

Attitudes of Lithuanian Secondary School Children Toward Addictive Behaviors, Their Promoting and Preventive Factors with Regard to the Age

Darius Leskauskas¹, Rima Gudaitytė¹, Inga Kiudulaitė², Virginija Adomaitienė¹

¹Department of Psychiatry, Medical Academy, Lithuanian University of Health Sciences,

²Department of Intensive Care, Medical Academy, Lithuanian University of Health Sciences, Lithuania

Key words: schoolchildren; addictive behaviors; attitudes; prevention.

Summary. The aim of this study was to evaluate the attitudes of Lithuanian secondary school children toward addictive behaviors, their promoting and preventive factors with regard to the age.

Material and Methods. The study sample consisted of all 5th-, 9th-, and 12th-grade schoolchildren of 6 secondary schools in Kaunas and Šakiai (N=856). Schoolchildren were surveyed with a questionnaire consisting of the questions about their attitudes and experience regarding addictive behaviors and factors promoting and preventing such behaviors.

Results. Smoking (82.8%), use of illegal drugs (81.0%), and consumption of strong alcoholic beverages (80.6%) were most often indicated as addictive behaviors. Consumption of light alcoholic beverages and computer gaming were least often indicated as addictive behaviors: by 67.2% and 57.1% of respondents, respectively. Less than one-third (32.7%) of respondents answered that they had one or more of potentially addictive behaviors: computer gaming (27.8%), consumption of light alcoholic beverages (24.6%), smoking (16.3%), and consumption of strong alcoholic beverages (12.1%). The most significant difference was observed between the answers of schoolchildren of 5th and 9th grades. Friends (38.4%), TV (37.9%), and Internet (24.6%) were most often mentioned as influencing a wish to try and abstain from addictive behaviors. Fear for one's health (74.4%) and possible impediment for the life (71.4%) were the most frequently mentioned reasons for abstaining from addictive behaviors.

Conclusions. Involvement in potentially addictive behaviors and acknowledgement of their risks were found to increase with the age of schoolchildren, most significantly from 5th to 9th grades. Consumption of light alcoholic beverages was the second most prevalent behavior among respondents, highly noticed in advertising, but least often acknowledged as addictive behavior. TV and Internet were most often mentioned by respondents as mass media influencing their wish to try or abstain from trying addictive behaviors. Reasons for abstaining from addictive behaviors differed with regard to the age but fears for health and life impediment were most prevalent in all grades.

Introduction

Addictive behavior is considered any activity, substance, object, or behavior that has become the major focus of a person's life to the exclusion of other activities, or that has begun to harm the individual or others physically, mentally, or socially (1). It includes substance use disorders (alcohol or drug abuse) and behavioral addictions (e.g. gambling, computer gaming, using Internet, shopping, etc.). Addictive behaviors pose a serious threat to public health, causing various health problems and diseases. Smoking is associated with 6 of the 8 most common causes of death in the world (2), and alcohol abuse is related to almost 60 various diseases and injuries (3). Addictive behaviors can affect

mental health at young age – adolescents with addictive behaviors have lower self-esteem, increased frequency of conduct disorders, and risk of suicidal behavior (4, 5). Some researchers point to a dangerous tendency – beginning of addictive behaviors at an earlier age (6). Results of the study by Zaborskas et al. showed that Lithuanian boys in the surveyed student population of the EU countries were the second youngest by the age at which they began to consume alcohol (7). One of the factors influencing involvement into addictive behaviors is advertising of legal addictive substances (such as alcohol, cigarettes) on TV, press, and Internet (8, 9). A significant increase in consumption of light alcoholic beverages (beer, cider, alcohol cocktails, etc.) in a young

Correspondence to D. Leskauskas, Department of Psychiatry, Medical Academy, Lithuanian University of Health Sciences, Eivenių 2, 50028 Kaunas, Lithuania
E-mail: dleskauskas@yahoo.com

Adresas susirašinėti: D. Leskauskas, LSMU MA Psichiatrijos klinika, Eivenių 2, 50028 Kaunas
El. paštas: dleskauskas@yahoo.com

population was observed in America and Europe during the last decade (10). Light alcoholic beverages were found to be the most common substance consumed by schoolchildren in the study conducted in Lithuania in 2006: 17% of boys and 11% of girls were regularly drinking beer and alcohol cocktails (11). These tendencies raise the question at what age attitudes toward potentially addictive behaviors as acceptable conduct occur.

