HabEat

Determining factors and critical periods in food habit formation and breaking in early childhood: a multidisciplinary approach

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Executive Summary

Healthy growth but also overweight in children have been reported to have their origins in early life. The current work was aiming to examine the association of early feeding practices with growth and adiposity indices in preschool children from four European countries and adolescents in the United Kingdom (UK).

The current work used existing data from four European birth cohorts, i.e. the ALSPAC study (UK), the EDEN study (France), the Europrevall study (Greece) and the Generation XXI study (Portugal). Comparable data available in the four cohorts on anthropometric and body composition indices collected from 4-5 year old children as well as data on family socio-demographic, dietary, perinatal indices collected from birth were used in the parallel analyses conducted. Furthermore, body fat mass data (measured with Dual x-ray absorptiometry: DXA) on 9 and 13 year-old children and adolescents were available and used only in the ALSPAC study. Associations of early feeding practices (i.e. breastfeeding and timing of complementary feeding) with growth and adiposity indices were tested using multiple linear or logistic regression models separately in each cohort, after adjustments for potential family socio-demographic, dietary and perinatal confounders.

When stature was investigated as an outcome, 4 year-old children in ALSPAC that were never breastfed and those been breastfed between 1 and 3 months of age were found to have higher height z-scores compared to children breastfed for more than 6 months of age (P=0.006). In contrast, 5 year-old children in EDEN that were never breastfed and those been breastfed from 1 to 6 months of age (P=0.0004) were found to have lower height z-scores compared to children breastfed for more than 6 months. Furthermore, 4 year-old children in Generation XXI to whom complementary foods were introduced after 6 months of age had lower height z-scores than children to whom complementary foods were introduced between 5 and 6 months of age (P=0.049). These findings combined with those observed in the Greek cohort which were not significant show that early feeding practices are not consistently associated with height z-score in preschool children in the four cohorts thus no conclusion can be drawn.

When investigating BMI as an outcome, 4 and/or 13 year-old children in ASPAC breastfed between 3 and 6 months of age had lower BMI z-scores (P=0.019 at 4 y and P=0.007 at 13 y) and were also less likely to be overweight or obese (P=0.008 at 4 y) than those breastfed for longer than 6 months. Furthermore, 4 year-old children in Generation XXI to whom complementary foods were introduced before 4 months of age had higher BMI z-scores than children to whom complementary foods were introduced between 5 and 6 months of age (P=0.048). However, the associations for preschool children observed in the other cohorts were not statistically significant, thus making it difficult to draw a conclusion regarding any influence of early feeding practices on BMI z-score and overweight/obesity in 4-5y old children.

When body fat mass was examined as an outcome, 13 year-old children in ALSPAC breastfed for less than one month had higher body fat mass levels (measured with BIA) compared to children breastfed for more than 6 months (P=0.030). In contrast,

13 year-old children in ALSPAC that were breastfed from 3 to 6 months of age were found to have lower body fat mass levels (measured with DXA) compared to their peers that were breastfed for more than 6 months of age (P= 0.025). Lastly, 5 year-old children in EDEN to whom complementary feeding was introduced before 4 months of age were found to have higher fat mass levels compared to their counterparts to whom solid food was introduced between 5 and 6 months of age (P= 0.046). Summarizing these results and also considering the non-significant findings observed in the other cohorts, early feeding practices did not appear to be consistently related to body fat mass (assessed either by BIA or DXA) in preschool children and/or adolescents.

All these findings were unchanged after adjusting for a wide range of possible confounders.

In conclusion, the findings of the current work showed that early feeding practices, i.e. any breastfeeding duration and age of introduction of complementary feeding, are not consistently associated with height and BMI z-scores, overweight/obesity and body fat mass in preschool children from four European countries and in UK adolescents.