

## RESULTS OF THE STUDY ON THE PROGRAM NON-SMOKING IS A NORM IN THE THIRD CLASS OF ELEMENTARY SCHOOL

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**Abstract:** *The aim of the study is to specify effectiveness of the program Non-Smoking is a Norm for third classes of the elementary school. The evaluation of the program was verified in the three items – knowledge, attitudes and risky behaviour. Data collection was realized by using the questionnaire method, before the intervention in January 2006 and after the intervention in June 2006. The results show an increasing level of knowledge after the intervention but no change in the level of negative attitudes with respect to smoking. Heightened first attempts with cigarette appeared in our group of children. The parental social model and parental smoking behaviour are important factors to influence start of children's smoking.*

**Keywords:** *drug prevention, educational-preventive programme, anti-smoking education, primary prevention in schools.*

### Introduction

The program *Non-Smoking is a Norm* has been prepared for children of the lower school age and it is focused on support of the healthy lifestyle and anti-smoking education. With its complex methodology the program belongs to desirable supports concentrated not only on the anti-drug prevention but also on oncology and cardiovascular educational prevention aims at school. The program can at least partially cover deficiencies in realizing drug addiction prevention activities for the first grade of elementary school; it is closely related with the drug addiction prevention in nursery schools and makes connection with prevention activities of the second grade of elementary schools. In this way, a continuous anti-smoking curriculum has been created for children in the age of 6 up to 15 years. Its orientation fulfils many demands that should and could be expected from schools in relation to educational-preventive work. The program has been composed as a system speaking to children from the first class up to (now) the third class. In its gradualism, with smoking cigarette considered as an entrance agent, primary source of addictive substances (according to the so called gateway theory), the program stepwise continues with prevention of other drugs (alcohol etc). The program attitude and methodology comply with development particularities of lower school age children and common everyday situations. Education themes are outlined by

using experience, games, staging performance, colouring books, rhymes, cloze-tests and other amusing methods to clarify the program topics. The program is in close relation to the Framework Educational Program, with unambiguous interrelationships to individual thematic areas and intersection topics; in this way teachers can implement educational-preventive themes to the school education program. Also students of Faculty of Education, Masaryk University (mainly those specialized in the first-grade teaching and health education) can participate in the program pilot study. The students can obtain valuable experience and skills in relation to prevention of risky behaviour and creation of school education programs. So the program can indirectly contribute to professional preparation of future teachers. The aim of this research is to verify effectiveness of the program *Non-Smoking is a Norm* for the third class of elementary school.

### Research design of the evaluation

| Sample                                 | Data collection       | Intervention                         | Evaluation                             | Methods                                   | Results             |
|--|-----------------------|--------------------------------------|--|---|---------------------|
| Children in the age of 8 and 9 years   | 3 <sup>rd</sup> class | Program <i>Non-Smoking is a Norm</i> | Pre-test x Post-test                   | Questionnaire (based on own construction) | Increased knowledge |
| Non-randomized, non-representative set |                       | 5 lessons focused on the activity    | Post-test, 4 months after intervention |   | Change of attitudes |
| 311 children in pre-test               |                       | In 4 weeks                           | Control group                          |   | Change of behaviour |
| 373 children in post-test              |                       | Diplomas for children                | Experimental group                     |   |                     |
| Elementary school                      |                       |                                      |  |   |                     |

## Methods

Our respondents were asked in a structured questionnaire constructed by our own proposal; attitudes, knowledge and frequency of risky behaviour concerning experiments with smoking, alcohol and well-balanced diet were monitored. The attitudes of respondents to smoking of adults were evaluated by use of the five degree scale. Further, four closed questions were prepared with possibility of a limited choice, five open items for free formulation of answers in a whole extent and three half-closed questions. The questionnaire was anonymous and its data was collected with the utmost correctness and fidelity. Two questions were focused on risks of smoking and consumption of healthy food. Two items dealt with attitudes to smoking and ten of them included behaviour. Five of the open questions, namely 8, 10, 11, 13, 14, were processed by the *content analysis* (Hendl 2005) with the open coding and a categorial system. The quantitative analysis was used in the program EPI Info 6.09, the statistic significance was checked by the  $\chi^2$  test and its modification by *Yats* and *Fischer* (with the test for small numbers).

