

TEN-YEARS-OLD SMOKERS DIFFER FROM THEIR NOSMOKING EQUAL IN AGE

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Abstract: *The participants of the „No-smoking is a norm“ semilongitudinal study have advanced into the 4th degree. According to the data from the pre-test, 23 % of ten-years-old children have tried to smoke, 7% of them smoked repeatedly. Later on, in post-test, 24 % of children experienced with smoking, more than 10 % of them repeatedly: thus within six months the number of repeatedly smoking children has enhanced by 3,3 %, while the number of never smokers has decreased by 2,1 %. Smoking children significantly more often than never smokers lived in smoking families and had smoking friends. They also more often expressed their admiration or the neutral attitudes to smoking adults, and – on the other hand – less critical opinions. The significant differences were not only between never smokers and smokers, but also between those who had only one attempt and repeatedly smoking children ($p < 0,001$). For children, the main source of cigarettes is the home environment: parents, siblings, other relatives or free available cigarette packets; the friends as tobacco offers also have grown up. Despite of the existing ban of sale tobacco to minors, some ten-years old children could successfully buy it. Even single attempt with smoking was associated with the higher consumption of alcoholic beverages compared to never smokers. Only less than one quarter of repeated smokers did not drink any alcohol during the last month, but more than one quarter of these children reported drinking of two or more sorts of alcohol (including destilates) repeatedly. There were no differences in the frequency of fruit, vegetable and diary products consumption between smoking and nosmoking children. However, smokers have consumed more often 2 or more portions of salt and/or sweet delicacies daily.*

Key words: *smoking, schoolchildren, life style, differences*

Introduction

Smokers generally differ from non-smokers in other characteristic features of their way of live – worse eating habits, greater consumption of coffee and alcoholic drinks, less exercise, greater sexual promiscuity, the more frequent occurrence of other risky aspects of everyday life (not using safety belts in cars, hitchhiking, driving under the influence of alcohol, etc.). This information has been obtained largely from investi-

gations of the adult and adolescent population, both abroad (Nutbeam 1989, US DHHS 2000, Nelson 2006, Flouris 2008) and in a number of Czech studies (Nová 1997, Csémy 2005). The set of behaviours known as “lifestyle” is formed gradually over the course of one’s entire life and is determined by two factors in particular: traditions and social conditions. Traditional elements (national, regional, family, professional, religious) are highly persistent. They may, however, be modified by popular fashion trends, which need not conform to the recommendations of the experts; health education, on the other hand, is positively focused and particularly effective when accompanied by social support for the desired behaviour.

Children generally have far less scope in choosing their way of life than adults do, as they are socially and economically dependent on the family and school environment. Opportunities for behaviour differing on an individual basis gradually increase with increasing age. They start getting pocket money that they can spend how they like, parental supervision of their free-time activity is reduced, and their skills in the use of modern communication technology makes monitoring and guiding by adults essentially impossible. The psychological changes accompanying adolescence motivate children to seek their own position in society, and at the same time make it difficult for them to consider the consequences of the methods they employ to achieve this goal. The teenage period is considered extremely important, and may influence the individual throughout the remainder of his or her life.

The school educational programme “Non-smoking is a Norm” is unique in the fact that it focuses on studying and influencing the way of life among younger school-children aged from six to eleven. Using a test group of children and a control group, it makes it possible to monitor developmental trends for certain aspects of risk behaviour, their determinants and their “accumulation” at a time at which the children are still influenced to a significant extent by their families and schools. This work describes the differences among ten-year-old children (pupils in year four at primary school) with different smoking behaviour.

Methodology

As in previous stages, an anonymous questionnaire was used in year four, which the children completed once before beginning the series of lessons (a pre-test in November–December) and again around four months later after the programme ended (a post-test in May–June).

A number of questions taken from the previous investigations were asked again at the year-four stage. The children “graded” their attitudes towards smoking among adults, stated whether or not they had friends who smoke, whether they had ever tried smoking themselves, whether they had smoked in the week before the administration of the questionnaire, and whether they had tried smoking repeatedly. In contrast to the preceding investigations, smoking among parents and other relatives with whom the children come into contact was not determined, but rather if anyone smoked at home or not.

The consumption of selected food groups (fruit, vegetables, dairy products, savoury snacks and sweet treats) among the children was also determined as the

programme also takes in other aspects of a healthy lifestyle, and nutrition in particular. The consumption investigated related to the preceding day and the children chose from the answers offered and added details of further food types not included in the possible answers given. The figures were entered into the computer for processing as portions of individual food groups. A separate question related to the consumption of various types of alcoholic drink in the preceding month (beer, wine, liqueurs/spirits); if the children stated the repeated consumption of two or more types, these figures were recorded separately.

