Growth of schoolchildren

av

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Akademisk avhandling

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The overall aim of this thesis is to explore somatic growth, and deviant growth patterns as episodes of weight loss and obesity development, including some aspects of meal patterns and food intake.

**Methods:** The thesis includes four studies, two cross-sectional studies (Paper I and II), and two longitudinal studies (Paper III and IV).

The first paper looks at assessment of BMI categories (underweight, overweight and obesity) prevalence and how the results relate to which growth reference that is used. Height and weight measurements of 4,518 Swedish schoolchildren aged 7–9 years were collected in 2008 using a standardised protocol from World Health Organization (WHO). Four growth references were used, from the WHO, the International Obesity Task Force (IOTF) and two Swedish growth references from Werner and Karlberg et al. (Paper I). Parts of the same data set plus a follow-up data set from 2010 was used to investigate correlations with deviations in BMI in relation to breakfast habits and selected food frequencies.

For paper three and four, a longitudinal material from two nationally representative samples was used with height and weight data of 6,572 schoolchildren, born 1973 and 1981. Episodes of BMI reduction of 10% or more were identified and correlated to final height (Paper III). The same material was used for paper four to further investigate growth patterns on group level by use of weight for height, Tri-Ponderal Mass Index (TMI), apart from BMI. On individual level, weight at age 7 years and weight at 16 years for girls and 18 years for boys, were categorized in monthly values and expressed in standard deviation (from ≤ -2 to ≥ +3 SD) (Paper IV).

**Results:** Depending on which growth reference we used, the prevalence of different degrees of thinness varied greatly. There were also significant gender differences depending on the growth reference we used (Paper I).

The majority of parents reported that their children (95.4%) had breakfast every day. The odds of being OW/OB was higher among those not having breakfast every day (odds ratio (OR) 1.9, drinking diet soft drinks OR 2.6, 95% and skimmed/semi-skimmed milk OR 1.8), four days a week or more (Paper II).

There was no statistically significant difference on group level in final height between individuals with and individuals without BMI reduction, independent of age and if the individuals were thin, normal weight, overweight or obese at the start of the BMI reduction episode (Paper III).

Almost the same longitudinal growth patterns were found for the two cohorts, even if weight and BMI for all almost all ages were higher in 1981 cohort. Patterns for TMI differs from those of W/H and BMI. Three main longitudinal trajectories represent the description of weight development from 7–16 years for girls and 7–18 years for boys. These patterns were mainly the same in the 1981 cohort and the 1973 cohort. (Paper IV).

**Keywords:** growth, body mass index, overweight, weight loss, body weight, malnutrition, breakfast intake, food habits, schoolchildren

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