## Data set examined

Research sample was neither representative nor random one. The studied set was formed with ten complete and non-complete public elementary schools from Brno town and its near neighbourhood; the schools agreed with realization of the research and application the preventive program in the third classes. Two schools participated in the Healthy School program but they were not evaluated separately. The studied set contained 311 children in the pre-test and 373 children in the post-test in two groups, the experimental group and the control one in order to compare results and evaluate the program. The respondents of the same age were included in the both experimental and control groups, approximately with the same representation of boys and girls coming from similar environment, approximately of the same size; so the groups can be considered to be homogenous.

In the first and the second class of elementary schools the initial human education curriculum is aimed at social features, while in the third class it is focused more on biological aspects, on anatomy of body organs and their function etc. The children of the experimental group have participated in the long-term primary program *Non-Smoking is a Norm* for more than two years; the program has been focused on support of the healthy lifestyle – i.e. non-smoking, sufficient moving activities and well-balanced diet. The control group of children has not been influenced by this program or similar intervention.

## Results

The study brings quantitative evaluation of children's knowledge, their attitude and behaviour concerning support of health and healthy lifestyle, with paying attention to smoking, alcohol consumption and well-balanced diet. The evaluation was structured in three thematic units:

- 1) Attitudes
- 2) Risky behaviour
- 3) Knowledge

### 1) Attitude of children to smoking of adults

Attitude of children to smoking of men and women was evaluated by use of the scale from 1 to 5; 1 – I like it very much, 5 – I do not like it at all (i.e. it was marked similarly as at school). 1 and 2 were put to the category Positive attitude to smoking, 4 and 5 to the category Negative attitude to smoking (see Table 1).

Table 1: Attitude of children to men smoking (%)

| Men smoking       | Program Pre-test | Control Pre-test | Program Post-test | Control Post-test |
|-------------------|------------------|------------------|-------------------|-------------------|
| Positive attitude | 4,1              | 2,9              | 6,9               | 5,3               |
| Negative attitude | 90,6             | 92,9             | 86,8              | 84,1*             |

\*  $p < 0,05$

Differences were not statistically proved for positive attitude to men smoking, either in the experimental or the control group. **Children of this age considered smoking to be negative and they refuse smoking.** The respondents of the intervened set admired smoking men slightly more than those of the control set, but with the value not higher than 7%; however the difference is not significant. 90% of respondents refused men smoking in the experimental set, with small differences before and after intervention. In the control group, without intervention, a significant difference appeared ( $p < 0,05$ ) in decrease of the respondents not liking men smoking in the post-test. **So we speculate that the program could keep the same level of negative attitude to men smoking, while in the control group the number of respondents of negative attitude to men smoking has decreased.**

No significant differences were demonstrated in attitudes to women smoking but in the post-test the positive attitude to women smoking has increased practically by 3%, which is almost the same value for the both sets. **About 94–98% of the respondents refused women smoking in the both sets without substantial differences** (see Table 2).

Table 2: Attitude of children to women smoking (%)

| Smoking women     | Program Pre-test | Control Pre-test | Program Post-test | Control Post-test |
|-------------------|------------------|------------------|-------------------|-------------------|
| Positive attitude | 0,6              | 0,7              | 3,6               | 3,1               |
| Negative attitude | 96,5             | 98,6             | 94,1              | 96,4              |

In general the respondents are more critical to women smoking than to men smoking; smoking men are better tolerated, in correspondence with common social attitude. **Thus, the attitudes of children have not been influenced by the program.**

## 2) Risky behaviour

In this study **smoking attempts and tasting alcohol** were included in risky behaviour. In the both experimental and control sets the number of children with smoking attempts has increased from 11% in the pre-test to 13% in the post-test. **Disappointing fact is that the number of smoking children in the experimental set was higher than in the control set - significantly ( $p < 0,05$ ) in the pre-test and also in the post test.** Thus, in our intervened set significantly higher number of children tried smoking, twice more by the results of Table 3.

