

P74: EFFECTIVENESS OF THE HEALTH AND NUTRITION INTERVENTION PROGRAMMES IN THE CZECH REPUBLIC

Sabolová Monika, Procházková Věra, Kouřimská Lenka

Czech University of Life Sciences Prague (Faculty of Agrobiological Sciences, Department of Microbiology, Nutrition and Dietetics), Prague, Czech Republic, sabolova@af.czu.cz, v.prochazkova2@gmail.com, kourimska@af.czu.cz

Abstract – Intervention programmes are one of the ways how to educate children and adolescent in rational nutrition and healthy lifestyle and to improve their dietary habits. They can be an important tool in prevention of health problems related with nutrition such as childhood obesity or development of osteoporosis. The purpose of this work was to evaluate effectiveness of rational nutrition and healthy lifestyle intervention programmes for children and adolescents up to age of 18. The effectiveness of six selected intervention programmes was evaluated by questionnaire survey at schools which have been participating in these programmes. Questionnaires were completed in online form by children of age from 6 to 19. The number of respondents ranged from 19 to 159. The obtained data were evaluated by using the score ranged between one and minus one depending on the effectiveness of the programme (to what extent the program has met its goals). The obtained results indicated that the effectiveness of the intervention programmes was very different. The program "Health to schools" with score 0.83 was the most effective programme. Two intervention programmes ("The school full of health" and "Really healthy school") were ineffective according to this score (-0.05 and -0.20).

Keywords: intervention programmes, children, nutrition, health

1. INTRODUCTION

Good nutrition and dietary behaviour are important to achieve full growth potential, appropriate weight and body composition during childhood and adolescence. Children require sufficient energy, essential nutrients (proteins, lipids and carbohydrates), vitamins, minerals and water for growth as well as maintenance of body functions [1]. Nutrition is very important to

promote health and well-being and to reduce the risk of health complications in adulthood [2, 3].

One of the most serious nutritional problems is the rising prevalence of childhood obesity. In Europe, 20% of children and adolescent suffer from overweight or obesity [2] and similar situation is in the Czech Republic, where 20% of children aged 6-12 and 11% of children aged 13-17 are overweight or obese [4]. The insufficient consumption of milk and milk products is also problematic, especially with regard to the bone and tooth health and prevention of osteoporosis in adulthood. In addition, studies have showed that low dietary calcium intake can stimulate lipogenesis and inhibit lipolysis at the same time, which can lead to accumulation of body fat and may contribute to childhood obesity [5]. Another problem is that in the most countries, children eat less fruit and vegetables than the recommended value, which increases the risk of cancer and cardiovascular disease [3].

Since nutrition-related diseases are serious problem, there is a wide range of nutritional intervention programs, which may improve nutritional habits or may be aimed to the prevention of specific diseases [6]. Intervention programs have great importance especially in the childhood when eating habits are created. School plays an important role in creation eating habits and many of intervention programs are carry out at schools [7]. If the intervention programs are properly designed and applied in practise, they can support good eating habits, physical activity and reduce time spent on passive activities [8]. Therefore the aim of this work was to evaluate the short-term effectiveness of school intervention programs.

2. EXPERIMENTAL

The effectiveness of six selected intervention

programmes (“Health to schools”, “Fruits and vegetables to schools”, “Milk to schools”, “Health school canteen”, “The school full of health” and “Really healthy school”) was evaluated by questionnaire survey at schools which have been participating in these programmes. Questionnaires were prepared according to the goals of intervention programmes (different questionnaire for each program) and included from 6 to 11 questions. Questionnaires were created by web application Google Forms (docs.google.com/forms) and completed online by children of age from 6 to 19. The number of respondents ranged from 19 to 159 (see Tab. 1).

Table 1. The number of respondents.

Intervention programme	Number of respondents
Health to schools	25
Fruits and vegetables to schools	159
Healthy school canteen	124
Milk to schools	73
The school full of health	19
Really healthy school	115

The obtained data were evaluated by using the score ranged between one and minus one depending on what extent the program has met its goals. The score was calculated as follows:

- the answers to the questions were counted (one positive answer = 1 point, one neutral answer = 0 point, one negative answer = -1 point; positive answer doesn't mean automatically answer “yes”, for example in case of question “Have you ever thrown fruits or vegetables into the wastebasket?” positive answer is “no”
- score of question = (number of positive answers – number of negative answers) / number of respondents
- overall questionnaire score = sum of score of all questions / number of questions.

