not reply. We received 844 usable questionnaires (42.7% males), which represents a response rate of 45.5%. Males with apprentice education were slightly underrepresented at T2.

### Indicators of socio-economic status (SES)

In total, six indicators of the adolescents' SES were used: their own current educational level and occupational status, and the educational level and occupational status of each father and mother.

### Measures of health risk behaviour

Four sub-areas of health-related behaviour were analysed: smoking, alcohol use, marijuana use and (lack of) physical exercise.

### Statistical analysis

Changes in HRB with regard to gender and SES were analyzed using logistic regression. A crude model and a model controlling for HRB at baseline were explored. The analyses were all done using the statistical software package SPSS version 10.1.

## Results

### Gender differences

No gender differences in changes of smoking behaviour between T1 and T2 were found (Figure 1). Statistically significant gender differences were found in changes of alcohol (Figure 2) consumption, experience with marijuana (Figure 3) and insufficient physical activity (Figure 4) between T1 and T2.

Figure 1: Changes of smoking according to gender

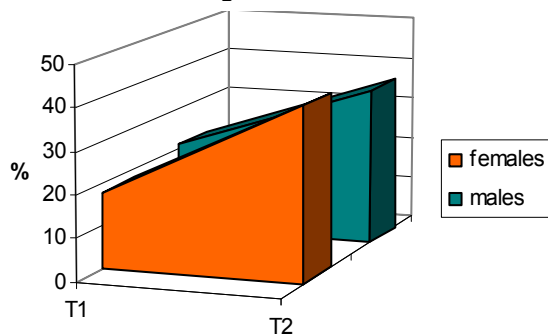


Figure 2: Changes of alcohol consumption according to gender

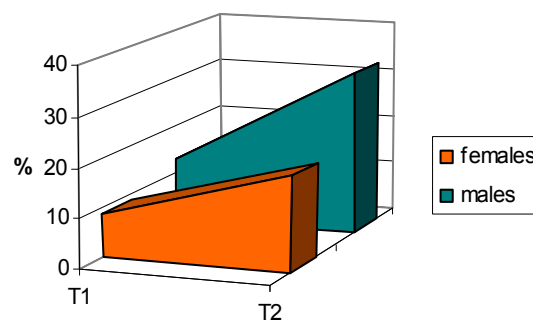
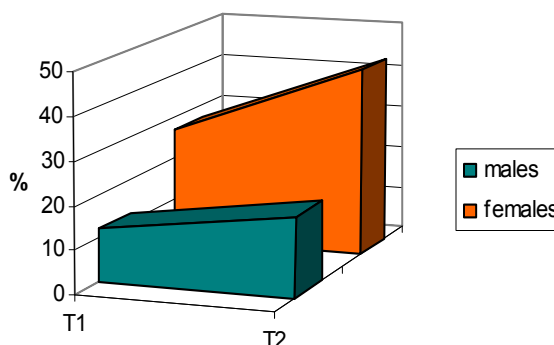
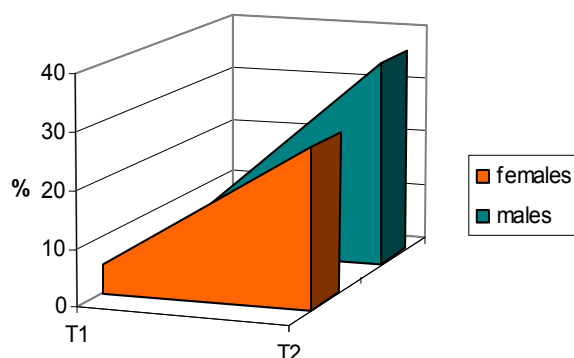


Figure 3: Changes of marijuana use according to gender



The relative increase in occurrence of alcohol consumption and marijuana use was greater in males compared with females, whereas for insufficient physical activity the increase was greater among females compared with males.