Table 3: Number of children with smoking attempts (%)

|           | Program | Control | Total |
|-----------|---------|---------|-------|
| Pre-test  | 14      | 7,1*    | 10,9  |
| Post-test | 16,2    | 9,5*    | 13,1  |

\*  $p < 0,05$

**In the pre-test the respondents realized their first smoking attempts mainly with parents, but in the post-test they inclined more to friends.** Statistic differences were found between the control and experimental sets. In the set influenced by the program the children made use of an opportunity to smoke with their parents and friends

( $p < 0,05$ ). **By the post-test results, the family environment influence was decreased and the influence of contemporary friends was higher.** In the group with the program the children smoked with their parents and friends significantly ( $p < 0,05$ ) more in the pre-test. **Influence of the social model of smoking parents is here significant** (Table 4a, 4b, 4c).

Table 4a: Opportunity to smoke (%)

| Attempts to smoke | Program Pre-test | Control Pre-test | Program Post-test | Control Post-test |
|-------------------|------------------|------------------|-------------------|-------------------|
| With a friend     | 30*              | 11,1             | 43,3*             | 29,4              |
| With parents      | 41,7*            | 33,3             | 26,7              | 23,5              |

\*  $p < 0,05$

Table 4b: Opportunity to smoke – the group with the program (%)

| Attempts to smoke | Program Pre-test | Program Post-test |
|-------------------|------------------|-------------------|
| With a friend     | 30               | 43,3*             |
| With parents      | 41,7             | 26,7*             |

Table 4c: Opportunity to smoke – the control group (%)

| Attempts to smoke | Control Pre-test | Control Post-test |
|-------------------|------------------|-------------------|
| With a friend     | 11,1             | 29,4*             |
| With parents      | 33,3*            | 23,5              |

\*  $p < 0,05$

A known fact is that parents can substantially influence attitude of children to smoking. The parents can act as a very strong social model. In the studied set intervened by the program in the pre-test **almost half of the parents smoke at home; this fact could influence number of children with smoking experience** (see Table 5).

Table5: Parental smoking (%)

| PARENTAL SMOKING | Program | Control |
|------------------|---------|---------|
| Pre-test         | 45,6    | 40,7    |
| Post-test        | 41,9    | 47,1    |

We also studied number of children with **experience and opportunity to taste alcohol**. An alerting fact is that almost three fourths of children tasted alcohol, mainly from hands of their parents. Half of them tasted beer and one third wine. About 20 % of children tasted another type of alcohol, mostly champagne, vodka, egg liqueur, plum brandy, half-fermented wine, apricot brandy. Surprisingly the number of the children deceased in the post-test, in the control group by 10% (Table 6).

Table 6: Number of children with experience of tasting alcohol (%)

|           | Program | Control | Total |
|-----------|---------|---------|-------|
| Pre-test  | 70,3    | 72,3    | 71,2  |
| Post-test | 65,3    | 62,4    | 64,0  |

The children of the control group indicated tasting alcohol with their parents more often than the children of the intervened set, both in the pre-test and the post-test, but the differences were not significant. In the experimental set, neither the pre-test nor the post-test indicated significant differences (see Table 7, 8).

