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Factors associated with smoking among romanian senior high school students

Lucia M. LOTREAN[1] , Carmen IONUT[2], Ilse MESTERS[3], Hein DE VRIES[4]

Abstract

Understanding why adolescents smoke is essential for developing efficient smoking prevention programmes among teenagers. Hence, the objective of our study was to assess the factors associated with smoking among Romanian adolescents. A cross sectional written survey was conducted among 473 students aged 15-17 years from 5 senior high schools in Cluj-Napoca, Romania (May/ June 2004). All students filled in an quesstionnaire which assesed their smoking-related behaviour.One quarter (24.5%) of the subjects were smokers. Adolescent's attitudes regarding smoking and the smoking behaviour of the best friend were important factors related to smoking behaviour. Adolescent smoking was also strongly associated with low self–efficacy expectations to refuse smoking in different situations and with intention to smoke in the next year. The results suggest the need for strengthening positive attitudes towards non-smoking, resistance against peer influences and for enhancing self-efficacy beliefs to refuse smoking in order to prevent smoking among Romanian adolescents.

Keywords: Romanian senior high school students, smoking prevention, health education

[1] Medical doctor, assistant professor, Department of Environmental Health, University of Medicine and Pharmacy, Cluj-Napoca; Str. Primaverii 6/166,Cluj-Napoca, 400540, Romania, Tel: 00 40 724367460, Fax 00 40 264486602, E-mail: llotrean@umfcluj.ro

[2] Department of Environmental Health, University of Medicine and Pharmacy, Cluj-Napoca; Str. Primaverii 6/166,Cluj-Napoca, 400540, Romania, Tel: 00 40 724367460, Fax 00 40 264486602,

[3] Department of Health Education and Promotion, University of Maastricht, the Netherlands.

[4] Department of Health Education and Promotion, University of Maastricht, the Netherlands.

Introduction

Smoking is a major preventable cause of premature death and disability throughout the world (Shafey et al., 2003). In Romania smoking is an important public health problem (Mihaltan, 2006; Trofor, 2007;Petrescu et al., 2008); it is responsible for more than 32,000 deaths annually in Romania (Shafey et al., 2003). About 48% of the Romanian population aged 14-60 years are smokers (have smoked at least 100 cigarettes during their lifetime). Out of these, 14% have started to smoke before reaching 15 years of age and 40.9% between the age of 16 and 19 years (Center for Health Policies and Services, 2004). Another study shows that in 2003 64% of the 16 years old Romanian school students reported smoking at least once during their lifetime, which represent an increase of 11% compared with the year 1999 (Romanian Ministry of Health, 2004).

Above findings indicate that adolescence is a crucial period in the development of smoking behaviour. To develop efficient prevention programmes for teenagers it is very important to understand why adolescents smoke (Miftode, 2003; Tyas and Pederson, 1998).Various social cognitive models, such as the Theory of Planend Behavior (Ajzen,1991), the Health Belief Model (Glanz et al., 2002), the Transtheoretical Model (Prochaska and Velicer, 1997) and the I-Change Model (De Vries et al., 2003) suggest the importance of attitudes, social influences, self-efficacy and intentions as important constructs to understand factors associated with smoking among adolescents (Conrad et al., 1992; Tyas and Pederson, 1998; De Vries et al., 1995). Although the above-mentioned concepts have been shown to be relevant, the make up of the various constructs can be dependent on the cultural and social climate, resulting in different sets of beliefs (Marckam et al., 2004; Panday et al., 2005). Results in Europe, however, revealed great similarity in beliefs associated with smoking (Holm et al., 2003; Vitoria et al., 2006). Nevertheless, understanding the psychosocial determinants is one of the first crucial analyses that should be undertaken in order to understand which specific beliefs should be addressed in intervention programs in Romania.

Hence, the goal of this paper is to describe the differences in perceptions on smoking between non-smoking and smoking Romanian adolescents and focuses on motivational determinants such as attitudes, social influences and self-efficacy expectations in order to identify the most important factors discriminating the two groups and to identify important beliefs for future programme planning on smoking prevention.