### Socio-economic differences

No significant SE differences in the changes of all examined indicators for HRB were found among males, while socio-economic variables were strong predictors of changes between T1 and T2 in most HRB measures for females.

Regarding alcohol consumption and marijuana use we found clear negative SES gradients in changes of HRB among females. Increases in the occurrence of alcohol consumption and marijuana use were greater among females of higher SES in comparison to females of lower SES (Figure 5 and Figure 6). The educational level of respondents and the father's educational and occupational levels were the most predictive SES indicators for change in alcohol consumption, while both parents' educational and occupational levels were the most predictive SES indicators for experiments with marijuana.

Figure 5: Changes in alcohol consumption according to respondent's educational level - females

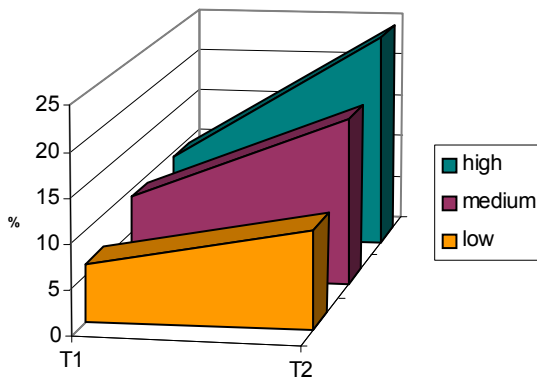
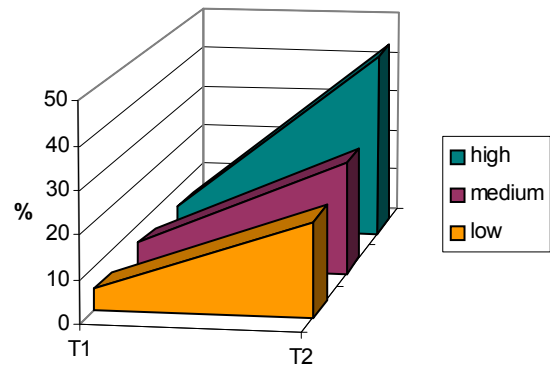
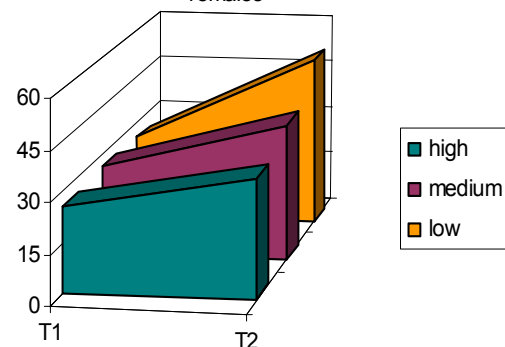


Figure 6: Changes in marijuana consumption according to mother's educational level - females



On the other hand, clear positive SES gradients were found regarding changes in insufficient physical activity. Increase in the occurrence of insufficient physical activity was less in higher SES females in comparison with lower SES females (Figure 7). Of the SES indicators used, the educational levels of the adolescents and both parents were the most predictive for the changes in insufficient physical activity of females.

Figure 7: Changes in insufficient physical activity according to father's educational level - females



Concerning changes in smoking habits of females we found a less clear picture. While according to the existing occupational status of respondents a positive socio-economic gradient in changes of smoking behaviour was found (students had the lowest, employed and unemployed had greater increases in the number of smokers), according to the other SES indicators we found that the higher the SES, the greater the increase in the number of smokers (Figure 8 and Figure 9).