Table 7: Opportunity to taste alcohol (%)

|               | Program Pre-test | Control Pre-test | Program Post-test | Control Post-test |
|---------------|------------------|------------------|-------------------|-------------------|
| Alone         | 7,8              | 5,3              | 7,6               | 5,0               |
| With parents  | 78,3             | 83,2             | 79,4              | 87,1              |
| Another way   | 9,6              | 10,5             | 6,1               | 7,0               |
| With a friend | 4,3              | 1,1              | 6,9               | 1,0               |

Table8: Type of alcohol tasted (%)

|       | Program Pre-test | Control Pre-test | Program Post-test | Control Post-test |
|-------|------------------|------------------|-------------------|-------------------|
| Beer  | 55,8             | 52,5             | 54,2              | 52,1              |
| Wine  | 37,2             | 29,8             | 38                | 29,9              |
| Other | 16,3             | 17,7             | 17,7              | 19,5              |

We evaluated also **behaviour for support of principles of the well-balanced diet**. Children were asked **what healthy food they often consumed**. The most frequent answers quoted, by our expectation, fruit and vegetables, then milk products, wholemeal bakery products and white meat. Many of them mentioned also improper products – rolls, bread, chocolate, salami etc. Comparing the pre-test and post-test results, statistically significant ( $p < 0,05$ ) answers of the children indicated that the children under the program consumed more often milk products and the children of the control set used wholemeal bakery products (see Table 9a, 9b, 9c).

Table 9a: Frequently consumed food (%)

| Well-balanced food        | Program Pre-test | Control Pre-test | Program Post-test | Control Post-test |
|---------------------------|------------------|------------------|-------------------|-------------------|
| Fruit, vegetables         | 93,6*            | 87,2             | 90,2              | 92,9              |
| Milk products             | 23,8             | 29,8             | 33,8*             | 28,2              |
| White meat                | 2,9              | 2,8              | 0,5               | 1,8               |
| Wholemeal bakery products | 4,1              | 2,1              | 6,9               | 7,1*              |

\*  $p < 0,05$

Statistically significant differences appeared for fruit and vegetables, in favour of the experimental set in the pre-test, but not in the post-test. Thus, children of the intervened set indicated significantly more often ( $p < 0,05$ ) consumption of fruit and vegetables, in comparison with the children of the control group; but there were no mutual differences in the post-test. In the control set another difference was found, namely more often consumption of wholemeal bakery products by comparing the pre-test and the post-test ( $p < 0,05$ ).

Table 9b: Frequently consumed food – the check group (%)

| Well-balanced food        | Control Pre-test | Control Post-test |
|---------------------------|------------------|-------------------|
| Fruit, vegetables         | 87,2             | 92,9              |
| Milk products             | 29,8             | 28,2              |
| White meat                | 2,8              | 1,8               |
| Wholemeal bakery products | 2,1              | 7,1*              |

\*  $p < 0,05$ 

Table 9c: Frequently consumed food – the experimental group (%)

| Well-balanced food        | Program Pre-test | Program Post-test |
|---------------------------|------------------|-------------------|
| Fruit, vegetables         | 93,6             | 90,2              |
| Milk products             | 23,8             | 33,8*             |
| White meat                | 2,9              | 0,5               |
| Wholemeal bakery products | 4,1              | 6,9               |

\*  $p < 0,05$ 

**We examined why in the experimental group an increase had been indicated in the number of children with attempts to smoke.** One reason could be a higher number of smoking parents in this group. The parental model is more impacting in this age, which corresponds with results of studies from abroad (Pust et al. 2007). The children are characterized by a strong tendency to assume parental habits, later on they enter under influence of their contemporaries and start smoking in groups of friends. Another explanation can be that the program was not effective but on the contrary it could increase interest in smoking. **Significantly higher number of children tried smoking in the intervened set. No improvement of healthy lifestyle oriented behaviour can be confirmed concerning healthy food consumption for children in the intervened set in comparison with the control set.** An alerting fact was indicated, namely that almost three fourths of children tasted alcohol, predominantly offered by their parents. Half of them tasted beer and one third wine. **Number of children with risky behaviour has not significantly decreased.**