Computer games, gambling, betting, and abuse of psychotropic medications are relatively new forms of addictive behaviors affecting young people (5, 12). Results from the study of the European School Survey Project on Alcohol and Other Drugs (ESPAD) showed that abuse of tranquilizers in Lithuania increased from 14% to 16% during the period from 2003 to 2007, while the average in the EU during the same period remained stable at around 6% (13). A survey involving 9000 participants in Canada has shown that almost 10% of students from 7th grade to 12th grade were engaged in either watching TV or being on computer for 7 or more hours a day (14). Studies have shown that playing violent video or computer games can be associated with temporary increases in aggression (15). Less than one-third (30%) of population in Lithuania gambled at least once in a lifetime (16). However, data about the factors influencing beginning or abstaining from these forms of addictive behaviors in schoolchildren in our country are scarce.

Healthcare costs for the treatment of illnesses related to addictive behaviors are increasing: 45.5 billion \$ was spent on the treatment of alcoholism and other alcohol-related problems in the United States in 2007; in EU these expenditures reached 395 billion euros (in 2003, not including smoking and other addictions) (2, 17). Resources for the prevention of addictive behaviors remain unreasonably low (1.5 billion \$ in the United States in 2007 for alcohol prevention) and are limited in Lithuania. It demands health care providers to implement preventive measures that have proven effectiveness. Programs of prevention can be effective if they reach their target population and influence factors important for addictive behaviors. This study was intended to gain information important for the development of effective programs of prevention – to understand the attitudes of schoolchildren toward the potentially addictive behaviors, differences of these attitudes at different age, what factors have influence on formation of these attitudes, beginning of potentially addictive behaviors, or abstaining from them. The aim of this study was to evaluate the attitudes of Lithuanian schoolchildren toward addictive behaviors, promoting and preventing factors of such behaviors with regard to the age.

Materials and Methods

The survey was conducted in 6 schools in two towns of Lithuania: 3 in Kaunas (the second largest town of Lithuania with a population of >350 000) and 3 in Šakiai (town in rural area with a population of 6400). Schools were chosen by the researchers with intent to get a sample representing proportionally urban and rural population and considering the agreement of school administrations to participate in the study. The total sample size was 856 schoolchildren, 63.6% living in urban and 36.4% rural areas, what is consistent with general Lithuanian population, two-thirds of which live in the towns and one-third in the villages (18). The sample consisted of all 5th-grade (n=280, 32.7% of the total sample; age range, 10–12 years), 9th-grade (n=291, 34.0%; age range, 13–15 years), and 12th-grade (n=285, 33.3%; age range, 17–19 years) schoolchildren who agreed to participate and completed the questionnaires. The 5th, 9th, and 12th grades were chosen as representing the age period when beginning of potentially addictive behaviors occurs. All schoolchildren completed the questionnaires received. There were 48.8% of girls and 51.2% of boys. Grade and gender distribution did not differ significantly regarding the place of residence.

The survey was conducted in all schools at the same month in the middle of the school year 2009–2010. Schoolchildren at the beginning of the lesson were informed about the study by the researchers and asked to complete the anonymous questionnaires or to return them uncompleted if they did not agree to participate. Questionnaires were distributed and collected by the researchers.

The questionnaire was developed by the researchers and consisted of introduction and three parts (12 multiple-choice questions): 1) demographic data; 2) questions about schoolchildren's attitudes toward addictive behaviors and factors promoting or preventing them; 3) questions about addictive behaviors of the schoolchildren and their parents. Introduction provided short information about the purpose of the study, anonymity of answers, and free choice about the participation. Definition of addictive behavior was provided: "Addictive behavior is frequently repeated (at least once a day or weak) behavior that is harmful to health, learning or working, relationships in the family or with friends or any other area of living."