Figure 8: Changes in smoking according to current occupational status - females

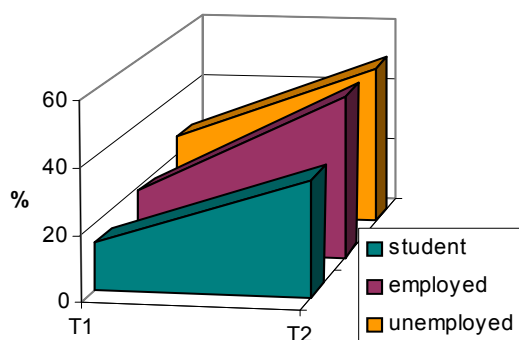
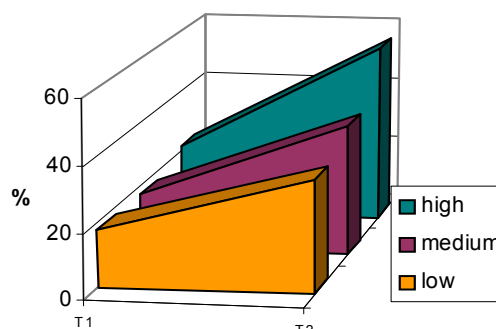


Figure 9: Changes in smoking according to mother's occupational status - females



## Discussion

This study describes changes in HRB according to SES in a cohort of Slovak young adults between their 15<sup>th</sup> and 19<sup>th</sup> years of life. Between these years of life a greater increase in alcohol consumption and use of marijuana was found for males in comparison with females. However, the increase in insufficient physical activity was higher for females. High consumption of alcohol is likely to be linked to the young male lifestyle, associated with normative pressure to drink from friends.<sup>13</sup> The reasons for marijuana use among men may be similar to those for alcohol, and peer attitudes play an important role in explaining this.<sup>11</sup>

On the other hand, no gender differences concerning changes in smoking were found. This finding is fully in line with the results of some other studies performed in recent decades. They present a well-documented equalisation trend in males' and females' smoking behaviour.<sup>13;16</sup>

Changes in alcohol consumption by females were mostly related to the educational and occupational levels of the father and the respondent's own educational level. Females with higher SES reported a greater increase in alcohol consumption compared to females with lower SES. Moderate drinking may be part of a high socio-economic status lifestyle geared towards pleasure and comfort.<sup>11;17</sup>

Educational level of parents and school environment appeared to be significant predictors of sedentary lifestyle. Greater increase in insufficient physical activity was observed among females with lower education and with less educated parents. Even though lower education is usually associated with lower income, the inaccessibility of sports facilities due to high costs could explain this effect only partially. The explanation for this relationship is more likely to be a kind of normative behaviour in higher SES groups. Highly-educated people have more information on the harmful effects of certain health-damaging behaviours and better ability to make informed choices.<sup>18</sup>

Initiation of HRB takes place in the turmoil of adolescence, which is characterized by many personal and social changes. It is difficult to capture and understand the dynamics in which uptake of HRB takes place. More longitudinal research is needed to fully understand the process by which age, SES and HRB influence health.

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This paper was supported by:

- Research and Development Support Agency under the contract No. APVT-20-028802 and No. APVT-20-003602
- University Medical Center Groningen, University of Groningen, The Netherlands

# Chronic Disease and Quality of Life

An Invitation to the next KISH Workshop



Iveta Nagyova

<b>Date</b>	October 2006
<b>Location</b>	SAVEZ conference
<b>Main aim</b>	to present recent research findings of KISH related to quality of life in persons with a chronic disease
<b>Language</b>	English

The second KISH workshop will be devoted to issues related to functional status and quality of life in persons with a chronic disease. This topic is of great importance since the increase in numbers of chronically ill patients has an immense impact on the health-care institutions and on public health policy, besides the significant influences which chronic diseases have on the quality of life of the individual patients and other people closely related to them. This development has led to a growing interest in the management of chronic diseases on an individual level as well as on the state level.

