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Published in:
European Addiction Research

DOI:
[10.1159/000086403](https://doi.org/10.1159/000086403)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2005

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Geckova, AM., Stewart, R., van Dijk, JP., Orosova, O., Groothoff, JW., & Post, D. (2005). Influence of socio-economic status, parents and peers on smoking behaviour of adolescents. *European Addiction Research*, 11(4), 204-209. <https://doi.org/10.1159/000086403>

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Influence of Socio-Economic Status, Parents and Peers on Smoking Behaviour of Adolescents

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Key Words

Socio-economic status · Smoking factors · Adolescence

Abstract

With the aim of analysing the importance of psycho-social factors in predicting adolescents' smoking behaviour, a model of the interrelations between socio-economic status, parents', peers' and adolescents' own smoking behaviours was tested. The sample consisted of 2,616 adolescents. LISREL analyses were used to support the model; males and females were evaluated separately. Peers' smoking is the strongest predictor of adolescent smoking. Parents' smoking behaviour influences adolescents' smoking directly, but also indirectly through the parents' influence on peers' smoking behaviour. Socio-economic status influences adolescent smoking indirectly through its influence on parents' and peers' smoking behaviour. Our model is significant in both males and females and explains 42–51% of the variance in adolescent smoking behaviour. Accentuation of peers' influence on adolescents' smoking behaviour without considering the interrelations between the influence of socio-economic status, parents and peers may lead us to incorrect conclusions in research as well as in prevention.

Introduction

Smoking behaviour attracts a lot of attention due to its undesirable effects on health and its considerable frequency in the population. The frequency of smoking among Slovak adolescents has been explored in several transcultural studies [1–3]. According to Hibbel et al. [2], the prevalence of smoking is 'average' among Slovak adolescents in comparison with other European countries. There are significant gender differences in smoking behaviour [4]. Higher frequency of smoking in males than in females is reported in almost all Central European countries [3]. The undesirable effect of smoking on health in adolescents has been confirmed by several studies [5–7]. A wide range of factors has been investigated for their effects on adolescents' smoking behaviour (ASB) [8].

Significant influence of peers' smoking behaviour on ASB is reported very frequently in the literature [9–14], and many authors consider peers' smoking as the strongest determinant of ASB [15–17].

The influence of parents on ASB is also very frequently investigated. The majority of authors confirm the influence of parents' smoking on ASB [10, 12, 18–21]. On the other hand, Donato et al. [15] consider the effect of parental influence on ASB as modest or irrelevant, while

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1022-6877/05/0114-0204\$22.00/0

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West et al. [17] and Horn et al. [14] confirm its non-significance. However, several authors [13, 16] have established the significant influence of mothers', but not fathers' smoking on ASB.

Several findings indicate an indirect parent effect on ASB [9–11, 19, 22, 23]. Parental smoking and parent-child relationship can affect ASB indirectly through influence on an adolescent's selection of peers [9–10, 19]. Rosow and Rise [19] reported that parents support the selection of peers whose behaviour is similar to their own. Urberg et al. [11] confirmed that parent-adolescent relationships influence the selection of peers. According to Glendinning et al. [22], ASB is influenced by friends' smoking, and if the adolescents themselves do not smoke, they are influenced by parental smoking. Similarly, according to Wills and Vaughan [23], 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 [23]. According to Blanton et al. [9], parents' smoking behaviour and the relationship between parents and adolescents influence the selection of peers and peers' influence on ASB.

Several authors confirm the direct effect of socio-economic status (SES) on ASB [9, 13, 18, 20–22, 24, 25, 27], but others do not [15, 26, 28]. There are some indices for incorporating SES into the model of parent and peer influence on ASB [18, 22]. The relationship between adolescents' smoking and the smoking behaviour of their parents and peers has been explored, as well as whether this relationship is influenced by SES [22]. ASB was strongly related to parents' and peers' smoking, but this relationship was independent of SES. Similar findings are presented in Green et al. [18]: social class and parental smoking behaviour were independently associated with ASB.

There are many combinations of ASB determinants which are explored in the literature, but only a few studies consider the interrelations between the determinants. In this article we focus on the effects of parents, peers and SES on ASB. Our aim is to analyse the importance as well as the interrelations of the mentioned determinants of ASB. In previous research we confirmed socio-economic differences in health risk behaviour of adolescents [29] and also significant parent and peer influence on health risk behaviour of adolescents [30, 31]. We suppose surmise that peers' smoking behaviour will be the strongest predictor of ASB, that parents' smoking behaviour will influence ASB directly, but also indirectly through their influence on peers' smoking behaviour, and that SES will

influence ASB indirectly through parents' and peers' smoking behaviour. These hypotheses lead us to a hypothetical model of the relationships between SES, parents' smoking, peers' smoking and ASB.

There is some indication that smoking behaviour may be determined differently in boys and girls [12, 24]. This was our reason for exploring males and females separately.