Methods

Sample

Cross sectional data were obtained from a study conducted in May/June 2004 in five senior high-schools from Cluj-Napoca, a city with approximately 330,000 inhabitants situated in the Nord-West part of Romania. In Romania high school prepares pupils aged 14-20 years old during four years.The study sample consisted of 473 students from 19 first year high school classes. Adolescents' age varied between 15-17 years.Girls were over-represented (67.9%).

Procedure

The research team administered the questionnaires. Classroom completion of the questionnaire took approximately 50 minutes. Teachers were present in the classroom during the data collection, but they stayed in the front of the class and they were not involved in the questionnaires' collection in order to assure confidentiality. Consent to participate was obtained from the school administration - the standard procedure in Romania.

Students were asked to participate and read an introductory letter. They were assured that the researchers would treat their questionnaires in confidence and it was explained that they could refuse to participate. Students put their completed questionnaires in an envelope, sealed it and the researchers collected the envelopes.

Questionnaire

An existing questionnaire based on the The I-Change model (De Vries et al., 2003) was used, piloted and adapted where needed. The I-Change questionnaire was translated from the version used for OCTOPUS, a European three countries study (Ausems et al., 2002), for The European Smoking Prevention Framework Approach (ESFA), a collaboration of six European countries (De Vries et al., 2003), as well as in a study regarding smoking prevention in South Africa (Panday et al., 2005).

Smoking behavior was assessed by asking students to pick a statement that best described them out of a set of specific smoking related questions. Responses were cross-validated using an algorithm consisting of concepts measuring current smoking and life-time smoking. Adolescents were then categorized in two groups: smokers and non-smokers. Smokers were defined as smoking at least one cigarette/week or smoking less than weekly, but having smoked more than 100

cigarettes in their lifetime (De Vries et al, 2003). Respondents that did not fit into the category of smokers were classified as non-smokers.

Attitudes were measured on a seven-point scale using 12 items. A factor analysis on the attitudes was conducted using oblimin rotation and 2 scales were created on the basis of the outcomes: pros and cons of smoking. Six questions created a scale for the pros of smoking (Cronbach's α=0.66) and six other variables created a scale for the cons of smoking (Cronbach's α=0.75). The pros of smoking referred to expected positive outcomes of smoking (e.g. 'It helps to calm my nerves'; 'It will make me feel relaxed'). The cons of smoking refer to negative outcomes of smoking (e.g. 'It is bad for my health', 'It tastes horrible'). Answering categories ranged from 'I totally disagree (= – 3) to I totally agree' (=3).

Perceived social influences were the social norms, social modelling and social pressure of father, mother, brother, sister, best friend, friends and people in the same school year.

Social norms were assessed by means of 7 questions on a seven point scale measuring adolescents' perception of whether their parents, siblings and friends think that they should smoke or not. For example: My best friend thinks I definitely should smoke (Â3) to definitely should not smoke (-3). The factor analysis revealed three meaningful factors. Based on these, three scales were constructed for parents (using the sum score of father and mother; Cronbach's α=0.60), siblings (using the sum score of brother(s) and sister(s); Cronbach's α=0.45) and peers (using the sum score of best friend, friends in general and people in the same school year; Cronbach's α=0.65).

Social modelling referred to students' perception regarding smoking behaviour of the social environment. Perceived behaviour of parents, siblings and best friend was measured on a two-point scale (0-no, 1-yes), while for friends and people in the same year a five-point scale was used (from everybody to nobody). Because these behaviours are not assumed to be one-dimensional, this concept was not treated as a scale; perceived behaviour was analysed separately for each measured person in the social environment.

Social pressure assessed the pressure of smoking that students encountered from different persons, and was measured by 7 questions on a five point scale ranging from never to very often. For example: 'Have you ever felt pressure to smoke from your best friend?' Answering options were very often (4), often (3), sometimes (2), a few times (1) and never (0). Factor analysis revealed three stable factors. Subsequently, three scales were created: pressure from parents (using the sum score of father and mother; Cronbach's α=0.81), pressure from siblings (using the sum score for brother(s) and sister(s); Cronbach's α=0.40), and pressure from peers (using the sum score of best friend, friends in general and people in the same school year; Cronbach's α=0.77).