Demographic data included age, gender, place of residence. The second part of the questionnaire included multiple-choice questions: "Do you think it can be an addictive behavior?" and "What is on your opinion most intensively advertised in television, magazines, Internet?" Options (some with short explanations) for the answers included consumption of strong alcoholic beverages (vodka, brandy, etc.), consumption of light alcoholic beverages (beer,

cider, etc.), smoking, illegal drug abuse, computer gaming, gambling (playing for money), abuse of psychotropic drugs, sniffing of inhalants (glue, paint, etc.). Questions “What makes the strongest influence on you causing a wish to try such behavior?” and “What makes the strongest influence on you convincing not to do that?” were provided with the options: friends, curiosity or lack of interest, advertising/information on TV, Internet, newspapers/magazines, posters/placards, movies, religion, parents, celebrities. Question “What makes you abstain from trying or repeating an addictive behavior?” was provided with options: “it is against personal attitudes,” “it is not available,” “too expensive,” “fear to harm one’s health,” “fear of life impediment,” “fear of parents,” and “other.” The third part of questionnaire included questions if the respondent and if his/her parents were involved in potentially addictive behavior (one of the listed behaviors that can develop into addiction) and what kind of the behavior it was (if the first answer was positive).

The study was conducted with the permissions of the Bioethics Center, Lithuanian University of Health Sciences, former Kaunas University of Medicine (No. Be-MF (I)–145), schools’ administrations, and personal informed consent.

Statistical analysis was performed using the SPSS 13.0 statistical package. Descriptive statistics are expressed in percentage. The Pearson chi-square

test for the categorical values was used to calculate differences of distribution between the subgroups regarding grade, gender, and place of residence. Differences were considered statistically significant at $P < 0.05$.

Results

The majority of schoolchildren identified 3 types of behavior as addictive behaviors: smoking was reported as such by 82.5% ($n=706$) of respondents, illegal drugs abuse by 80.7% ($n=691$), and consumption of strong alcoholic beverages by 80.3% ($n=687$) of respondents. Consumption of light alcoholic beverages was identified as addictive behavior only by 66.9% ($n=573$) of the schoolchildren what was less than such behaviors as sniffing inhalants (68.7%) or gambling (71.6%). Girls and rural residents had signed significantly more of the listed behaviors as addictive behaviors than boys and urban residents. However, the order of the most frequent answers did not differ significantly regarding gender or place of living. The number of behaviors signed as addictive was increasing with the increase in the grade. The most significant increase was observed between the 5th and 9th grades (Table 1). Exception was computer gaming, which was most often identified as addictive behavior by the 5th-grade schoolchildren.

Less than one-third (32.7%, $n=277$) of respondents answered that they had one or more potentially

Table 1. Types of Behavior That Are Considered as Potentially Addictive by the Schoolchildren of 5th, 9th, and 12th Grades

Addictive Behavior	Grade	Considers it Addictive, %	Does not Consider it Addictive, %	Not Sure, %	Total, %	χ^2 Among the Grades
Consumption of light alcoholic beverages	5th	58.6	27.3	14.0	100	$\chi^2=17.041$ $P=0.002$
	9th	69.0	22.4	8.6	100	
	12th	73.7	19.6	6.7	100	
	Total	67.2	23.1	9.7	100	
Consumption of strong alcoholic beverages	5th	64.2	31.5	4.3	100	$\chi^2=87.429$ $P<0.001$
	9th	86.1	9.0	4.9	100	
	12th	91.2	6.0	2.8	100	
	Total	80.6	15.4	4.0	100	
Smoking	5th	68.0	28.8	3.2	100	$\chi^2=80.970$ $P<0.001$
	9th	89.7	6.6	3.8	100	
	12th	90.2	6.0	3.9	100	
	Total	82.8	13.6	3.6	100	
Using illegal drugs	5th	62.4	34.4	3.2	100	$\chi^2=110.93$ $P<0.001$
	9th	88.2	9.7	2.1	100	
	12th	91.9	4.2	3.9	100	
	Total	81.0	15.9	3.0	100	
Sniffing inhalants	5th	48.7	33.6	17.7	100	$\chi^2=93.247$ $P<0.001$
	9th	70.4	16.5	13.1	100	
	12th	85.6	7.4	7.0	100	
	Total	68.5	19.0	12.5	100	
Gambling	5th	59.6	28.6	11.8	100	$\chi^2=43.005$ $P<0.001$
	9th	72.3	15.2	12.5	100	
	12th	82.7	10.6	6.7	100	
	Total	71.6	18.1	10.3	100	
Computer gaming	5th	53.4	30.1	16.5	100	$\chi^2=9.140$ $P=0.058$
	9th	54.9	29.2	16.0	100	
	12th	62.9	20.1	17.0	100	
	Total	57.1	26.5	16.5	100	