The workshop will address the following themes in particular:

- biomedical component - with special focus on identifying determinants of aggressive as compared with benign courses of the disablement process in chronic diseases
- psychological component - personal resources mediating the effect of a chronic condition on patients' quality of life (self-management activities, coping, self-efficacy, self-esteem)
- socio-economic component - social resources mediating the effect of a chronic condition on patients' quality of life (social support, family system) as well as the role of socio-economic status, ethnicity

Outcomes of research performed concerning the following chronic diseases will be presented:

<b>Chronic disease / condition</b>	<b>Presenter</b>
▪ Dialysis, kidney transplantation	Jaroslav Rosenberger
▪ Multiple Sclerosis	Martina Krokavcova / Miriam Gavelova
▪ Parkinson's disease	Tatiana Dubayova / Eva Havlikova
▪ Coronary artery disease	Zuzana Skodova / Helena Vargova / Adriana Cverckova
▪ Rheumatoid arthritis	Iveta Nagyova

## Reviews

**Pavol Jarčuška, MD, PhD**

Extraordinary Professor of Public Health

It was a great pleasure for me to review the scientific papers from the KISH workshop “Health of adolescents and young adults”. The significant participants and authors of papers are teachers, scientists and physicians from the University of P.J.Safarik in Kosice. All papers have high scientific and formal standards, and deal with important problems in psychology, prevention and healthcare in the young and adolescent populations. In the next decade the Slovak insurance companies will be planning priorities oriented not only towards cardiovascular and oncology programs, but also to preventive programs for young people (adolescent people in this decade will be the most important payers for creating the insurance budget in the following decades). At the current time the activities of KISH are supported by 3 grants: from the Research Grant Agency of the Ministry of Education and the Slovak Academy of Sciences under contract VEGA 1/1408/04; from the Research and Development Support Agency under contract No. APVT-20-028802 and from the University Medical Center Groningen, University of Groningen, the Netherlands.

The first contribution published by O. Orosová is dedicated to drug prevention and health promoting. The paper is based on 8 years of experience of drug prevention programs in Kosice. These programs have been prepared in co-operation with FILIA, a non-governmental organisation active in this field, and have received the accreditation of the Ministry of Education of the Slovak Republic. The main aim of this contribution is to give an overview of the theoretical and research background of our educational prevention programs.

The second and third contributions are written by A. Madarasova - Geckova and pay special attention to inequalities in health in youth and their possible explanation, and risky behaviour by young people and its possible determinants, as well as possible health-promoting strategies. The author summarizes three PhD dissertations: Socio-economic inequality in health among Slovak adolescents (A. Madarasova), Psycho-social context of health and illness among adolescents (M. Pudelsky) and Mental health of school children and efficiency of health promotion at schools in Slovakia (Z. Katreniakova). The author describes inequalities in health among the young in the past, present and future. The aim of the third paper is to present briefly several definitions of socio-economic inequalities in health (SEIH), research into SEIH, including historical evidence as well as contemporary knowledge about the size, nature, explanation and possible strategies to reduce SEIH, age specificity of SEIH, the reasoning of such research, and finally the main research issues and main recent findings of our group related to SEIH among adolescents and young adults.

The aim of the paper published by M. Humenikova and co-workers is to explore whether a campus health promotion program attracts students. It explores the determinants of interest in participating in such a program among university students. It examines whether students' gender, socio-economic status and health behaviour have any effect on their interest in participation in such a program. The authors collected data from 828 university students (352 men, 476 women, mean age 20.5 year) in Kosice. Approximately 32% of students are willing to participate in health promotion programs.

O. Kalina and co-authors (surely not - but I bet they wish they had!!) investigate sexual risky behaviour among university students. The paper explores the influence of risky behaviour (binge drinking, smoking, having sex before age of 16), gender and well-being on sexual risky behaviour among university students. Data were collected from 830 students of medicine, science and technical branches. Nearly three quarters of the respondents reported having sex, and of those 38% reported a sexual risky experience. The incidence of binge drinking, smoking and having sex before age 16 significantly increased the probability of risky sexual behaviour. The contributions of gender and well-being to the variance of risky sexual behaviour were not significant.