Self-efficacy was measured by 12 questions on a seven-point scale and assessed beliefs regarding refraining from cigarettes in different situations (e.g.: when friends smoke, when the friends offer them a cigarette, when they are nervous). Answering categories ranged from I am sure I won't smoke (+3) to I am sure I will smoke (-3). Factor analysis revealed one factor for self-efficacy (Cronbach's α=0.96).

Intention was measured by one question on a seven-point scale and evaluated adolescents' intention to smoke in the next year (+3 definitely; -3 definitely not).

Demographic variables assessed by the questionnaire were: age (15-17), gender (0-girls, 1-boys), religious background (none, orthodox, catholic, protestant, other), family status (0-living with both parents, 1-not with both parents) as well as several other characteristics. Data about adolescents' household goods (own house, car, age of car, refrigerator, washing machine, microwave, computer, TV, video-player, phone, mobile phone) was also collected, in order to obtain information about the socio economic status of adolescents' families. Pocket money spent per month by adolescents was measured using eight response categories ranging from nothing per month to the equivalent of more than 25 Euro/month. Perceived school performance in the previous year (0-in the bottom third of their class, 2-in the top third of their class) and places where adolescents spend more frequently their spare time (home, friends' houses, street, shops, bars/discos/parties, sport clubs, youth clubs, working) were also assessed. Risk behaviour was measured with eight items on a 5 point scale (0-never, 1-sometime, 2-less than once a month, 3-not weekly, but at least once/month, 4-at least once/week) assessing use of alcohol, marijuana and other drugs, snuffing substances, gambling, playing truant from school, physical fighting with other people, stealing things, destruction of things.

Analysis

Chi-square analysis assessed differences in smoking prevalence among subjects with different socio-demographic background. Independent sample T-tests were used in order to evaluate the differences between smokers and the non-smokers regarding their attitudes, social influences, self-efficacy beliefs and intention to smoke in the future. Item scores were used in order to be able to obtain in depth information about the items that discriminated smokers and non-smokers.

In order to analyse the association of smoking with the constructs of the I-Change Model that were measured in our study, the scales were used as variables in a logistic regression analysis. The dependent variable was smoking behaviour. The independent variables included in the analysis in block 1 were demographic variables (gender, pocket money spent per month, household ownership of a

mobile phone). Risk behaviour (school achievements, use of alcohol at least once/ month, playing truant from school at least once/month, spending frequently their free time in bars/discos/parties) was added to the previously mentioned items in block 2. The scales regarding attitudes, social influence and self-efficacy items were included in block 3, while intention to smoke in the next year was added in block 4.

Data analysis was performed with the SPSS-11 statistical program. Significant results are reported at $p<0.05$.

Results

Characteristics of the sample

Of the 473 respondents, 67.9% were girls. The mean age of the participants was 15.9 years (SD=0.3); 17.1% of the students belonged to disrupted families; 99.4% declared that they had a religious background, predominantly orthodox orientated (83.9%).

The pocket money spent by subjects every month was less than 5 Euro for 64.9% of the students, between 5 and 10 Euro for 27.7% of the students and higher than 15 Euro in 7.4% of the cases. With regard to household goods, the following results were encountered: more than 90% had their own apartment/ house, telephone, refrigerator, TV and washing machine. A smaller percentage had a mobile phone (80.1%), a computer (77%), a video player (41.4%), a microwave (34.5%), a car (75.9%) or a car younger than 2 years (18.8%).

Due to the fact that the subjects were in the first year of high school, the majority of the students went to another school the previous year (in Romania generally the secondary schools and high-schools are not part of the same school institution). Only 3.4% of the students reported low school performance in the previous year.

Alcohol consumption at least once a month was reported by 28.5% of the subjects; 26.6% declared that they played truant from school at least once/month, while 27.7% spent their spare time frequently in bars/discos/parties.

A quarter (24.5%) of the subjects were smokers, being noticed a significant difference ($p<0.01$) regarding the prevalence of smoking between boys (32.2%) and girls (20.9%); 62.9% of the smoking students indicated being daily smokers. The number of cigarettes smoked per week was less than 20 cigarettes for 37.7% of the smoking students, between 21 and 40 cigarettes in 18.5% of the cases and between 41 and 60 cigarettes for 17.5% of the smoking subjects; a percentage of 26.3% of the smoking students declared that they smoke more than 60 cigarettes per week.

