

## **7 INFLUENCE OF SOCIO-ECONOMIC STATUS, PARENTS AND PEERS ON SMOKING BEHAVIOUR OF ADOLESCENTS**

### **ABSTRACT**

The influence of socio-economic status, parents and peers on the smoking behaviour of adolescents is explored. The sample consisted of 2616 adolescents. Support for the model, in male and female separately, was provided using LISREL analyses. Peers' smoking is the strongest predictor of adolescents' smoking. Parents' smoking behaviour influences adolescents' smoking directly, but also indirectly through the influence on peers' smoking behaviour (selection of peer-friends). Socio-economic status influences adolescents' smoking indirectly through the influence on parents' and peers' smoking behaviour. Peers' smoking increases the probability of adolescent's smoking. Parental smoking increases probability of smoking among adolescent offspring and their peer-friends. There is greater prevalence of smoking among parents and peers of adolescents coming from families of lower socio-economic status. Our model is significant in both, male and female, and explains 42-51% of the variance in adolescents' smoking behaviour.

### **Key words:**

socio-economic status, parent, peer, smoking, adolescence

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## INTRODUCTION

Smoking behaviour attracts a lot of attention due to its undesirable influence on health and its considerable prevalence in the population. The prevalence of smoking among Slovak adolescents was explored by several transcultural studies (*King et al. 1996, Hibbel et al. 1997, Currie et al. 2000*). According to Hibbel et al. (1997), the prevalence of smoking is “average” among Slovak adolescents in comparison with other surveyed European countries. There are significant gender differences in smoking behaviour (*Geckova et al. 2001f*). The higher prevalence of smoking in males in comparison with females is reported almost in all Central European countries (*Currie et al. 2000*). The undesirable effect of smoking on health in adolescent age itself has been confirmed by *Tynjälä et al. (1997)*, *Geckova et al. (2000b)*, *Holmen et al. (2000)*. A wide range of factors has been investigated for their effect on adolescent’s smoking behaviour. In this article we focus on the effect of parents, peers and SES on adolescent’s smoking behaviour. In previous research we confirmed socio-economic differences in health risk behaviour of adolescents (*Geckova et al. 2001e*) and also significant parent and peer influence on health risk behaviour of adolescents (*Geckova et al. 2000d, Geckova et al. 2001a*). There are some indices for incorporation of SES into the model of parent and peer influence on adolescent’s smoking behaviour (*Green et al. 1991, Glendinning et al. 1994*). The relationship between smoking of adolescents and the smoking behaviour of their parents and peers was explored, as well as whether this relationship is influenced by SES (*Glendinning et al. 1994*). Adolescent’s smoking behaviour was strongly related to parents’ and peers’ smoking, but this relationship was independent of SES. Similar findings are presented in *Green et al. (1991)*: social class and parental smoking behaviour were independently associated with adolescent’s smoking behaviour.

A good deal of the literature supports the hypothesis of indirect influence of parents on health-risk behaviour of adolescents via peer influence (*Wills and Vaughan 1989, Glendinning et al. 1994, Rossow and Rise 1994, Blanton et al. 1997, Brook et al. 1997, Urberg et al. 1997*). From this literature we derived the following hypothesis:

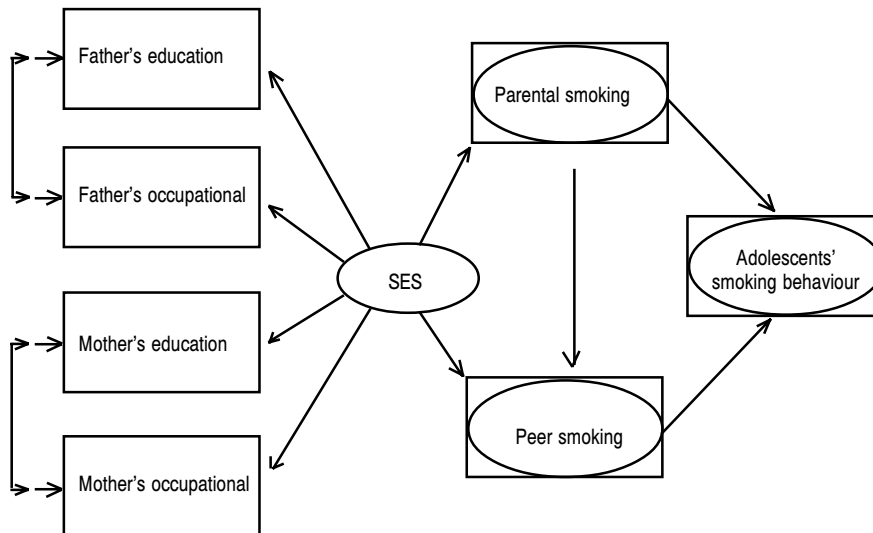
1. We suppose that peers’ smoking behaviour will be the strongest predictor of adolescent’s smoking behaviour.
2. We suppose that parents’ smoking behaviour influences adolescent’s smoking behaviour directly, but also indirectly through the influence on peers’ smoking behaviour (selection of peer-friends).