### 3) Knowledge

Knowledge was here characterized as **specification/knowledge of risks of smoking** and knowledge of **healthy food**. Risks of smoking were characterized by the children unambiguously: **cancer and lung damage**. Addiction and damage of teeth were mentioned very rarely by the children. Both the experimental and the control sets proved statistically significant differences in this knowledge of children, in the pre-test and the post-test, too. **The children of the set with the program indicated cardiovascular and heart diseases more often and also more frequently they mentioned cancer as a consequence of smoking.** Statistically significant differences were detected between the pre-test and the post-test; in this way **a medium-term effectiveness of the intervention to improve knowledge of children** is unambiguously confirmed. We can not unambiguously confirm that no other influence could act here – another school education, after-school activities, home environment, media. Our investigation was realized

after four months space. Nevertheless, the positive shift was confirmed in the sense of higher knowledgeability in the post-test of the intervened group (Table 10a, 10b, 10c).

Table 10a: Risks of smoking (%)

| Risks of smoking              | Program Pre-test | Control Pre-test | Program Post-test | Control Post-test |
|-------------------------------|------------------|------------------|-------------------|-------------------|
| Cardiovascular/heart diseases | 19,2**           | 2,8              | 24,1**            | 5,9               |
| Tumours/cancer                | 54,7             | 49,6             | 62,7*             | 51,8              |
| Drug addiction                | 1,2              | 1,4              | 0                 | 0,6               |
| Other diseases                | 20,3             | 19,1             | 10,3              | 12,9              |
| Lungs damage                  | 34,9*            | 21,4             | 43,1*             | 31,8              |

\*  $p < 0,05$ , \*\*  $p < 0,01$

However, the most noticeable difference was proved for heart diseases, between the control and experimental group, in favour of the experimental group, both in the pre-test and the post-test ( $p < 0,01$ ). The children ascribed the highest risk of smoking to cancer. Another significant difference ( $p < 0,05$ ) was proved for lungs diseases, in the experimental group.

Table 10b: Risks of smoking – the experimental group (%)

| Risks of smoking        | Program Pre-test | Program Post-test |
|-------------------------|------------------|-------------------|
| Cardiovascular diseases | 19,2             | 24,1              |
| Tumours/cancer          | 54,7             | 62,7*             |
| Drug addiction          | 1,2              | 0                 |
| Other diseases          | 20,3*            | 10,3              |
| Lungs damage            | 34,9             | 43,1*             |

\*  $p < 0,05$

Table 10c: Risks of smoking – the control group (%)

| Risks of smoking        | Control Pre-test | Control Post-test |
|-------------------------|------------------|-------------------|
| Cardiovascular diseases | 2,8              | 5,9               |
| Tumours/cancer          | 49,6             | 51,8              |
| Drug addiction          | 1,4              | 0,6               |
| Other diseases          | 19,1             | 12,9              |
| Lungs damage            | 21,4             | 31,8*             |

Other influences could not be excluded, so the results do not reflect only effects of our program on knowledge of the children. Total results are, however, positive. If the program only should create conditions for strengthening the knowledge in a consequent way, not only by the school education, the program object can be considered effective. **An increased knowledge of smoking has been confirmed.**

Then **knowledge of healthy food** was studied. The statistic difference ( $p < 0,05$ ) was indicated in favour of the set with the program, for fruit and vegetables in the pre-test, for milk products ( $p < 0,05$ ) and wholemeal bakery products ( $p < 0,001$ ) in the post test. In the post test no difference was indicated for fruit and vegetables between the experimental and the control group. Anyway, a generally known fact is that fruit and

vegetables belong to healthy food. Also no differences appeared for white meat (see Table 11a, 11b, 11c).

