Effectiveness of a school-based intervention to reduce the prevalence of overweight and obesity in children aged 7–11 years from Poznań (Poland)

Inez Bilińska¹ and Łukasz Kryst²,*

¹ Mieszko I College of Education and Administration, Faculty of Public Health, Poznań, Poland
² Department of Anthropology, Faculty of Physical Education, University of Physical Education, Kraków, Poland
* Corresponding author: lkryst@poczta.onet.pl

With 4 figures and 3 tables

Abstract: The epidemic of obesity, which is one of the most important public health problems, appeared paradoxically as a result of improving living conditions. The aim of this study was to determine the effects on overweight/obesity prevalence of the primary-school-based intervention program. The group of 5,293 children (7–11 year-olds) from Poznań (Poland) was divided into two subgroups: experimental and control one. The research group was participating in extra physical activities. Measurements (height and weight) were taken twice: at baseline and after 1-year follow-up. The estimations of the prevalence of overweight/obesity were based on the cut-off points of the IOTF values. To estimate the risk the odds ratio (OR) were calculated. There were no differences in BMI for both boys and girls. Also there were no significant differences in prevalence of overweight and obesity, for both sexes. The risk of being overweight/obese was not reduced in children in the experimental group – OR for boys was 0.93 (0.80, 1.08), and for girls OR = 0.88 (0.76, 1.03). In conclusion, the risk of overweight/obesity has not changed after one year of extra physical activities and engagement in health-oriented education program. This study shows that in case of such programs it is necessary to apply more intense interventions, probably also during longer period of time. It is possible that other adverse factors have a stronger influence on the body mass, which would suggest that the theoretical part of intervention concerning pro-health-related behaviors was not implemented in practice.

Keywords: obesity; overweight; intervention programs; physical activity

Introduction

The late 20th century has seen a dramatic increase in overweight and obesity, particularly in Western Europe and the USA (Flegal et al. 2002; Lobstein et al. 2005). The growing obesity epidemic has become one of the most serious public health problems all over the world, both in the industrialized and the developing countries. The main reason for this phenomenon is, paradoxically, improvement in living conditions and significant advances in science and technology.

Unfortunately, with the development of civilization, we have seen a general decline in physical activity, both in adults and in children. At the turn of the 21st century WHO classified obesity as a major health problem in modern societies, estimating that in 2025 obesity could affect up to half of the adult population living in the US, UK and Australia (WHO 2000). A similar trend is also being recorded in children (Reilly et al. 2005; Wang & Lobstein 2006). In the UK in the 1990s, the incidence of overweight in children less than 4 years old increased from 14.7% to 23.6% and obesity from 5.4% to 9.2%. In Germany, the incidence of obesity increased significantly between 1975 and 1995 among boys (from 10.0% to 16.3%) and girls (from 11.7% to 20.7%) (Rolland-Cachera et al. 2002).

Recently, this trend has also been observed in Central and Eastern Europe. Research conducted in the Czech Republic, Germany and Russia in the 2000s showed that the problem of excessive weight gain has occurred in an increasing number of children and at younger ages (Jahns et al. 2003; Zellner et al. 2007; Vignerová et al. 2008). In Poland up to the 1990s, the problem was not so large; however, recent studies have shown that the epidemic of overweight and obesity among children has now hit Poland, too (Kowal et al. 2013; Kowal et al. 2014). Increased BMI and increased prevalence of overweight and obesity in the last two decades is observed not only in Krakow, but also in many other centers in Poland (Gomula et al. 2015). The socio-economic transformation which took place at that time made Poland more similar