3. We suppose that SES influences adolescent's smoking behaviour indirectly through parents' and peers' smoking behaviour.

These hypotheses lead us to hypothetical model of relationships between SES, parents' smoking, peers' smoking and adolescent's smoking behaviour, which is described in Figure 5.

There is some indication that smoking behaviour may be determined differently in boys and girls (*Flay et al. 1998, Simons-Morton et al. 1999*). This was the reason to explore male and female separately.

**Figure 5** The hypothetical model of influence of SES, and influence of parents and peers on adolescents' smoking behaviour



## MATERIAL AND METHODS

### Procedure and respondents

Data were collected in 1998. The sample consists of 2616 first grade students of 31 secondary schools located in the Kosice (52,4% boys, 47,6% girls, and mean age 15 years). The sample was stratified according to the gender and types of secondary schools.

Individual schools were selected at random. Our sample is representative for the Slovak adolescent population. Respondents completed the questionnaire at school, in their classrooms under the guidance of the field workers. The response rate was 96,3%; the non-response was due to sick leave and other types of school absence.

The data were assessed by self-reported questionnaires, which included measures of SES, adolescent's smoking behaviour, parent and peer impact.

### **Measures of smoking behaviour**

Adolescents were asked, how many cigarettes they smoked per day. They could select one of the following options: (1) I do not smoke, (2) Not more than one cigarette per day, (3) 2-5 cigarettes per day, (4) 6-10 cigarettes per day, (5) 11-15 cigarettes per day, (6) 16 and more cigarettes per day.

There are 74,5% of non-smokers in our sample (69,2% of male; 80,2% of female). The prevalence in the other 5 categories of smoking behaviour is lower than 10% (male/female: 9%/8%, 10%/6%, 7%/4%, 3%/1%, 2%/1%).

The frequency of smoking is significantly related to a lower level of psychological health, lower self-reported health, higher perceived vulnerability to illness, higher occurrence of health complaints, higher consumption of medical services and in male also higher occurrence of chronic disease (*Geckova et al. 2000b*).

### **Measures of parental smoking**

The respondents were asked if their parents smoked daily. The categories were: (1) none (male: 47,3%, female: 49,2%), (2) one of the parents (male: 35,8%, female: 34,1%), (3) both parents (male: 17,0%, female: 16,7%).

### **Measures of peer smoking**

The adolescents reported how many of their friends smoked daily. The categories were: (1) nobody (male: 25,6%, female: 27,8%), (2) several (male: 43,4%, female: 42,1%), (3) half of them (male: 10,4%, female: 9,7%), (4) majority (male: 14,8%, female: 15,7%), and (5) all of them (male: 5,8%, female: 4,8%).

Some studies used respondents' information about parent smoking behaviour (*Glendinning et al. 1994, Greenlund et al. 1995, Flay et al. 1998, Epstein et al. 1999, Horn et al. 2000, Donato et al. 1994, Bergström et al. 1996*), and some studies used self-reported information obtained from parents (*Blanton et al. 1997, Rossow and Rise 1994, De Vries 1995, Green et al. 1991*). West et al. (1999) use both, respondents' information and self-reported information about parents smoking behaviour and confirmed a high level of correspondence.

### **Measures of SES**

Adolescents reported about father's and mother's level of education in terms of successfully-completed courses. The educational level was classified as: (1) university (father 20,8%, mother 15,6%), (2) post secondary (father 3,3%, mother 5,9%), (3)

senior high school (father 33,3, mother 46,9%), (4) vocational (father 40,4%, mother 26,7%), and (5) elementary or none (father 2,2%, mother 4,9%).

