Overweight and obesity trends are stabilising among children aged 7 years: Results of the Childhood Obesity Surveillance Initiative in the Republic of Ireland

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Obesity in children is an important health problem in Europe[1]. It has been linked to adverse psychological, social and health consequences in childhood and later in life[2]. The present study followed the protocol of the World Health Organisation (WHO) Childhood Obesity Surveillance Initiative (COSI), which was jointly developed in 2008 by the WHO Regional Office for Europe and the participating Member States to measure systematically childhood obesity in the European region. In 2014, based on first three sweeps of the Irish COSI data (2008, 2010 and 2012), it seemed that overweight and obesity prevalence had fallen among 7-year olds[3]. As the latest sweep has just finalised (Nov 2015-Feb 2016), the present study investigates whether this downward trend has continued or not among 7-year old Irish children. The core objective was to measure weight, height and waist circumference in primary school children. A nationally representative sample of schools was chosen on a probability proportional to size basis. In large schools, the average class size was estimated to be 20, small schools having less than 20 pupils per class. Both body mass index (BMI) and waist circumference (WC) are analysed in the present study as measures of adiposity.

BMI and WC were standardised by age and sex. For BMI, overweight (including obesity) and obesity were classified using the International Obesity Taskforce (IOTF) cut-off points[4]. For WC, British 1990 data was used to compute z-scores[5] and overweight and obesity prevalences were estimated as follows: overweight (including obesity) was defined as a z-score ≥ 1.33 (91st centile) and obesity as a z-score ≥ 2 (98th centile). Pearson's chi-squared tests for trend were used to assess a linear trend in the prevalence of overweight across different sweeps.

In total across the four sweeps, 5,214 children had their measurements recorded (2,556 boys and 2,658 girls). Overall response rate for first class in schools was 73·8 % for 2008, 64·6 % for 2010, 54·6 % in 2012 and 57·1 % in 2015. When categorised by IOTF standards, the percentages of overweight children were 22·9 %, 20·8 %, 17·9 % and 16·3 % for sweeps 2008, 2010, 2012 and 2015, respectively. For obesity, these percentages were 6·3 %, 4·2 %, 3·9 % and 3·9 %, respectively. A significant inverse linear trend was observed for both overweight ($p_{trend} < 0.001$) and obesity ($p_{trend} = 0.001$). When stratified by gender, similar patterns were observed, although for boys, a significant trend was observed for overweight only ($p_{trend} = 0.046$). For WC, similar patterns were observed, although the prevalences for overweight and obesity were slightly higher compared to BMI: 29·9 %, 29·3 %, 24·4 % and 26·4 % ($p_{trend} = 0.005$) for overweight and 14·7 %, 13·1 %, 11·0 % and 11·2 % ($p_{trend} = 0.001$) for obesity.

In conclusion, it seems that the prevalence of overweight and obesity, based on both BMI and WC data, in Irish children aged 7 years has stabilized over the past eight years.

This study is overseen by a steering group committee of which the Health Service Executive and Department of Health have been part of since its inception.

1. Branca F. Nikogosian H, Lobstein L (editors) (2007) http://www.euro.who.int/__data/assets/pdf_file/0008/98243/E89858.pdf (accessed March 2016).
2. Reilly J, Methven E, McDowell Z *et al.* (2003) *Arch Dis Child* **88**, 748–752.
3. Heinen M, Murrin C, Daly L *et al.* (2014) http://www.ucd.ie/t4cms/COSI%20report%20(2014).pdf (accessed March 2016).
4. Cole T, Bellizzi M, Flegal K, Dietz W (2000) *BMJ* **320**, 1240–1243.
5. McCarthy HD, Jarrett KV, Crawley HF (2001) *Eur J Clin Nutr* **55**, 902–907.