In view of the fact that the group of ten-year-old children included a sufficient number of children that had tried smoking either once or repeatedly, the figures obtained were also used to evaluate the differences between non-smokers and the two groups of smoking children (without differentiating the test and control groups). Statistical significance was assessed using t-tests in the EPI INFO programme.

Results

The final post-tests were completed by fewer pupils (985) than the original pre-tests (1,085). A fall in numbers was seen in both groups – the test group and the control group. This was the result of greater absence from school in the period before the summer holidays. One school did not set either the introductory or final test following a change of teacher.

Almost a quarter of children in year four had tried smoking. During the period between the pre-test and the post-test the number of children that had tried smoking repeatedly increased by around 3 % (from 7.0 % to 10.3 %), while the number who had still never tried smoking fell by more than 2 % (table 1). In isolated cases children mentioned that they had tried smoking a water pipe in the family.

Table 1 Smoking and non-smoking children in year four

	TEST	SMOKED		
		NEVER	ONCE	REPEATEDLY
Number of children	pre	831	173	75
	post	737	146	101
Percent of total	pre	77.0	16.0	7.0
	post	74.9	14.8	10.3

Ten-year-old boys stated experiments with smoking significantly more frequently than girls. The number of children that had never tried smoking fell during the period between the pre-test and the post-test for both sexes – by almost 4 % in boys and by a little less than 2 % in girls. The increase in the number of children that had smoked repeatedly during this period is also different for the two sexes – by 5 % in boys and by more than 3 % in girls (table 2).

Table 2: Differences between girls and boys in figures about experiments with smoking (percent of answers). The statistical significance tested for differences between the sexes in each investigation

	PRE-TEST			POST-TEST		
	BOYS	GIRLS	p <	BOYS	GIRLS	p <
Tried smoking:						
once	17.2	15.0	ns	16.0	13.3	ns
repeatedly	7.8	4.0	ns	12.7	7.3	0.01
never	75.0	81.0	0.05	71.3	79.4	0.01

Children that smoke live significantly more often in families that smoke and have friends that smoke. Children that smoke repeatedly again differ significantly from those who have only tried it once ($p < 0.001$) in seeking out contemporaries who smoke (table 3).

Table 3: Differences between children with various types of smoking behaviour: exposure (% of responses)

Statistical differences: p1 = one-off smoking : have never smoked
 p2 = repeated smoking : have never smoked

Smoking at home	TEST	SMOKED				p2<
		NEVER	ONCE	p1<	REPEAT.	
No one	pre	65.5	48.3	0.001	37.3	0.001
	post	64.2	45.2	0.001	38.0	0.001
Occasionally	pre	15.4	18.0	0.05	14.6	ns
	post	16.6	17.1	ns	21.0	0.01
Yes	pre	19.0	33.7	0.001	46.7	0.001
	post	18.9	37.7	0.001	41.0	0.001
A friend smokes	pre	16.4	54.4	0.001	73.3	0.001
	post	17.8	46.6	0.001	74.0	0.001

Children that smoke more frequently express admiration of smoking among adults (awarding a “grade” of 1 or 2), or a neutral stance towards this behaviour (“grade” 3). In contrast, significantly fewer of them are critical of such behaviour (awarding “grades” 4 and 5). In terms of their attitudes towards men smoking, children that smoke again differ significantly from those who have only tried it once so far ($p < 0.001$) (table 4).

Table 4: Difference between children with various smoking behaviour: attitudes towards smoking among others (% of responses)

Statistical differences: p1 = one-off smoking : have never smoked
 p2 = repeated smoking : have never smoked

	TEST	NEVER	SMOKED ONCE	p1<	REPEAT.	p2<
Smoking among women						
1+2	pre	0.9	9.4	0.001	2.7	ns
	post	1.2	2.8	ns	8.2	0.001
3	pre	7.4	15.9	0.001	39.7	0.001
	post	7.4	25.2	0.001	24.5	0.001
4+5	pre	91.7	74.7	0.001	67.5	0.001
	post	91.4	72.0	0.001	67.4	0.001
Smoking among men						
1+2	pre	2.4	8.7	0.01	28.8	0.001
	post	1.6	4.1	0.01	19.2	0.001
3	pre	11.7	24.4	0.001	34.2	0.001
	post	13.7	30.3	0.001	42.4	0.001
4+5	pre	85.9	66.8	0.001	37.0	0.001
	post	84.6	65.5	0.001	38.3	0.001

The children choose all the offered answers about the source of tobacco products that corresponded to the truth, for which reason the number of answers exceeds 100 % for children that have already tried smoking repeatedly. It is clear that the main source for both one-off and repeated smokers is the home environment, i.e. parents, relatives, siblings, or freely accessible home supplies of tobacco products – between 60 % and 80 % of smoking children obtained cigarettes in this way. The frequency with which tobacco products are given by friends and contemporaries increases among repeated smokers. In spite of the prohibition of the sale of tobacco products to those younger than 18, there are ten-year-old smokers (and particularly those who have already smoked repeatedly) who successfully purchase cigarettes in shops (table 5).