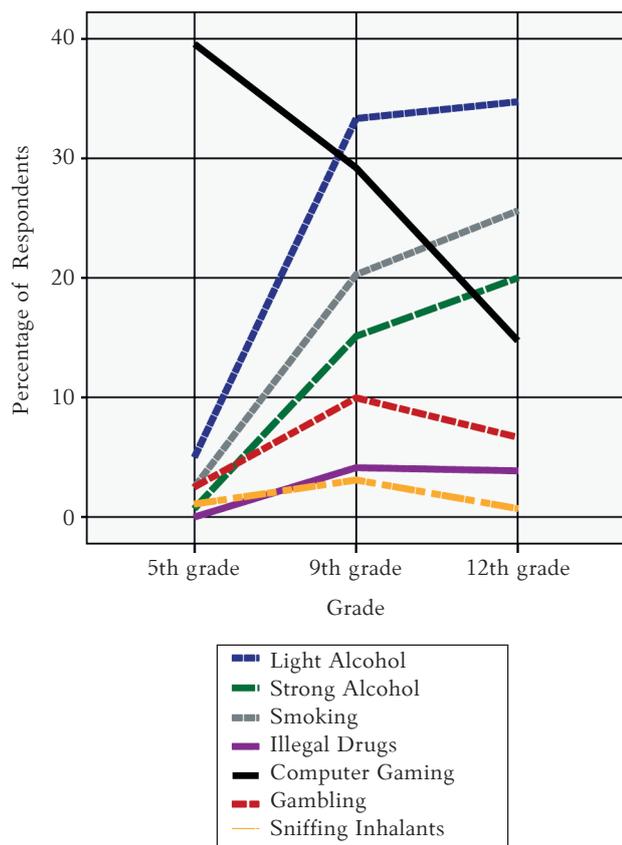


Fig. 1. Prevalence of potentially addictive behaviors in the schoolchildren of 5th, 9th, and 12th grades

addictive behaviors. The most frequently mentioned behaviors were computer gaming (27.8%), consumption of light alcoholic beverages (24.6%), smoking (16.3%), and consumption of strong alcoholic beverages (12.1%). Significant positive correlations were found between the increase in frequency of most of the addictive behaviors and the increase of the grade, except computer gaming, which negatively correlated with the grade (Fig. 1). No cases of illegal drug abuse were found in the 5th grade, reaching the highest prevalence of 4.1% (n=12) in the 9th grade. Sniffing inhalants was also most frequent in the 9th grade (3.1%, n=9). Differences with regard to gender or place of residence were not significant.

Advertising of consumption of strong alcoholic beverages (67.3%), consumption of light alcoholic beverages (63.0%), and tobacco smoking (42.6%) were signed as the most noticeable advertisings of addictive behaviors in mass media.

Answers to the question what had the strongest influence causing the wish to try addictive behavior did not differ significantly regarding the grade, gender and place of residence. Friends (38.4%), TV advertising (37.9%), and Internet advertising (24.6%) were most often signed as having an influence on the wish to try addictive behavior. Other sources of information influencing opinion formation were obviously less influential in all grades (Table 2).

Table 2. Factors Mentioned as Having the Strongest Influence on a Wish to Try or to Abstain From Potentially Addictive Behaviors in 5th, 9th, and 12th Grades

Factor Influencing Addictive Behavior	Grade	Promotes Addictive Behaviors			Prevents Addictive Behavior		
		Promotes, %	Does not Promote, %	χ^2 Among the Grades	Prevents, %	Does not Prevent, %	χ^2 Among the Grades
Friends	5th	32.8	67.2	$\chi^2=5.212$ $P=0.074$	65.2	34.8	$\chi^2=6.094$ $P=0.048$
	9th	41.3	58.7		62.6	37.4	
	12th	40.8	59.2		55.4	44.6	
	Total	38.4	61.6		61.1	38.9	
TV	5th	36.6	63.4	$\chi^2=4.182$ $P=0.124$	34.4	65.6	$\chi^2=1.986$ $P=0.370$
	9th	34.6	65.4		38.4	61.6	
	12th	42.6	57.4		33.0	67.0	
	Total	37.9	62.1		35.3	64.7	
Internet	5th	20.5	79.5	$\chi^2=16.832$ $P<0.001$	19.6	80.4	$\chi^2=0.311$ $P=0.856$
	9th	19.9	80.1		21.5	78.5	
	12th	33.1	66.9		20.7	79.3	
	Total	24.6	75.4		20.6	79.4	
Magazines/newspapers	5th	15.3	84.7	$\chi^2=6.2$ $P=0.045$	13.4	86.6	$\chi^2=0.332$ $P=0.847$
	9th	13.3	86.7		12.1	87.9	
	12th	20.8	79.2		11.9	88.1	
	Total	16.5	83.5		12.5	87.5	
Posters/placards	5th	18.3	81.7	$\chi^2=2.238$ $P=0.327$	18.1	81.9	$\chi^2=0.064$ $P=0.968$
	9th	13.6	86.4		18.7	81.3	
	12th	15.8	84.2		17.9	82.1	
	Total	15.9	84.1		18.2	81.8	
Celebrities	5th	14.2	85.8	$\chi^2=6.634$ $P=0.036$	8.0	92.0	$\chi^2=2.21$ $P=0.331$
	9th	11.5	88.5		6.9	93.1	
	12th	7.4	92.6		4.9	95.1	
	Total	11.0	89.0		6.6	93.4	