M. Sarkova and co-workers explore gender differences in social skills, the effect of gender, social skills, and smoking on psychological well-being, and the effect of gender and social skills on smoking. The study included 1 023 respondents consisting of 487 boys and 536 girls with mean age 14.9 years from 15 primary and 3 grammar schools in Kosice. There are significant differences between boys and girls in the ability to display positive assertion and express and deal with personal limitations. Girls are characterized by lower ability in both dimensions in comparison to boys. The significant effect of gender, smoking and two dimensions on psychological well-being were confirmed. The respondents characterized by lower ability to display positive assertion and to express and deal with personal limitations reported worse mental health. Similarly smokers in comparison to non-smokers and females in comparison to males reported worse mental health.

In the next paper M. Sleskova and co-authors ask "How does the employment status of parents influence the health of Slovak and Dutch adolescents?" Logistic regression was used to assess the effects of father's and mother's unemployment separately on the health of adolescents in the Slovak and Dutch samples. Father's unemployment had a significantly negative effect on self-rated health and long-term well-being of Slovak males but had no effect on any aspect of Slovak females' health. Furthermore, father's unemployment was associated with worse self-rated health of Dutch females, but was not a predictor of worse health among Dutch males. Having an unemployed mother was associated with lower self-esteem among Slovak males. No other significant effect of mother's unemployment on Slovak adolescents was found. In the Dutch sample, mother's unemployment was a significant predictor of poor long-term well-being among Dutch males and females alike. There was no other association between mother's unemployment and adolescents' health in the Dutch sample.

F. Salonna and co-authors are interested in social inequalities in changes of health-related behaviour (HRB) among Slovak adolescents between the ages of 15 and 19. The aim of this study is to describe the changes in HRB according to their SES in a cohort of Slovak young adults between their 15<sup>th</sup> and 19<sup>th</sup> years of life. Data were ultimately processed from 1850 participants in the first phase of study (T1), and from 844 usable questionnaires collected in the 2nd phase of study (T2), which represents a response rate of 45.5%. No gender differences in changes of smoking behaviour between T1 and T2 were found. Statistically-significant gender differences were found in changes of alcohol consumption, experience with marijuana and insufficient physical activity between T1 and T2. The relative increase in occurrence of alcohol consumption and marijuana use was greater in males compared with females, whereas in insufficient physical activity the increase was greater among females.

In the last paper I. Nagyova invites us to the second KISH workshop and introduces its main topic, which will be devoted to issues related to functional

status and quality of life in persons with a chronic disease. Papers from the Faculty of Science and Medical Faculty of P.J.Safarik University and papers from three important hospitals in Kosice - the University Hospital of L. Pasteur, the East Slovakian Centre for Cardiac and Cardiovascular Diseases and the Railways Hospital are expected.

Finally, I must congratulate the authors on preparing these impressive papers, and the editors on producing this very nice book, which is an example for the other scientists (especially young researchers) working in the field of public and social health.

**Berrie Middel, PhD**

University of Groningen

This book gives an overview of a part of the KISH research programme that is being performed in collaboration with the University of Groningen and it is a first comprehensive monograph that introduces readers to multidisciplinary research on health-related issues in Central Europe.

The great advantage of this book is that it focuses the readers' attention on health-related behaviour of adolescents related to a variety of preventive measures as well as to socio-economic status and unemployment as determinants of health and health related behaviour. The book includes also findings of studies performed by authors who publish in international journals in order to disseminate research finding in Slovakia among the international scientific community in their field.

The book is a very well readable introduction to these topics and gives a valid reflection of the international "state of art" in health sciences in this field. It may be recommended to those who are interested in research that is performed on the edge of scientific theories and societal relevance that meets standards of scientific, unbiased research. The great advantage of this book is that the text is accessible for readers from different fields: psychology, medicine, sociology, economy and health sciences.