Table 5: Source of tobacco products (% of responses)

SOURCE	TEST	SMOKED 1x	REPEATEDLY
Sibling	pre	9.3	20.0
	post	11.6	18.8
Parents	pre	15.0	12.0
	post	17.1	12.9
Grandparents, other relatives	pre	24.9	17.3
	post	23.3	22.8
Took from home	pre	11.0	30.7
	post	13.0	23.8
Family environment – total	pre	60.2	80.0
	post	65.0	78.3
Friend, other person	pre	38.2	32.0
	post	31.5	48.5
Purchased themselves	pre	2.3	5.3
	post	2.7	10.9

In both investigations, around 40 % of children in the whole group said that they had consumed an alcoholic drink during the last month before the administration of the questionnaire. According to the dates of completion of the questionnaire this means October–November and April–May, when there are no national holidays traditionally associated with the family consumption of alcohol.

Even one-off experiments with smoking among children are associated with a higher frequency of consumption of alcoholic drinks in comparison with children that have never tried smoking. In the majority of cases, those who have already smoked repeatedly also differ significantly in this unfavourable respect from children that have smoked only once so far – less than a quarter of them had not had any alcoholic drink in the last month, while more than a quarter of them had drunk alcohol repeatedly (table 6).

Table 6: Differences between children with various smoking behaviour: alcohol consumption in the last month (% of responses)

Statistical differences: p1 = one-off smoking : have never smoked
 p2 = repeated smoking : have never smoked

	TEST	SMOKED		p1<	REPEAT.	p2<
		NEVER	ONCE			
Beer	pre	12.8	18.5	0.01	25.3	0.001
	post	15.9	28.1	0.001	31.7	0.001
Wine	pre	6.8	6.4	ns	12.0	ns
	post	3.7	4.1	ns	9.9	0.01
Spirits, liqueurs	pre	3.0	7.5	ns	6.7	ns
	post	2.6	5.5	0.05	5.0	ns
Combination of 2	pre	6.4	13.9	0.03	10.7	0.05
	post	3.0	13.7	0.01	8.9	0.01
Combination of 3 or more	pre	2.9	10.4	0.01	17.3	0.001
	post	0.4	5.5	0.001	17.8	0.001
Combination total	pre	9.3	24.3	0.001	28.0	0.001
	post	3.4	19.2	0.001	26.7	0.001
Did not drink any alcohol	pre	67.8	41.6	0.001	18.7	0.001
	post	74.0	43.2	0.001	23.8	0.001

No statistically significant differences between children that smoke and children that do not smoke were found in relation to consumption of fruit, vegetables and dairy products. In the repeated one-off investigations around 30 % to 40 % of children in each group conformed to the daily consumption of fruit and vegetables (according to listed types, rather than individual pieces of fruit) and the differences are not statistically significant. More than 10 % of children in both investigations had not had any fruit or vegetables the previous day. No particularly significant differences in the consumption of the recommended portions of fruit were found between the two seasons of the year in which the questionnaires were completed (autumn and spring). For vegetables, however, the figures on the consumption of the recommended number of portions were significantly higher in the spring. More than a third of the children in both groups consumed the

recommended three portions of milk and dairy products, though more than 7 % had not had any such product the previous day. Only a few individuals stated medical reasons for this (intolerance). If any children included items such as butter, cream or sweet dairy treats in dairy products, then these answers were not registered.

One-off and repeated smokers among the children differed from non-smokers in more frequently consuming two or more portions of savoury snacks and sweet treats (table 7).

Table 7: Differences between children with various smoking behaviour: consumption of savoury snacks and sweet treats the previous day (% of responses)

Statistical differences: p1 = one-off smoking : have never smoked
 p2 = repeated smoking : have never smoked

	TEST	SMOKED				
		NEVER	ONCE	p1<	REPEAT.	p2<
No salted snacks	pre	39.9	33.1	0.01	21.9	0.001
	post	44.0	34.9	0.01	22.4	0.01
More than 1 portion	pre	23.4	39.5	0.01	45.2	0.001
	post	18.6	30.8	0.05	44.9	0.01
No sweet treats	pre	39.1	32.0	0.01	39.2	ns
	post	37.6	28.1	0.05	23.5	0.01
More than 1 portion	pre	22.2	22.7	ns	24.4	ns
	post	21.5	24.7	ns	42.9	0.01

Discussion

The family environment has the greatest importance in shaping children’s attitudes and behaviour, not merely in childhood, but also during adolescence and early adulthood when the influence of contemporaries and society increases. A number of older studies and the very latest studies have repeatedly demonstrated that smoking among parents is one of the most significant factors influencing the first experiments with smoking among children. These associations have been described both in foreign studies (Bricker 2006, Griesbach 2003, O’Loughlin 1998, Covey 1990, Swan 1990) and among the Czech population (Hrubá 1996, Dostál 2008).