Table 11a: Knowledge – healthy food (%)

|                           | Program Pre-test | Control Pre-test | Program Post-test | Control Post-test |
|---------------------------|------------------|------------------|-------------------|-------------------|
| Fruit, vegetables         | 98,2*            | 90               | 97,1              | 95,3              |
| Milk products             | 23,8             | 29,8             | 38,7*             | 27,6              |
| White meat                | 2,9              | 3,5              | 6,4               | 5,9               |
| Wholemeal bakery products | 4,1              | 4,2              | 15,2              | 9,4               |

\*  $p < 0,05$ , \*\*  $p < 0,01$ , \*\*\*  $p < 0,001$

Table 11b: Knowledge – healthy food, the experimental group/the group with the program (%)

|                           | Program Pre-test | Program Post-test |
|---------------------------|------------------|-------------------|
| Fruit, vegetables         | 98,2             | 97,1              |
| Milk products             | 23,8             | 38,7*             |
| White meat                | 2,9              | 6,4               |
| Wholemeal bakery products | 4,1              | 15,2***           |

Table 11c: Knowledge – healthy food, the control group (%)

|                           | Control Pre-test | Control Post-test |
|---------------------------|------------------|-------------------|
| Fruit, vegetables         | 90               | 95,3              |
| Milk products             | 29,8             | 27,6              |
| White meat                | 3,5              | 5,9               |
| Wholemeal bakery products | 4,2              | 9,4               |

**The children of the both groups indicated reliably that fruit and vegetables are healthy food.** Stepwise they are making acquaintance also with the wholemeal bakery products, white meat and milk products. The number of children considering milk products was increased in the experimental group, also by influence of the intervention. They often mentioned also pasta and incorrectly salami, chocolate, rolls, ice-cream, sweets, etc.

## Intention of children to smoke in future

In our study we have made survey **of children's intent to smoke in future.** The number of those intending to smoke was not changed; **about 1% of children** both in the set with the program and in the control set, in the pre-test and the post-test, too. The number is slightly higher in the set with the program. However, the number of those **not intending to smoke in future stepwise decreased in favour of individuals not yet decided to smoke (about 25% of children).** This tendency was more noticeable in the set with the program. With statistic significance ( $p < 0,05$ ) more children not yet decided to smoke were found in the intervened/experimental set, in comparison with the control group in the pre-test. This is considered to be an alerting result which also indicates that children concern themselves with this phenomenon. However, in the post-test the values were not significantly different. This tendency

can be influenced by various factors – family, contemporaries, society. A statistically significant difference was proved in favour of the control set for refusing decision in the pre-test. The most noticeable decrease of the children not intending to smoke was seen in the control set, also the number of not yet decided children increased. **So, a negative tendency to hesitation and the decreased number of the future non-smokers was indicated in the control set** (Table 12a, 12b).

Table 12a: Intention to smoke in future (%)

| Intention to smoke in future | Program Pre-test | Control Pre-test | Program Post-test | Control Post-test |
|------------------------------|------------------|------------------|-------------------|-------------------|
| Yes                          | 1,2              | 0,7              | 1,4               | 0,6               |
| No                           | 72,1             | 85,1*            | 69,2              | 74,1              |
| I do not know                | 26,7*            | 14,3             | 29,4              | 25,3              |

\*  $p < 0,05$

Table 12b: Intention to smoke in future – the control group (%)

| Smoking in future | Control Pre-test | Control Post-test |
|-------------------|------------------|-------------------|
| Yes               | 0,7              | 0,6               |
| No                | 85,1*            | 74,1              |
| I do not know     | 14,3             | 25,3*             |

The children expressed their opinion of **prospective motive/impulse to smoke or not to smoke**. Many respondents did not answer at all. The most of a small number of answers belonged to the category *others*. Examples of the answers were as follows: I would smoke because my friend is a smoker; smoking is trendy; because of curiosity; my parents are smokers; because of psychic problems (stress, despair etc.); probably I would like it; it seems to be appetizing for me; it smells well; under a pressure; for a joke. Substantially more children indicated smoking because of curiosity in the set with the program in the pre-test.

