

## INTRODUCTION

Weight at birth has been associated with several health outcomes later in life. Early eating behaviors may be influenced by weight at birth, however differences according to small and large for gestational age children are less studied.

The aim of the present study was to relate age for gestational age at birth with eating behaviours at 6 months of age.

## METHODS

Study subjects belong to a population-based birth cohort - **Generation XXI** - assembled in a well delimited geographic area in the north of Portugal. Pregnant women were recruited in five level III maternity units of Porto between April 2005 and August 2006. A total of 8647 children and their mothers were enrolled at baseline (70% of participation among eligible women). Data on demographic and social conditions, lifestyles, medical history, and prenatal care were collected by trained interviewers during the first 24 to 72 hours after delivery.

A sub-cohort of 1562 newborns was re-evaluated at 6 months of age and 1227 singletons presented data on variables of interest. Different dimensions of eating behaviours were assessed using closed questions (details presented in Table 1) and current breastfeeding (yes/no) was asked.

Table 1. Description of outcome variables under study and respective strata used in multivariate models.

| Weaning                             |                              |
|-------------------------------------|------------------------------|
| Age at weaning                      | ≥6 vs. <6 months (reference) |
| Fruits or vegetables as first foods | Yes vs. No (reference)       |
| Child eating behaviors              |                              |
| Difficulties in child's feeding     |                              |
| Eating slowly                       | Yes vs. No (reference)       |
| Eating small quantities each time   | Yes vs. No (reference)       |
| Choking with food                   |                              |
| Being angry at the meals' end       |                              |
| Refusing solid foods                |                              |
| Spitting up milk                    |                              |

Gestational age was defined based on ultrasound; if not available, it was based on last menstrual period. Body height was measured to the nearest tenth of a kilogram using a digital scale. Small for gestational age (SGA) and large for gestational age (LGA) were defined as <10th and >90th percentile, respectively, of sex-specific Kramer growth charts, while adequate for gestational age (AGA) was deemed to be within those thresholds.

Odds ratio and 95% confidence intervals (OR, 95%CI) were obtained from unconditional logistic regression models, after adjustment for mother's age, education, pre-pregnancy body mass index, smoking during pregnancy, and breastfeeding.

# Small and large for gestational age children have different eating behaviours at 6 months of age

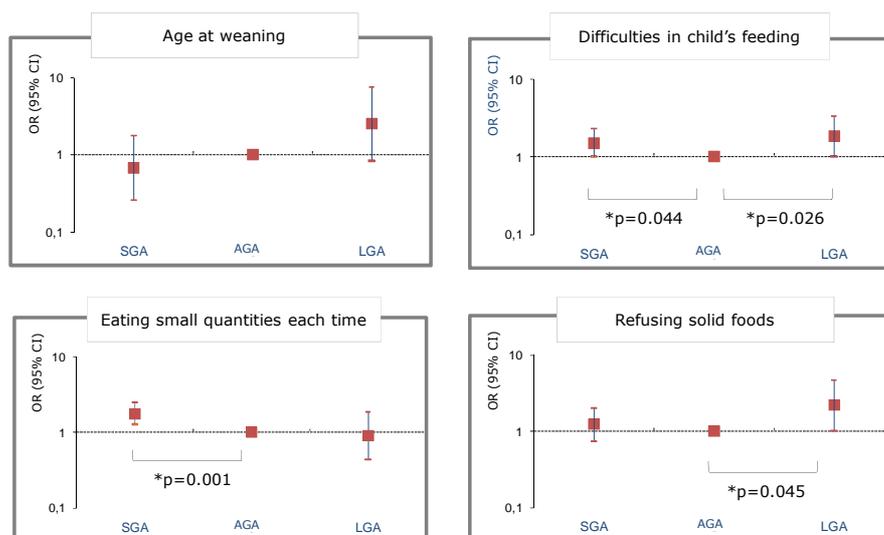
## RESULTS

Approximately 49% of babies included in this study were females, 15% were SGA and 4% were LGA. Mothers were more frequently aged 20 to 35 years (84.8%) and almost 60% had more than 9 years of education. Twenty two per cent of mothers smoked during pregnancy and 95.9% were breastfeeding their babies at 6 months of age (Table 2).

In graphs presented below are described the multivariate associations between weight for gestational age and the several outcome variables under study (as presented in Table 1).

Table 2. Participant's profile.

|                                   | N=1227 (%)  |
|-----------------------------------|-------------|
| Gender, females                   | 597 (48.6)  |
| Weight for gestational age        |             |
| Small (SGA)                       | 1000 (81.5) |
| Adequate (AGA)                    | 184 (15.0)  |
| Large (LGA)                       | 43 (3.5)    |
| Maternal age, years               |             |
| <20                               | 42 (3.4)    |
| 20-35                             | 1040 (84.8) |
| >35                               | 145 (11.8)  |
| Mother's educational level, years |             |
| ≤4                                | 61 (5.0)    |
| 5-9                               | 444 (36.2)  |
| ≥10                               | 722 (58.8)  |
| Smoking during pregnancy          | 269 (21.9)  |
| Current breastfeeding             | 1177 (95.9) |



Odds ratios adjusted for mother's age, education, pre-pregnancy body mass index, maternal smoking during pregnancy and breastfeeding. \*p<0.05.

SGA: small for gestational age; AGA: Adequate for gestational age; LGA: large for gestational age

Compared to AGA children, SGA had more frequently mothers reporting difficulties in feeding at 6 months (OR=1.52, 95%CI:1.01-2.31) and eating small quantities each time (OR=1.78, 95%CI:1.27-2.49). LGA children had also more feeding difficulties (OR=2.26, 95%CI:1.10-4.63) and a higher probability of refusing solid foods (OR=2.21, 95%CI:1.02-4.80).

No significant associations were found neither with eating slowly, being angry at the meals' end, choke with food and spitting up milk, nor a later weaning or inclusion of fruits and vegetables as first foods.

## CONCLUSIONS

Both small and large for gestational age children presented more feeding difficulties at 6 months of age, and large for gestational age was associated with neophobia to solid foods.

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