Material and Methods

Procedure and Respondents

Data were collected in 1998. The sample consists of 2,616 first-grade students of 31 secondary schools located in the Kosice region (52.4% boys, 47.6% girls, mean age 15 years). The sample was stratified according to gender and secondary school type.

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%; non-response was due to sickness and other types of school absence. The data were gathered using self-reporting questionnaires, which included measures of SES, ASB, parent and peer impact.

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, and (6) 16 or more cigarettes per day.

The respondents were asked if their parents smoked daily. The categories were (1) neither; (2) one of the parents, and (3) both parents.

The adolescents also stated how many of their friends smoked daily. The categories were: (1) nobody; (2) several; (3) half of them; (4) the majority, and (5) all of them.

Adolescents reported on their father's and mother's level of education in terms of successfully completed courses. The educational level was classified as: (1) university (fathers 20.8%, mothers 15.6%); (2) post secondary school (fathers 3.3%, mothers 5.9%); (3) secondary school (fathers 33.3, mothers 46.9%); (4) vocational training (fathers 40.4%, mothers 26.7%), and (5) elementary or none (fathers 2.2%, mothers 4.9%).

The measure of parents' occupational class was 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 the 9 major categories of the International Standard Classification of Occupations (ISCO) [32, 33]: (1) legislators, senior officials and managers (fathers 14.4%, mothers 3.0%); (2) professionals (fathers 9.0%, mothers 13.7%); (3) technicians and associate professionals (fathers 11.7%, mothers 17.3%); (4) clerks (fathers 4.7%, mothers 24.1%); (5) service workers and shop and market sales workers (fathers 5.0%, mothers 17.5%); (6) skilled agricultural and fishery workers (fathers 9.3%, mothers 5.0%); (7) craft and related trades workers (fathers 29.9%, mothers 6.0%); (8) plant and machine operators and assemblers (fathers 12.6%, mothers 0.7%), and (9) elementary occupations (fathers 3.4%, mothers 12.6%).

Fig. 1. Path diagram for model of SES, parent, and peer influence on smoking (parameters are standardized). Numbers indicate male/female variations; overall male/female: $p = 0.247/0.140$, $R^2_{\text{smoking}} = 42/51\%$.

Analysis

The LISREL technique combines two analyses: factor analysis (the measurement model) and path analysis, i.e. an extension of regression analysis (the structural model). We used the measurement model to construct the latent variable of SES. This was important for us because we were interested more in the underlying concept than in the contribution of separate indicators/dimensions of SES. The second one, the structural model, was used to explore both direct and indirect effects of SES, parents and peers on ASB. Using LISREL, we were able to compare the direct and indirect effects.

Our model of the interrelations between SES, parental smoking, peers' smoking and ASB 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, peers' smoking and ASB were measured by one indicator each. The main outcome variable was ASB. All variables were treated as ordinal. LISREL (version 8.3) software [34] 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→ASB, peers' influence→ASB) between male and female models. Goodness of fit statistics (χ^2) were used to examine the significance of the models.

Results

Descriptive Results

Almost three quarters (74.5%) of our sample were non-smokers (69.2% of the boys; 80.2% of the girls). The frequency in the other 5 categories of smoking behaviour

was lower than 10% (male/female: not more than one: 9/8%; 2–5 cigarettes a day: 10/6%; 6–10 cigarettes a day: 7/4%; 11–15 cigarettes a day: 3/1%, and 16 or more cigarettes a day: 2/1%).

Nearly half of the adolescents reported that neither of their parents smoked daily (males 47.3%, females 49.2%), more than one third of them reported that one of the parents smoked daily (males 35.8%, females 34.1%), and 17% of them reported that both parents smoked daily (male 17.0%, female 16.7%).

Only about a quarter of the adolescents reported that none of their friends smoked daily (males 25.6%, females 27.8%), the majority of them reported that several of their friends smoked daily (males 43.4%, females 42.1%), about 10% of them reported that half of their friends smoked daily (males 10.4%, females 9.7%), 15% of them reported that the majority of their friends smoked daily (males 14.8%, females 15.7%) and the rest of them reported that all of their friends smoked daily (males 5.8%, females 4.8%).

Model of Interrelations between SES, Parental Smoking, Peers' Smoking and ASB

Figure 1 represents the model that best fits our data.

Peers' smoking behaviour is the strongest predictor of ASB. There is greater frequency of smoking among adolescents reporting more smoking friends.

Parents influence ASB 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 offsprings' peer friends. As we pointed out above, reporting more smoking peers is related to higher probability of the reporting adolescent's smoking.

The direct effect of SES on ASB was tested but was found non-significant and excluded from the model. SES influences ASB indirectly (SES on smoking: 0.15, SES on peer: 0.07, standardised solution) through both parents' and peers' smoking behaviour. There is a greater frequency of smoking among parents and peers of adolescents from families of lower SES.

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 (males: $p = 0.247$, females: $p = 0.140$) and explains 42% of the variance in ASB in males and 51% in females. Gender differences in the explored paths were tested and found non-significant ($\chi^2 = 3.64$, d.f. = 4).