Regarding the non-smokers, almost half of them (49.6%) were never smokers (they never smoked, not even one puff), 15.7 % were experimental smokers (smoke ocassionaly, but not every week and they have smoked less than 100 cigarettes during their lifetime) and 34.7% were quitters (they experimented with smoking in the past, but they stopped smoking).

Differences between smokers and non-smokers regarding external variables and attitudes

Table 1 shows that smoking was more frequent among boys than girls, among subjects who spent more than 15 Euros/month and among those who had in their house a mobile phone, a video, a microwave or a new car. At the same time, students involved in risk behaviors such as bad school achievements, playing truant from school monthly, using alcohol at least once/month and going frequently to bars and discos were more likely to be smokers than the other students.

A comparison between smokers and non-smokers regarding their attitudes towards advantages of smoking revealed that smokers were significantly more convinced than non-smokers that smoking would result in several positive outcomes such as helping them to feel more confident, to calm the nerves, to feel relaxed and to be slim (see Table 2).

None of the two groups differ significantly with regard to the perceived benefit of getting more attention and becoming easier part of the crowd as a result of smoking.

With regard to attitudes toward disadvantages of smoking, non-smokers were significantly more convinced than smokers that smoking would result in negative outcomes such as bad health consequences and horrible taste and considered it a stupid, wrong, unfriendly behaviour.

Differences between smokers and non-smokers regarding social influences

As shown in Table 3, differences between smokers and non-smokers were observed for social influences as well. Smoking subjects reported significantly more positive norms about smoking, perceived smoking behaviour and pressure to smoke from their peers - friends, best friend, people in the same school year. Regarding the influences coming from students' parents and from their siblings, mostly significant differences were found between smokers and non-smokers with regard to the impact of the mother, but not of the father as well as for social influences coming from female siblings and not from male siblings.

Table 1. Prevalence of smoking in subjects with different socio-demographic background (N=473)

Socio-demographic characteristics	Smoking prevalence %	P value at chi-square test
Gender		
Boys	32.2	P<0.01
Girls	20.9	
Disrupted families		
No	24	Non-significant
Yes	29.6	
Household goods		
Mobile phone		
No	14.1	P<0.01
Yes	27.2	
Car younger than 2 years		
No	20.9	P<0.001
Yes	40.4	
Video player		
No	21.1	P<0.05
Yes	29.6	
Microwave		
No	20.8	P<0.01
Yes	31.9	
Money spent per month		
<15 euro/month	22.7	P<0.001
?15 euro/month	48.6	
School achievement last year		
In the first two thirds	23	P<0.001
In the last third	62.5	
Playing truant from school at least once/month		
No	16.7	P<0.001
Yes	45.2	
Using alcohol at least once/month		
No	13.7	P<0.001
Yes	50.4	
Going frequently to bars/discos/parties		
No	13.6	P<0.001
Yes	52.7	

Table 2. Differences between smokers and non-smokers regarding attitudes (N=116 smokers/357 non-smokers)

Item	Non-Smokers Mean (SD)	Smokers Mean (SD)	P value at t-test
Pros: I feel more confident in company	0.31(1.23)	0.67(1.01)	<0.005
Pros: It helps to calm my nerves	0.64(0.98)	1.83(0.99)	<0.001
Pros: It will make me feel relaxed	0.11(1.19)	1.11(1.92)	<0.001
Pros: It helps me to be slim	0.34(0.74)	0.56(0.87)	<0.05
Pros: It is easier to be part of the crowd	0.63(1.41)	0.72(1.10)	Non-significant
Pros: My friends will pay me more attention	0.23(1.35)	0.27(0.85)	Non-significant
Cons: It is bad for my health	2.68(0.67)	2.14(0.88)	<0.001
Cons: It is stupid of me	2.10(1.34)	1.00(1.56)	<0.001
Cons:I consider my behaviour to be wrong	2.31(1.01)	1.41(1.11)	<0.001
Cons: I will be sorry that I ever started	2.62(0.87)	1.97(1.57)	<0.001
Cons: It tastes horrible	1.47(1.49)	-0.30(1.27)	<0.001
Cons: I believe it to be unfriendly	0.84(1.35)	0.09(0.93)	<0.001

Differences between smokers and non-smokers regarding self-efficacy and intention

Table 4 shows that non-smokers had greater confidence in their ability to refuse smoking in several situations. The smokers reported low self-efficacy expectations about non-smoking, especially when they are with smoking friends and when they are nervous or depressed.