Answers to the question what makes the strongest influence convincing not to engage in the addictive behavior did not differ significantly with regard to gender and place of residence of the respondents. The most frequently mentioned influences were as follows: friends (61.1%), TV (35.3%), Internet (20.6%), posters/placards (18.2%); others, like newspapers/magazines, celebrities, were mentioned significantly less often. The influence of friends was decreasing with an increase of the grade especially from 9th to 12th grade (Table 2).

Answers to the question what were the main reasons for abstaining from trying or repeating addictive behaviors significantly differed in different grades. Fear for one's health (74.4%) and fear for possible impediment for the life (71.4%) were obviously most frequently mentioned in all grades with a insignificant decrease in frequency in higher grades. The influence of fear of parents was significantly decreasing in the higher grades ($P < 0.001$) while influence of such factors as expensiveness ($P < 0.001$) and availability ($P < 0.01$) was increasing. Personal beliefs were very important in the 5th and 12th but not so much in the 9th grade ($P < 0.001$) (Fig. 2).

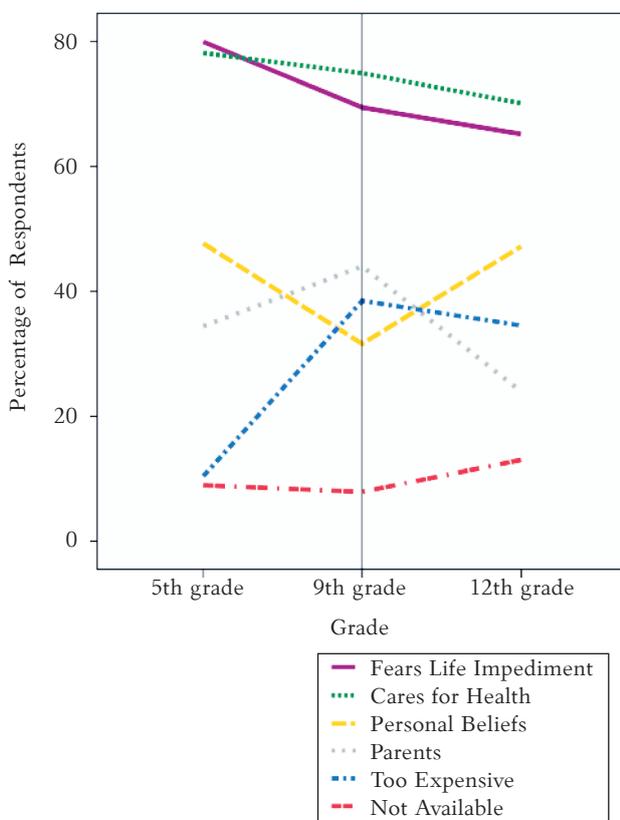


Fig. 2. Reasons for abstaining from trying or repeating potentially addictive behaviors signed by schoolchildren of 5th, 9th, and 12th grades

Discussion

The study was intended to gain information important for the development of effective prevention programs of addictive behaviors in the schoolchildren of secondary school age. Important factors influencing effectiveness of prevention are the age of target population and forms of interventions suitable for particular age. Influence on personal attitudes toward potentially addictive behaviors is one of the main strategies of prevention. It has to be planned and implemented taking into account development of cognitive, decision-making abilities, importance of family, peer and wider social influences of the target population (19). Our study revealed that age interval from 5th to 9th grades was when involvement into most of potentially addictive behaviors increased most significantly. It can be specific for nowadays Lithuania as differs from the findings of the studies in some other countries, which found the increase in the older age (20, 21). Exception for this increase was found for computer gaming, which had the highest prevalence in the 5th grade.