Discussion

A model with relationships between SES, parents and peers was explored. As with the findings of several other authors [15–17], our findings indicate peers as the strongest predictor of ASB.

Findings related to parents' influence on ASB are not as consistent as those related to peers. The literature offers evidence of significant [10, 12, 18–21], modest [15] or irrelevant [14, 17] direct as well as indirect [9–11, 19, 23] influence of parents on ASB. In our model direct as well as indirect effects of parents on ASB are confirmed. Parents' smoking behaviour is related to ASB and the number of their adolescent child's friends who smoke. Smoking parents in comparison with non-smoking parents may stimulate ASB in their children, for example by the children imitating their smoking behaviour [19], through a greater availability of cigarettes at home [35, 36] and through a higher probability of more positive attitudes or values regarding smoking [15, 37–39]. Parents' smoking behaviour may also influence vulnerability to peer influence [23] and selection of peers [9–11, 19], as described in the Introduction. Moreover we should also consider the interrelations between SES, parents' and peers' influence on ASB. In lower socio-economic groups more smoking goes on [21], so there is a higher probability that adolescents are surrounded not just by smoking parents but also by smoking peers. Risky behaviour by

low SES adolescents may be tolerated and encouraged by their social environment. De Vries [21] found that low SES adolescents live in a social environment in which smoking is more prevalent, they experience greater pressure to smoke, perceive stronger social attitudes in favour of smoking from parents and friends, have a more positive (undesirable) attitude toward smoking themselves and show low self-efficacy in comparison with high SES adolescents. According to Norman et al. [40], low SES parents use smoking bans at home less frequently in comparison with high SES parents.

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 ASB becomes non-significant. The indirect effect of SES on ASB, mediated by its effect on parent's and peer's smoking behaviour, was significant.

SES of parents may influence ASB via imitation of parental smoking behaviour. Low SES parents smoke more than high SES parents, so their children may also smoke more in comparison with their peers from high SES groups as a consequence of undesirable imitation of parental smoking behaviour. SES of parents influences selection of neighbourhood. Low SES parents probably live in more deprived areas and their neighbours probably come from a similar socio-economic group. So we can suppose that their neighbours, including the peers and friends of their children, also smoke more. This is another way in which SES of parents may influence selection of their adolescent children's peers (i.e. via the choice of neighbourhood), and as a consequence of the peers' influence, also influences ASB.

It is very important to distinguish between smoking as a feature of the experimenting that is typical for adolescence and smoking as part of personal life-style establishment. We can assume that smoking as part of experimenting, as a temporary behaviour with less undesirable consequences on health, is more typical for high SES adolescents, while the smoking of low SES adolescents is a consequence of their imitating a type of behaviour that is more frequent, more tolerated and more encouraged in their environment. Smoking is not only more frequent among low SES adolescents but it can also be more enduring and more risky with regard to health.

The confirmed indirect effect of SES on ASB via parents' and peers' smoking behaviour and the indirect effect of parents' smoking behaviour on ASB via peers' smoking indicate that models which do not consider the interrelations between the mentioned variables may lead us to

incorrect conclusions about the exclusive importance of peers' influence and the non-importance of parental and SES influences. Although the peer effect is the strongest influence, it does not mean that the power of the other influences also comes exclusively from this source. The friends adolescents make may be strongly influenced by the social environment they grow up in, mediated mainly by their parents and their SES. Similarly, prevention strategies should not neglect the influence of SES and parents. Low SES adolescents are at greater risk, so they need more attention and potentially a different approach. Experimenting with smoking which is not supported by any role model requires different preventative strategies in comparison with establishing personal life-style supported by the social environment.

Our findings are consistent with the school-based prevention approaches of social influence and competence enhancement [41]. Teaching on risky social factors (disseminating information) and encouraging self-reflection on such factors can be protective according to the findings of this study. Reflection on peers' smoking influence and peers' smoking behaviour (selection of peer friends) as a factor correcting adolescents' normative-forming expectations should be emphasised in preventative teaching and training work for competence enhancement. These kinds of school-based prevention programmes expect the evaluation of efficiency on behavioural and attitude lev-

els, the adolescents' acceptance of and interest in them [42].

The findings of this study support:

(1) the importance of normative-forming education as a component of the social influence approach to smoking prevention. Successful social influence-based prevention programmes may be driven primarily by their ability to foster social norms that reduce an adolescent's social motivation to begin using cigarettes [41, 43–45];

(2) the importance of smoking prevention for young people to include a family component [46];

(3) the availability of prevention programmes for adolescents from different SES and broader prevention efforts to meet the needs of high-risk youths [47];

(4) preventive efforts which identify ways of addressing the positive expectations adolescents have about smoking and smoking with peers, possibly by offering alternative means for achieving these outcomes [48].

Understanding the risk factors and how they interrelate at each stage of the smoking uptake process [48, 49] is crucial for future research and prevention efforts.

Acknowledgements

This work was supported by the Science and Technology Assistance Agency (contract no. APVT-20-028802).

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