**The most frequent reason why not to smoke** given by the children was “because I could be ill”; it was more often quoted in the post-test and in the control group. Further reasons were death, reek, bad habit. The sets were not mutually diverse in other answers. Other reasons followed from the answers: I do not like it; it is expensive; I could not get rid of it; it is not appetizing for me; it contributes to air-pollution; I could threaten other people; I am ill; it is harmful, dangerous, toxic; it does not smell well; I am sportsman; it is sinning; I would like to enjoy my life in a proper way.

## Characteristics of children with smoking attempts

Absolute number of the children that tried smoking increased, from 34 in the pre-test to 49 in the post-test. As regards the first attempts, the number of boys is higher than the number of girls, which could be connected with the motive of the boys – satisfaction of curiosity. However, this trend can be stepwise expected also by taking into account an increasing pressure in groups of contemporaries in the age of 9–10 years, when influence of those groups is higher in general. It seems to be evident that more than more than a half of the children with smoking attempts does not know if to smoke in future.

Thus, the attempts can be repeated, the first attempt was not discouraging. The children after first smoking attempts have thought noticeably **differently** in comparison with the total set, primarily about **smoking of men and women**. About twice more respondents demonstrated positive attitude to the men smoking and three times more to the women smoking. The most evident difference can be seen in refusing attitudes to men smoking, counted against the children with smoking experience. They appreciated men smoking far more. **Their attitude to smoking of men and women is less refusing, more positive.** About 90–97 % of those children had experience with alcohol; this number is about 20 % higher in comparison with the total set. Around two thirds of them tasted alcohol with their parents, 90% of them had experience with beer and half of them tasted wine; these values are again higher than the values of the total set (for beer 55%, for wine 35%). Two thirds of them lived in smoking households – in comparison with a half of them in the total set. The most substantial difference was found in their intent to smoke in future – 1% of children in the total set and 6% in the set of children with smoking attempts. Here also the number of hesitating children was about twice higher, at the expense of unequivocally negative answers.

## Discussion

In our set **positive attitudes** to smoking of men and women appeared for 3 to 7% percent of respondents. **The responding children evaluated smoking negatively and in a natural way they refused smoking** About 90% of children refused smoking. In spite of this fact, a shift to hesitation and neutral attitude has been indicated. Generally, the respondents are significantly more disapproving towards women smoking that towards men smoking; tolerance to men smoking is higher, in correspondence with a common social attitude. **Thus, the attitudes of the children to smoking have not been changed by application of the program.** It is a common knowledge that the attitudes can be often resistant to changes and so it is not easy to change children's attitudes by a the short term intervention. Indisputably a stepwise decreasing trend has appeared to refuse smoking and also higher number of hesitating respondents.

**The attempts to smoke, to taste alcohol and consumption of healthy food** were included in the **risky behaviour** study. **The number of children with smoking attempts increased after the intervention – and more than in the set without the intervention.** We tried to explain why the number of children with smoking attempts increased in the experimental group after the intervention. The reason can be seen in a higher number of parents – smokers for the children in the experimental group. The parental model can act strongly in this time period, which corresponds with the studies from abroad (Pust et al. 2007). Parental smoking is very substantial factor determining behaviour of smokers in childhood. The children tend to copy parental models; this influence is then stepwise supplemented by the influence of contemporaries and the children start smoking in groups of friends. Smoking in childhood and adolescence is a multicultural phenomenon which is influenced by local and social factors. Prevalence of smoking grows with the age, which was confirmed by many international and domestic studies. In general, a social gradient exists for smoking. Higher number of smokers was detected in lower socio-economic spheres. It was proved that a low education level

is a significant risky factor of smoking for girls in the age of 12–14 years and boys in the age of 15–17 years (Pust et al. 2007). In our study the socio-economic status of families was not monitored, so we could not demonstrate its influence on the increased number of children with smoking experience. Prevalence of smoking is significantly higher in families with the lower education level in comparison with families where the education level of parents is higher. Smoking of a family member is the most important factor that influences smoking in childhood and adolescence (Pust et al. 2007).