3. RESULTS AND DISCUSSION

Effectiveness of school intervention programs evaluated by the score is shown in Tab. 2. According to this score program Health to schools was the most effective intervention program. Although the number of respondents was taken into account when the score was calculated, the question is, to

which extent it could influence the results of the survey. Our results have showed, that more than 50% of children have learned that they should eat in a more healthy way due to intervention program. However, it is necessary to take into account that children assessed subjectively their diet.

Table 2. Score of intervention programmes.

Intervention programme	Score
Health to schools	0.83
Fruits and vegetables to schools	0.56
Healthy school canteen	0.45
Milk to schools	0.27
The school full of health	-0.05
Really healthy school	-0.20

Previous studies [9, 10] found that intervention programs may not be effective in the long term. However, based on the results of this study, intervention programs may not be effective even in the short term. Schools were involved in the intervention program at time when questionnaire survey was carried out at schools. It was found that two out of six intervention programs were ineffective.

Our results and the results of other studies [11] have showed that school intervention programs can be effective only at school. Our results also indicate that encourage of consumption for example fruits and vegetables by parents can be an important factor for the success of intervention programs, which is in line with results of another study [12].

4. CONCLUSIONS

In total, four out of six intervention programs were effective. The most effective school intervention programs were Health to schools, followed by the program “Fruits and vegetables to schools”. Majority of children has learned from intervention programmes that they should eat healthier and they follow this recommendation. However, 33% of intervention programs have been ineffective. Therefore it could not be generally stated that intervention programs are the effective tool to encourage young people to eat healthy food. Participation of parents to intervention programs could probably increase the effectiveness of these

programs.

ACKNOWLEDGMENTS

Supported by “S grant” of MSMT CR.

REFERENCES

- [1] J. Machová, D. Kubátová, H. Hamanová, P. Kabíček, E. Mrázová, Z. Svoboda, I. Wedlichová, Health education, *Výchova ke zdraví*, Grada Publishing, a.s., Prague, 2015, ISBN 978-80-247-5351-5.
- [2] T. Lobstein, L. Baur, R. Uauy, Obesity in children and young people: a crisis in public health, *Obes. Rev.* 5 (2004) 4-85.
- [3] L. Blanchette, J. Brug, Determination of fruit and vegetable consumption among 6-12-year-old children and effective intervention to increase consumption, *J. Hum. Nutr. Diet.* 18 (2005) pp. 431-443.
- [4] D. Pastucha, R. Filipčíková, M. Bezdičková, Z. Blažková, J. Hyjánek, Movement in the therapy and prevention of childhood obesity, *Pohyb v terapii a prevenci dětské obezity*, Grada Publishing, a.s., Prague, 2011, ISBN 978-80-247-4065-2.
- [5] R. E. Black, S. M. Williams, I. E. Jones, A. Goulding, Children who avoid drinking cow milk have low dietary calcium intakes and poor bone health, *Am. J. Clin. Nutr.* 76 (2002) pp. 675-680.
- [6] A. M. Coulston, C. J. Boushey, M. G. Ferruzzi, Nutrition in prevention and treatment of disease. Elsevier, London, 2013, ISBN 978-0-12-391884-0.
- [7] J. Fialová, Nutrition friendly schools initiative: The new program of World Health Organization, Nutrition friendly schools initiative: Nový program světové zdravotnické organizace, *Hygiena*, 53 (2008) pp. 146-148.
- [8] H. Wechsler, M. L. McKenna, S. M., Lee, W. H., Dietz, The role of schools in preventing childhood obesity, The State Education Standard, 2004, https://www.cdc.gov/healthyyouth/physicalactivity/pdf/roleofschools_obesity.pdf. Accessed Juny 2017.
- [9] L. Parker, A. Fox, The Peterborough Schools Nutrition Project: a multiple intervention programme to improve school-based eating in secondary schools. *Public Health Nutr.* 4 (2001) pp. 1221-1228.
- [10] Z. Vašíčková, Effectiveness of nutritional intervention programs focused on the child population, Účinnost výživových intervenčních programů zaměřených na dětskou populaci, *Vojenské zdravotnické listy.* 72 (2013) pp. 153-157.
- [11] Ch. Taylor, H. Darby, P. Upton, D. Upton, Can a school-based intervention increase children’s fruit and vegetable consumption in the home setting? *Perspect Public Health.* 133 (2013) pp. 330-336.
- [12] N. Pearson, S. J. H. Biddle, T. Gorely, Family correlation of fruit and vegetable consumption in children and adolescents: a systematic review, *Public Health Nutr.* 12 (2008) pp. 267-283.