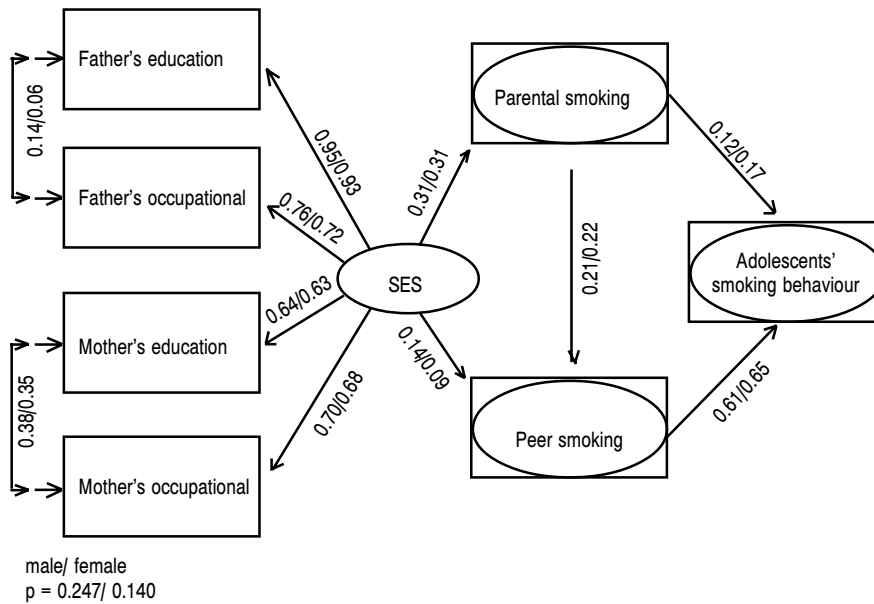
The measure of parents' occupational class is based on asking adolescents about their father's and mother's current occupation, or their last occupation if they were currently unemployed. The obtained information was transformed into 9 categories of ISCO (1992, 1993): (1) legislators, senior officials and managers (father 14,4%, mother 3,0%), (2) professionals (father 9,0%, mother 13,7%), (3) technicians and associate professionals (father 11,7%, mother 17,3%), (4) clerks (father 4,7%, mother 24,1%), (5) Service workers and shop and market sales workers (father 5,0%, mother 17,5%), (6) Skilled agricultural and fishery workers (father 9,3%, mother 5,0%), (7) Craft and related trades workers (father 29,9%, mother 6,0%), (8) plant and machine operators and assemblers (father 12,6%, mother 0,7%), and (9) elementary occupations (father 3,4%, mother 12,6%).

### **ANALYSIS**

The LISREL technique combines two analyses: the factor analysis (the measurement model), and the path analysis - extension of regression analysis (the structural model). The first one, the measurement model, we used to construct the latent variable of SES. It was important for us, because we are interested more on the underlying concept than on the contribution of separate indicators/ dimensions of SES. The second one, the structural model, was used to explore both, the direct and indirect effect of SES, parents and peers on adolescent's smoking behaviour. Using LISREL, we were able to compare the direct and indirect effect.

A model of the inter-relation between SES, parental smoking, peers' smoking and adolescent's smoking behaviour was examined using path analysis with one latent variable. This latent variable, SES, consists of the following four indicators: father's educational level, father's occupational group, mother's educational level, and mother's occupational group. Parental smoking, peer smoking and adolescent's smoking behaviour were measured by one indicator. The main outcome variable is adolescent's smoking behaviour. All variables were treated as ordinal LISREL (version 8.3) software (*Jöreskog and Sörbom 1993*) was employed to examine the proposed model separately in male and female. We compared all the paths (SES@ parental influence, SES@ peers' influence, parental influence@ peers' influence, parental influence@ adolescent's smoking behaviour, peer's influence@ adolescent's smoking behaviour) between male and female model. Goodness of Fit Statistics (Chi square) were used to examine the significance of the models.

**Figure 6** Path diagram for model of SES, parent, and peer influence on smoking (parameters are standardized)



## RESULTS

Figure 6 represents the model, which fits our data the best.

Peers' smoking behaviour is the strongest predictor of adolescent's smoking behaviour. There is greater prevalence of smoking among adolescents reporting more smoking friends.

Parents influence adolescent's smoking behaviour directly, but also indirectly (parent on smoking: 0,14; standardised solution) through their influence on peers' smoking behaviour. Parental smoking increases the probability of smoking among their offspring, but also among their offspring's peer-friends. As we pointed out earlier, reporting more smoking peers is related to higher probability of an adolescent's smoking.

The direct effect of SES on adolescent's smoking behaviour was tested, but was found non-significant and excluded from the model. SES influences adolescent's smoking behaviour indirectly (SES on smoking: 0,15; SES on peer: 0,07; standardised solution) by means of both parents' and peers' smoking behaviour. There is a greater prevalence of smoking among parents and peers of adolescents from families of lower socio-economic status.