The second explanation could be that the used program was not effective; on the contrary it could trigger a higher interest in smoking – significantly more children tried to smoke in the intervened set. **No improvement of healthy lifestyle oriented behaviour was confirmed concerning healthy food consumption for children in the intervened set in comparison with the control set.** Only consumption of milk products increased. Alerting fact is that almost three fourths of children tasted alcohol, mainly from hands of their parents. Half of them tasted beer and one third wine. Number of children with risky behaviour has not significantly decreased. Here it is necessary to mention that such behaviour is mostly influenced by everyday habits of individual families. School is here only an additional, less effective agent. Further, the effect of the program *Non-smoking is a Norm* is given by the program extent – 5 education lessons. Unquestionably it is a short intervention to change everyday behaviour and attitudes. It can only contribute to such intent and induce interest, open discussion, activate attention.

**Knowledge** area was here characterized as **specification/knowledge of risks of smoking** and knowledge of **healthy food**. Risks of smoking were characterized by the children unambiguously: **cancer and lung plus heart damage**. It can not be unambiguously confirmed that no other influence could act here – another school education, after-school activities, home environment, media. However, also the mere induced interest in this topic and common increased knowledgeability are important aims of our intervention. The generally known fact is that fruit and vegetables belong to healthy diet; it was mentioned by the children most frequently. They also quoted white meat, wholemeal bakery products and milk products. Knowledge influenced by the intervention could be indicated most easily, it is most provable. The problem is that knowledge and behaviour do not mutually correlate. Knowledge is far from everyday behaviour. For this reason the program was also focused on influencing attitudes and behaviour. A positive influence of the intervention was indicated by increased knowledge of smoking risks and well-balanced diet. Increased negative attitudes to smoking and positive changes in healthy lifestyle oriented behaviour were not proved.

## Conclusions

The concept of our program is unusual by its design: to ask children also in the first and second classes of elementary school, while foreign programs started with interventions in the fourth and fifth classes and exceptionally in the third class, if ever focused on children of the lower school age. We worked on assumption that attitudes to an appropriate behaviour, in the sense of keeping healthy lifestyle principles, are being formed in the preschool and early school age. Family is here of primary importance but effective preventive school programs can supplement the role of family. And just here

it is suitable to use educational programs of primary prevention for the school age children to influence the children towards health support and disease prevention; it was also the aim of our effort by using the above mentioned program *Non-Smoking is a Norm*. Effectiveness of this program was confirmed only partially. The school program could substantially influence attitudes and risky behaviour of the children only reluctantly. The most important is here everyday impact of family environment. School can effectively influence knowledge but it is also a suitable motivating agent and supplementary factor in forming attitudes and behaviour. The question of the near future is in what measure the program will be spread in the real life and the daily school practice in the Czech Republic, how children, teachers and parents will like it; if they can accept it and complete it creatively according to their own typical local conditions. Just in this way the program could be realistic and lively, with positive influence on child population. Meaningfulness of all activities in creation of school programs for primary prevention is directed to the goal of our long-term intent - to change behaviour of children and adolescents, to decrease prevalence of smoking and support of healthy lifestyle.

## VÝSLEDKY STUDIE 3. TŘÍDY PROGRAMU NORMÁLNÍ JE NEKOUŘIT

**Abstrakt:** Cílem tohoto šetření je zjištění účinnosti programu „Normální je nekouřit“ pro 3. třídu základní školy. Evaluace programu je ověřována ve třech oblastech: znalosti, postoje a rizikové chování. Sběr dat byl proveden metodou dotazníku před intervencí v lednu 2006 a po intervenci v červnu 2006. Výsledky potvrzují zvýšení znalostí po intervenci, ale nepodařilo se zvýšit negativní postoje ke kouření. Objevilo se i zvýšené první experimentování s cigaretou. Důležitým faktorem ovlivňující počátky kouření je sociální model rodičů, kuřácké domácí prostředí.

**Klíčová slova:** drogová prevence, preventivně-výchovný program, výchova k nekuřáctví, primární prevence ve škole.