As might be expected, smoking adolescents had positive intention to smoke in the next year, while non-smokers had negative intentions.

Table 3. Differences between smokers and non-smokers regarding social influences (N=116 smokers/357 non-smokers)

Social norms	Non-Smokers Mean (SD)	Smokers Mean (SD)	P value at t-test
Mother	-2.65(0.72)	-2.38(0.82)	<0.005
Father	-2.43(0.95)	-2.29(0.98)	Non-significant
Brother(s)	-1.05(1.33)	-0.73(1.29)	<0.05
Sister(s)	-1.00(1.35)	-0.59(1.16)	<0.005
Friends	-1.24(1.44)	-0.17(1.37)	<0.001
Best friend	-2.01(1.19)	-0.64(1.66)	<0.001
People in the same school year	-0.76(1.38)	-0.29(1.30)	<0.001
Perceived behaviour			
Mother	0.38(0.49)	0.54(0.50)	<0.005
Father	0.42(0.49)	0.51(0.50)	Non-significant
Brother(s)	0.15(0.36)	0.20(0.40)	Non-significant
Sister(s)	0.08(0.28)	0.20(0.40)	<0.005
Friends	1.50(1.36)	3.08(1.04)	<0.001
Best friend	0.19(0.39)	0.79(0.41)	<0.001
People in the same school year	1.48(1.22)	1.90(1.16)	<0.001
Social pressure			
Mother	0.03(0.28)	0.16(0.60)	<0.05
Father	0.04(0.29)	0.16(0.60)	<0.05
Brother(s)	0.10(0.44)	0.19(0.60)	Non-significant
Sister(s)	0.07(0.40)	0.23(0.74)	<0.05
Friends	0.90(0.95)	1.36(1.33)	<0.001
Best friend	0.24(0.63)	1.04(1.25)	<0.001
People in the same school year	0.63(0.87)	1.18(1.28)	<0.001

Regression analysis

The results of logistic regression analyses are depicted in Table 5 and show that the demographic factors (ownership by the family of a mobile phone and spending more than 15 euro/month) and other risk behaviours, such as alcohol use on monthly basis and spending frequent the spare time in bars/discos explained 32% of the variance between smokers and non-smokers.

When attitudes, social influences and self-efficacy expectations were added, the model explained 80% of the variance. Table 5 shows that the variables significantly associated with smoking behaviour were low self-efficacy expectations, modelling influence of best friend, low attitudes against smoking and ownership of a mobile phone.

Table 4. Differences between smokers and non-smokers regarding self-efficacy and intention (N=116 smokers/357 non-smokers)

Self-efficacy items	Non-Smokers Mean (SD)	Smokers Mean (SD)	P value at t-test
When with people who smoke	2.42(1.02)	-0.53(1.70)	<0.001
When with friends who smoke	2.28(1.08)	-0.96(1.58)	<0.001
When you are offered a cigarette	2.46(0.91)	-0.27(1.81)	<0.001
When friends offer you a cigarette	2.32(1.04)	-0.48(1.71)	<0.001
When you are shopping	2.73(0.51)	1.41(1.63)	<0.001
When you are watching TV	2.77(0.50)	1.52(0.51)	<0.001
When you are doing homework	2.80(0.48)	1.86(1.46)	<0.001
When you are on your way from school	2.77(0.52)	0.53(2.01)	<0.001
When you feel upset	2.28(1.15)	-0.69(1.93)	<0.001
When you feel depressed	2.27(1.18)	-0.85(1.93)	<0.001
When you feel nervous	2.22(1.22)	-1.03(1.88)	<0.001
When you are worried	2.45(0.98)	-0.38(2.04)	<0.001
Intention	-2.22(1.24)	0.65(1.56)	<0.001

In the fourth model, intention to smoke in the next year was also included. This final model explains 81% of the variance in smoking behaviour, resulting in almost the same percentage as the previous model The results of this model indicate that adolescents with lower self-efficacy and stronger intention to smoke in the next year were more likely to smoke. Modelling influence of best friend, low attitudes against smoking and having a mobile phone in the house were other variables associated with smoking among adolescents.