Awareness of the risk potential imbedded in addictive behaviors was also increasing in the age interval from the 5th to 9th grades but was probably not sufficient to prevent one-third of the schoolchildren from trying such behavior. One of the possible explanations for that could be the finding that friends in the 9th grade had the strongest influence on the wish to try and to abstain from potentially addictive behavior while the importance of personal beliefs decreased. Increase in the number of peers involved in addictive behaviors increases the pressure on each individual to try it. We found that parents' influence on abstaining from addictive behaviors remained important in the 9th grade but significantly decreased in the 12th grade. At the same time interval, the importance of personal beliefs had increased. These findings suggest that the prevention of addictive behaviors needs to focus on different factors influencing formation of attitudes in different age groups emphasizing building of resistance toward the negative influence of peers at the beginning of the secondary school (from 5th grade) and formation of personal opinion in the older age (after 9th grade). Multicomponent substance abuse prevention programs focused on peer and wider social influences had proven efficacy (22, 23), and involvement of the family significantly increased their effectiveness (24, 25).

Fear to harm one's health and fear of impediment for one's life were obviously the main reasons to abstain from addictive behaviors for respondents in all grades. However, two most prevalent forms of behavior in our sample – consumption of light alcoholic beverages and computer gaming – were among least identified as addictive behaviors. This finding pointed to the lack of acknowledgement of

potential risk of these behaviors among surveyed secondary school children. Worth emphasizing that consumption of light alcoholic beverages had the highest prevalence of all potentially addictive behaviors in 9th and 12th grades. In addition, advertising of light alcoholic beverages was mentioned by respondents as one of the most noticed advertising of addictive behaviors. Underestimation of negative consequences of addictive behavior in combination with high prevalence of such behavior among peers increases the likelihood of initiation of addictive behavior (26). These findings suggest that schoolchildren in Lithuania need more comprehensible information about potential risk for health and quality of life of such potentially addictive behavior as consumption of light alcoholic beverages and computer gaming.

TV and Internet were forms of mass media most often mentioned by respondents as having an influence on their wish to try and to abstain from trying addictive behaviors. This finding supports preventive measures implemented to control advertising of addictive behaviors on TV and Internet and suggests using these sources of information for prevention as they allow reaching of the target population of secondary school children.

Limitation of the study could be the use of questionnaire developed by researchers instead of internationally recognized instrument. It was determined by the limited availability of such instruments in Lithuanian, acknowledging the fact that the questionnaire will allow to get information about certain but not all factors involved in such a complex issue as addictive behaviors. Sample of the study repre-

sented rural and urban population proportionally to the country average but consisted of schoolchildren from just 2 towns what limits the possibility to generalize the results to the general population of this age group. On the other hand, the study provides original information about the attitudes of Lithuanian schoolchildren toward traditional (consumption of alcoholic beverages, smoking) and more recent types (computer gaming, gambling) of addictive behaviors, which can be useful while developing preventive measures and further studies of this serious and complex problem.

Conclusions

The prevalence of potentially addictive behaviors and acknowledgement of their risks was found to increase with the age of schoolchildren, most significantly from 5th to 9th grades. Consumption of light alcoholic beverages was the second most prevalent addictive behavior among respondents, highly noticed in the advertising, but less often acknowledged as risky behavior. TV and Internet were forms of mass media most often mentioned by respondents as having influence on their wish to try or to abstain from trying addictive behaviors. The influence of friends increased in the 9th grade, influence of parents decreased and importance of personal opinion increased in 12th grade. Reasons for abstaining from addictive behaviors differed with regard to the age but fear for health and life impediment was prevalent in all grades.

Statement of Conflict of Interest

The authors state no conflict of interest.

Lietuvos vidurinių mokyklų moksleivių, atsižvelgiant į jų amžių, požiūrio į žalingus įpročius, juos skatinančius ir prevencinius veiksmus, tyrimas

Darius Leskauskas¹, Rima Gudaitytė¹, Inga Kiudulaitė², Virginija Adomaitienė¹

¹Lietuvos sveikatos mokslų universiteto Medicinos akademijos Psichiatrijos klinika,

²Lietuvos sveikatos mokslų universiteto Medicinos akademijos Intensyvioios terapijos klinika

Raktažodžiai: moksleiviai, žalingi įpročiai, požiūris, prevencija.