The influence of SES on peers' behaviour in females is the weakest ( $\beta=0,10$ ;  $SE=0,04$ ) but still significant.

Our model is significant (male:  $p=0,247$ ; female:  $p=0,140$ ) and explains 42% of the variance in adolescent's smoking behaviour in male and 51% in female. Gender differences in the explored paths were tested and found non-significant ( $\chi^2 = 3,64$ ;  $df=4$ ).

## DISCUSSION

The model with relationships between SES, parents and peers was explored. The influence of peers's smoking is the strongest one. The parental smoking influences adolescent's smoking behaviour directly, but also indirectly via peers'smoking. SES influences adolescent's smoking behaviour indirectly via parental smoking and peers' smoking. There are no significant gender differences in the explored paths.

Significant influence of peers' smoking behaviour on adolescent's smoking behaviour is reported very frequently in literature (*Blanton et al. 1997, Brook et al. 1997, Urberg et al. 1997, Flay et al. 1998, Epstein et al. 1999, Horn et al. 2000, Geckova et al. 2001a*). Similarly with findings of several other authors (*Donato et al. 1994, Bergström et al. 1996, West et al. 1999*), our findings also indicated peers as a strongest predictor of adolescent's smoking behaviour.

The influence of parents on adolescent's smoking behaviour is also very frequently investigated. The majority of the authors confirm the influence of parents' smoking on adolescent's smoking behaviour (*Green et al. 1991, Rossow and Rise 1994, De Vries 1995, Greenlund et al. 1995, Brook et al. 1997, Flay et al. 1998, Geckova et al. 2000d*). On the other hand, *Donato et al. (1994)* consider the effect of parental influence on adolescent's smoking behaviour as modest or irrelevant, *West et al. (1999)*, and *Horn et al. (2000)* confirm its non-significance. However, several authors (*Bergström et al. 1996, Epstein et al. 1999*) have established significant influence of mother's smoking, but not father's smoking on adolescent's smoking behaviour.

Several findings indicate an indirect effect of parents on adolescent's smoking behaviour. Parental smoking, or parent-child relationship can influence adolescent's smoking behaviour indirectly through influence on an adolescent's selection of peers (*Rossow and Rise 1994, Blanton et al. 1997, Brook et al. 1997*). *Rossow and Rise (1994)* reported that parents contribute to the selection of peers whose behaviour is similar to parents' behaviour. *Urberg et al. (1997)* confirmed that parents-adolescent relationships influence the selection of peers. According to *Glendinning et al. (1994)* ASB is influenced by friends' smoking, and when the adolescents themselves

do not smoke then by parental smoking. Similarly according to Wills and Vaughan (1989), the influences of peers and parents interact: adolescents with low social support from adults are more vulnerable to peer pressure. When parents smoke, peer influence on smoking is higher (Wills and Vaughan 1989). According to Blanton et al. (1997) parents' smoking behaviour and the relationship between parents and adolescents influence the selection of peers and peers influence adolescent's smoking behaviour.

Our findings confirm both direct and indirect effects of parents on adolescent's smoking behaviour: parents' smoking behaviour is related to adolescent's smoking behaviour and the number of an adolescent's friends who smoke. We suppose that this indirect influence of parents represents parents' influence on peer selection, but unfortunately our data did not allow us to check this.

Several authors confirmed the direct effect of SES on adolescent's smoking behaviour (Green et al. 1991, Glendinning et al. 1994, De Vries 1995, Greenlund et al. 1995, Bergström et al. 1996, Karvonen and Rimpelä 1996, Tuinstra 1998, Epstein et al. 1999, Simons-Morton et al. 1999, Piko 2000, Geckova et al. 2001e), but some authors did not (Donato et al. 1994, Challier et al. 2000). Green et al. (1991), Glendinning et al. (1994) found the influence of parents and peers on adolescent's smoking behaviour independent from influence of SES on adolescent's smoking behaviour.

Our findings indicate an indirect effect of SES on smoking via parental and peer influence: when parental and peer influence on smoking is included in the model, the direct effect of SES on adolescent's smoking behaviour becomes non-significant. The indirect effect of SES on adolescent's smoking behaviour, mediated by its effect on parent's and peer's smoking behaviour, was significant.

Transitional crisis characterised by socio-economic and political changes related to constrains on both, individual but also societal level, contributed to undesirable trends in population life style (Puska 1997). There are specific conditions of health promotion in Central European countries, which require specific approaches. According to Puska (1997) focusing in smoking behaviour in Central and Eastern Europe "improving population lifestyle is an affordable and effective way to improve the health status of the population" (Puska 1997, p. 143-144).