Discussion

The findings of the study show a strong association between smoking behaviour of Romanian adolescents and their attitudes, perceived social influence and self-efficacy expectations. Smoking adolescents held more positive attitudes toward advantages of smoking, whereas non-smokers perceived more disadvantages of smoking. Regarding the social influences, the peer environment was found to be a very important factor. The results show that adolescent smoking behaviour is closely related to the behaviour and norms of friends and especially best friends. On the other hand, the findings of the study suggest a greater impact

Table5. Associations with smoking behaviour; results of the logistic regression model (N=439[a])

	Variables/scales [b]	Model 1 OR	Model2 OR	Model3 OR	Model4 OR	r
1	Spending >15 EURO/month	3.04	-	-	-	0.13
	Ownership of mobile phone	2.07		3.86	3.92	0.15
2	Using alcohol at least once/month		3.74	-	-	0.41
	Spending time in bars/discos/parties		4.68	-	-	0.32
	School achievement		1.63	-	-	-0.20
3	Con smoking attitude			0.47	0.56	-0.54
	Modelling best friend smokes			5.12	4.44	0.53
	Self-efficacy			0.06	0.09	-0.75
4	Intention				1.46	0.69
	R^2	0.05	0.32	0.80	0.81	

a -Due to missing values on several variables the population was reduced to 439

b -All variables/scales with depicted OR are significant: $P<0.05$

on adolescent smoking behaviour of the mother's smoking norms and behaviour than those of the father as well as a higher influence coming from female siblings than male siblings. In the same time, the smoking adolescents have low confidence in their abilities not to smoke when other people and especially friends smoke or offer them a cigarette or when they are confronted with emotional and stressful situations.

In Romania smoking is still more frequent among boys then girls, whereas recent figures from Western-European countries suggest a reversed pattern (Tyas and Pederson, 1998; The Global Youth Tobacco Survey Collaborative Group, 2002).

Unlike in the developed countries (Tyas and Pederson, 1998; Lowry et al., 1996; Scarinci et al., 2002; Soteriades and DiFranza, 2003) in Romania smoking

behaviour is related with higher economical status of adolescents' families; smoking was more frequent among adolescents whose families were the owners of several household items, such as mobile phone, new car, video recorder or microwave.

It has been hypothesised that the rise in mobile phone usage over the past few years may be in part responsible for an observed decline in smoking prevalence among teenagers from some countries of Europe (Charlton and Bates, 2000), but different other studies did not support this hypothesis (Invernizzi et al., 2001; Lee, 2001; Koivusilta et al., 2003; **Steggles and Jarvis, 2003)**. Our study did not include questions regarding use of mobile phone by adolescents, but the results show that the ownership of a mobile phone by their families was significantly associated with smoking among Romanian adolescents. Further in depth analysis is needed to identify factors determining smoking behaviour in subjects with a different socio-economical status.

The results of the regression analysis showed that 81% of the variance in smoking behaviour could be explained by demographic and cognitive factors. The explained variance found by other cross-sectional studies was similar or lower (Pederson and Lefcoe, 1987; Engels et al., 1999;Holm et al., 2003; Vitoria et al., 2006; De Vries et al., 1995). Thus, we may conclude that constructs as measured by using the I-Change model succeed in explaining smoking behaviour of Romanian young people quite satisfactorily.