Santrauka. Tyrimo tikslas. Įvertinti Lietuvos vidurinių mokyklų moksleivių požiūrį į žalingus įpročius, juos skatinančius ir prevencinius veiksmus, atsižvelgiant į jų amžių.

Metodai. Tiriamųjų imtį sudarė šešių Kauno ir Šakių vidurinių mokyklų 5, 9 ir 12 klasių moksleiviai (N=856). Apklausiai naudotas klausimynas, sudarytas tyrėjų iš klausimų apie moksleivių požiūrį į žalingus įpročius, jų asmeninę patirtį ir veiksmus, skatinančius arba sulaikančius nuo tokio elgesio.

Rezultatai. Dauguma tiriamųjų įvardijo tris elgesius kaip žalingus: rūkymą (82,8 proc.), narkotikų (81,0 proc.) ir stiprių alkoholinių gėrimų (80,6 proc.) vartojimą. Silpnų alkoholinių gėrimų vartojimas ir kompiuteriniai žaidimai rečiausiai laikyti žalingu įpročiu: atitinkamai – 67,2 ir 57,1 proc. moksleivių. 32,7 proc. tiriamųjų teigė turintys vieną arba daugiau žalingų įpročių: žaidimą kompiuteriu (27,8 proc.), silpnų alkoholinių gėrimų vartojimą (24,6 proc.), rūkymą (16,3 proc.) arba stiprių alkoholinių gėrimų vartojimą (12,1 proc.). Šie rodikliai reikšmingiausiai kito tarp 5 ir 9 klasių. Draugai (38,4 proc.), televizija (37,9 proc.) ir internetas (24,6 proc.) dažniausiai įvardyti tiek kaip darantys įtaką išbandyti žalingus įpročius, tiek kaip

nuo jų susilaikyti. Baimė dėl žalos sveikatai (74,4 proc.) ir gyvenimui (71,4 proc.) – tai dažniausiai įvardytos priežastys susilaikyti nuo žalingų įpročių.

Išvados. Žalingų įpročių dažnis bei jų žalos suvokimas didėja vyresnėse klasėse, reikšmingiausiai – nuo 5 iki 9. Silpnų alkoholinių gėrimų vartojimas buvo vienas dažniausių, labai pastebimu reklamoje, bet rečiausiai pripažintu žalingu elgesiu. Televizija ir internetas dažniausiai paminėtos kaip informacijos priemonės, turinčios įtakos išbandyti žalingus įpročius ir susilaikyti nuo jų. Priežastys, dėl kurių susilaikoma nuo žalingų įpročių, skyrėsi pagal klasę, bet galima žala sveikatai ir gyvenimui buvo svarbiausios visose klasėse.

