Growth trajectories and their associated risk factors among children in Scotland

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Background

Rapid weight gain during childhood has attracted some attention recently because of its short and long-term health consequences. The purpose of this study was to explore whether distinct growth trajectories could be identified among a cohort of children in Scotland. We also examined the maternal and child factors at age 7-8 years that are associated with demonstrating the distinct trajectories of growth.

Methods

We used data from birth cohort 1 of the Growing Up in Scotland study. Height and weight data (N = 2 857) were available when the children were aged approximately 4, 6 and 8 years. For each child, monthly change in body mass index standard deviation score (BMI-SDS) was calculated to identify growth trajectories. Logistic regression was used to explore which of maternal or child risk factors were associated with belonging to the different growth trajectories.

Results

Five discrete BMI-SDS growth trajectories were identified: No Change, Early Decrease, Late Decrease, Late Increase and Early Increase. Relative to the No Change growth trajectory, maternal obesity (odd ratio (OR) = 1.81; 95% confidence interval (CI) 1.25, 2.62) and living in the most deprived quintile (OR = 2.57; 95% CI 1.50, 4.39) were associated with Early Increase trajectory. Maternal obesity (OR = 1.69; 95% CI 1.17, 2.45) and children who were never breastfed (OR = 1.39; 95% CI 1.00, 1.92) were at increased risk of belonging to a Late Increase trajectory, compared to No Change growth trajectory.

Conclusions

Maternal weight status, deprivation and breastfeeding were factors significantly associated with membership of the increasing weight status trajectories. These factors may be suitable for identifying high-risk populations for prevention, although the fact that the determinants of these factors are so complex support the need for population wide prevention.

Key message:

Maternal weight status, deprivation and breastfeeding were factors significantly associated with membership of the increasing weight status trajectories