Nutritional habits were determined only very approximately according to the children’s responses about the consumption of selected food types the day preceding completion of the questionnaire. The marked conformity of the frequency of the responses in the autumn and spring investigations are, however, probably an indication of the fact that even the extremely approximate method used has its value. A seasonal fluctuation was seen only for “vegetables”; the number of children that had consumed the recommended number of portions increased significantly for both sexes in the post-test completed at the turn of spring and summer. The figures for the number of children that did not consume any fruit, vegetables and dairy products or savoury snacks and sweet treats were, in contrast, stable, which might be considered a continuing expression of the unpopularity or absence of the items on offer.

A number of epidemiological studies have repeatedly shown that smokers have worse nutritional habits than non-smokers: they consume more fatty and meaty dishes and less fruit, vegetables, cereals and dairy products. These differences are discovered not merely among adults, but also among adolescents (e.g. Ma 2000, Millen 2004, Kubik 2007, McClure 2009). It has been shown that smokers more frequently do not believe the experts that sources of antioxidants and fibre are effective in preventing cardiovascular and tumorous diseases, and are less motivated to change their existing eating habits (Jain 2009).

Our study did not confirm these findings, and our explanation of this is that young schoolchildren eat according to the habits of the family, and most of them receive lunch and perhaps a dairy snack at school. The nutritional recommendations from the experts are not respected to the desired extent in spite of a number of educational programmes aimed at improving the eating habits of the population, specifically in our region where the majority of schools are engaged in the “Non-smoking is a Norm” study. One of the reasons for this is certainly the fact that parents are ill-informed, and are generally convinced that one or two portions of fruit, vegetables and dairy products are sufficient for children (Hrubá 2008).

Differences in the eating habits of children with differing smoking behaviour were seen for savoury snacks and sweet treats (chips, salted sticks, crisps, hamburgers, sweets, ice cream, chocolate), which children obtain both from freely available supplies at home and with their own pocket money. Higher consumption of savoury snacks and smoked meats in particular was seen both among children experimenting with smoking and children living in families of smokers, even if they had not as yet smoked themselves. It is possible that this is in part the result of exposure to smoking, as nicotine has an influence on taste (Grunberg 1982, Redington 1984).

The findings relating to the concurrent use of both legal drugs – alcohol and tobacco – among such young children were disturbing. This is explained by identical social conditions of consumption and the potency of the resultant effects on the consumer (McCleron 2007, Rose 2004). The experts believe that alcohol may initiate experiments with smoking and accelerate the development of dependency to it (Paavola 2004, Gruzca 2006).

Measures to restrict the availability of alcohol and tobacco products, social controls, clear attitudes and parental supervision may significantly limit experimentation and the later regular use of these drugs (Weitzman 2005). Programmes aimed at primary prevention should incorporate a more comprehensive approach to preventing drug use and to education leading to a healthy lifestyle (Leatherdale 2008).

Conclusion

The programme “Non-smoking is a Norm” is based on expert recommendations for the creation of school educational programmes. Its effective influence on the lifestyle of young schoolchildren is limited by the environment in families of smokers and the tolerant attitude of society towards the consumption of legal drugs. In this context, the educational and instructive role played by schools is all the more important.

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DESETELETÍ KUŘÁCI SE LIŠÍ OD SVÝCH NEKOUŘÍCÍCH VRSTEVNÍKŮ

Abstrakt: V semilongitudinální studii hodnotící účinnost programu „Normální je nekouřit“ postoupily sledované soubory dětí (ovlivňované programem a kontrolní) do 4. tříd základních škol. Při vyšetření v pre-testu mezi nimi bylo 23 %, kteří už zkusili kouřit, z toho 7 % kouřilo opakovaně. V post-testu se počet kouřících dětí nevýznamně zvýšil (na 24,1 %), z nich 10,3 % dětí kouřilo opakovaně: hoši experimentovali významně častěji než dívky v obou vyšetřeních. Kouřící děti významně častěji žijí v rodinách, kde se kouří, a mají kouřícího kamaráda. V postojích ke kouření mužů a vyhledávání kouřících vrstevníků se také významně liší děti kouřící opakovaně od těch, které to zatím zkusily jen jednou ($p < 0,001$). I jednorázové kuřácké pokusy dětí jsou spojeny s vyšší frekvencí konzumace alkoholických nápojů ve srovnání s dětmi, které ještě kouřit nezkoušely.

Klíčová slova: kouření, školní děti, způsob života, rozdíly