References

1. Engs RC. Addictive behaviors and the stress response. from "Alcohol and Other Drugs: Self Responsibility". Bloomington, IN: Tichenor Publishing Co. 1987. Available from: URL: <http://www.indiana.edu/~engs/rbook/readabd.htm>
2. WHO Report on the Global Tobacco Epidemic "A policy package to reverse the tobacco epidemic", 2008 the empowerment package. Geneva: World Health Organization; 2008. Available from: URL: http://www.who.int/tobacco/mpower/mpower_english.pdf
3. Anderson P, Baumberg B. Alcohol in Europe. A public health perspective. A report for the European Commission. UK: Institute of Alcohol Studies; 2006.
4. Anikinas A. Adolescents self-esteem, addictive substance use and experienced problems correlations. [master thesis]. Kaunas: VDU; 2009.
5. Hibell B, Guttormsson U, Ahlström S, Balakireva O, Bjarnason T, Kokkevi K. Substance use among students in 35 European countries. The 2007 ESPAD report. Stockholm: Modinttryckoffset; 2009.
6. Jurgaitienė D, Zaborskis A, Šumskas L. Narkotikų vartojimo paplitimas tarp Klaipėdos profesinių mokyklų moksleivių 2004–2006 m. (Prevalence of drug use among students of vocational schools in Klaipėda city, Lithuania, in 2004–2006.) Medicina (Kaunas) 2009;45:291–30.
7. Zaborskis A, Lenčiauskienė I. Health behavior among Lithuania's adolescents in context of European Union. Croat Med J 2006;47(2):335–43.
8. Pierce JP, Choi WS, Gilpin EA, Farkas AJ, Berry CC. Tobacco industry promotion of cigarettes and adolescent smoking. JAMA 1998;279(7):511–5.
9. Liepinytė V. Šiuolaikiški rūkymo prevencijos metodai. (Modern methods of smoking prevention.) Vilnius: Valsitybinis psichikos sveikatos centras; 2008.
10. Schwinn TM, Schinke SP, Noia JD. Preventing drug abuse among adolescent girls: outcome data from an internet-based intervention. Prev Sci 2010;11(1):24–32.
11. Zaborskis A, Žemaitienė N, Šumskas L, Grabauskas V, Veryga A, Petkevičius R. Lietuvos moksleivių alkoholinių gėrimų vartojimo kaita 1994–2006 m. ir nauji iššūkiai. (Trends in alcohol consumption among Lithuanian school-aged children in 1994–2006 and new challenges.) Medicina (Kaunas) 2008;44(8):623–32.
12. Messerlian C, Derevensky J, Gupta R. Youth gambling problems: a public health perspective. Health Promot Int 2005;20(1):1–18.
13. Hibell B, Andersson B, Bjarnason T, Ahlström S, Balakireva O, Kokkevi A, et al. Alcohol and other drug use among students in 35 European countries. The ESPAD Report 2003. Stockholm: Modinttryckoffset; 2004.
14. Connell M, Bhardwaj R. Toronto's Vital Signs®, 2010, Full Report. Available from: URL: <http://www.investtoronto.ca/InvestAssets/PDF/Reports/toronto-vital-signs-2010.pdf>
15. Khan MK. Report of the Council on Science and Public Health. CSAPH Report 12-A-07. Available from: URL: www.ama-assn.org/ama1/pub/upload/mm/467/csaph12a07.doc
16. Griffiths MD. Problem gambling in Europe: what do we know? Casino and Gaming International 2010;6(2), 81–84; Available from: URL: <http://nottingham.academia.edu>
17. Gabay M, Goplerud E, Joubert K, Kantor LJ. Author's note on the calculation of updates to the alcohol cost calculator. The George Washington University Medical Center. (Washington) 2007. Available from: URL: <http://www.alcoholcostcalculator.org/business/about/?page=note>
18. Statistikos departamentas prie Lietuvos Respublikos Vyriausybės. Vidutinis metinis gyventojų skaičius pagal lytį ir amžių mieste ir kaime 2009 m. (Average annual population number in urban and rural areas by sex and age, 2009. The Department of Statistics, Lithuania). 2009 Available from: URL: http://www.stat.gov.lt/lt/pages/view/?id=1567&PH_PSESSID=a43f19889579d8aee3b8e582bd58c01c
19. Lopez B, Schwartz SJ, Prado G, Campo AE, Pantin H. Adolescent neurological development: implications for substance use prevention. J Prim Prev 2008;29(1):5–35.
20. Gullone E, Moore S. Adolescent risk-taking and the five-factor model of personality. J Adolesc 2000;23:393–407.
21. Johnston LD, O'Malley PM, Bachman JG, Shulenberg JE. Monitoring the future national survey results on drug use, 1975–2005. Vol. 1. Secondary school students. NIH publication (2006) No. 06–5883.
22. Zavela KJ, Battistich V, Gosselink CA, Dean BJ. Say yes first: follow up of a five-year rural drug prevention program. J Drug Educ 2004;34:73–88.
23. Spoth R, Shin C, Gyll M, Redmond C, Azevedo K. Universality of effects: an examination of the comparability of long-term family intervention effects on substance use across risk-related subgroups. Prev Sci 2006;7:209–24.
24. Simons-Morton B, Haynie D, Saylor K, Crump AD, Chen R. The effects of the going places program on early adolescent substance use and antisocial behavior. Prev Sci 2005;6:187–97.
25. Wills TA, Gibbons FX, Gerrard M, Murry VM, Brody GH. Family communication and religiosity related to substance use and sexual behavior in early adolescence: a test for pathways through self-control and prototype perceptions. Psychol Addict Behav 2003;17:312–23.
26. D'Amico EJ, McCarthy DM. Escalation and initiation of younger adolescents' substance use: the impact of perceived peer use. J Adolesc Health 2006;39:481–7.

Received 8 November 2010, accepted 7 February 2011
Straipsnis gautas 2010 11 08, priimtas 2011 02 07