The findings concerning the importance of attitudes, social influences and self-efficacy expectations are comparable to those found in other European countries (De Vries and Kok, 1986;De Vries et al., 1995; Vitoria et al, 2006; Holm et al., 2003; Marckam et al, 2004) and international studies (Conrad et al., 1992). Adolescent's attitudes regarding smoking and the smoking behaviour of the best friend were important factors related to smoking behaviour. At the same time, adolescent smoking was strongly associated with low self–efficacy expectations to refuse smoking in different situations and with intention to smoke in the next year. Parental influences were not associated with smoking among Romanian adolescents, at least at this age. Several studies suggest similar results (Conrad et al., 1992; Tyas and Pederson, 1998). However, sometimes cross-sectional designs lead to overestimations of peer influences, and underestimation of parental influences as it has been shown in the 6-country ESFA study (De Vries et al., 2006). Additionally, support for peer selection has been found, suggesting that the high correlation between the smoking of the adolescent and their friends can be explained by the fact that an adolescent pro-actively selects a smoking or non-smoking friend instead of being influenced by him (Engels et al., 1997; Wang et al., 1999; De Vries et al., 2006).

Our results suggest that, in contrast to the existing knowledge paradigm that was widely used in Romanian programs, smoking prevention activities should

reinforce adolescent attitudes about the advantages of non-smoking, demonstrating the inaccuracies of some perceived advantages of smoking and indicating that these advantages of smoking can also be realized by other activities. The long-term and short-term disadvantages of smoking should be stressed, while also indicating the tendency of smokers to minimize the disadvantages of smoking. The smoking prevention programmes must present to the adolescents the direct and modelling process by which smokers influence non-smokers and help them to develop skills in order to resist the pressure to smoke coming from their friends and peers.

Our study is subject to limitations. First, due to the cross-sectional design, the identification of causal relationship is not possible. Further longitudinal studies are needed in order to better understand the factors, which influence smoking behaviour among Romanian adolescents and how they could be influenced. Second, the self reported smoking behaviour was not validated by biochemical measures. However, self-reports have been shown to be reliable and in good agreement with biological indicators when anonymity is assured (Murray and Perry, 1987; Hansen et al., 1985; Dolcini et al., 1996). We optimised measurement conditions by assuring respondents that their responses would be treated strictly confidential. Third, the reports on parents, siblings and friends smoking were based on the adolescents' own perception. However, studies in which independent reports were obtained have shown that adolescents appear to be well aware of their parents and friends risk behaviour (Wilks et al., 1989). Fourth, the study sample consisted of first year senior high school students from Cluj-Napoca. This is one of the main cities of Romania, but it is inevitably a limit to the generalization of the study findings beyond this sample. Moreover, unexpectedly, the girls were over represented in our sample, because in many classes there were more girls than boys. Future research should analyse whether similar patterns are to be found among groups of adolescents with different age and from different urban and rural areas. Fifth, sample size limited the performing of regression analyses separately for boys and girls. Future studies should investigate in more depth the gender differences with respect to factors associated with smoking among Romanian adolescents.

Despite these limitations, the findings of the study indicate that a strategy to reduce smoking based on the framework of the I-Change Model would be appropriate for Romanian young people. Strengthening self-efficacy beliefs, resistance against peer influences and a positive attitude towards non-smoking will help to prevent smoking among Romanian adolescents.

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Rezumat

Pentru a putea dezvolta programe eficiente de prevenire a fumatului în rândul adolescenților este important să înțelegem de ce aceștia fumează. Iată de ce obiectivul studiului nostru a fost evaluarea factorilor asociați cu obiceiul fumatului în rândul adolescenților români.A fost realizat un studiu transversal în rândul a 473 elevi cu vârsta cuprinsă între 15-17 ani din 5 licee din Cluj-Napoca, România (Mai-Iunie 2004). Toți elevii au completat un chestionar care evalua obiceiurile lor legate de fumat. Un sfert dintre elevi (24,5%) erau fumători. Atitudinile adolescenților legate de fumat și obiceiul de a fuma al celui mai bun prieten au fost factori importanți asociați cu obiceiul fumatului în rândul adolescenților. Fumatul în rândul adolescenților a fost de asemenea asociat cu încrederea scăzută în capacitatea proprie de a refuza să fumeze în diferite situații și cu intenția de a fuma în anul viitor.Rezultatele studiului subliniază necesitatea de a ajuta adolescenții să își dezvolte atitudini antifumat, capacitatea de a rezista influențelor venite din partea grupului de prieteni și încrederea în capacitate proprie de a refuza să fumeze, pentru a putea preveni fumatul în rândul adolescenților români.

Cuvinte cheie: elevi de liceu români, prevenirea fumatului, educație pentru sănătate

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