

**Citation:**

Novaes JF, Franceschini Sdo C, Priore SE. Mother's overweight, parents' constant limitation on the foods and frequent snack as risk factors for obesity among children in Brazil. *Arch Latinoam Nutr.* 2008 Sep; 58 (3): 256-264.

**PubMed ID:** [19137988](#)

**Study Design:**

Case Control Study

**Class:**

C - [Click here](#) for explanation of classification scheme.

**Research Design and Implementation Rating:**

 NEUTRAL: See Research Design and Implementation Criteria Checklist below.

**Research Purpose:**

To identify risk factors for obesity in children from Vicosa county, Minas Gerais, Brazil.

**Inclusion Criteria:**

- Ages six to eight years
- Enrolled in any of the public or private schools in Vicosa, Minas Gerais, Brazil.

**Exclusion Criteria:**

None described.

**Description of Study Protocol:****Recruitment**

Subjects were recruited from public and private schools in Vicosa, Minas Gerais Brazil.

**Design**

Case-control study of children who were either normal weight or obese, paired according to gender, age and socioeconomic status.

**Dietary Intake/Dietary Assessment Methodology**

A questionnaire that included questions related to diet and feeding habits were completed by parents and guardians of the children. Questions were related to meal habits, snacking, timing of meals and parental attitudes with regards to their child's eating habits.

**Statistical Analysis**

- To verify the distribution of the variable values were normal, the Kolmogorov-Smirnov normality test was used
- The association between each factor and children's obesity was analyzed by applying the chi-square test for paired sample, and the odds ratio and the 95% confidence interval were calculated for each factor
- In the multiple logistic regression analysis, only the variables with  $P < 0.20$  of the univariate analysis were included
- To compare the averages or medians of the variables between the paired groups, the paired T-test and Wilcoxon test were respectively used
- A probability below 5% was considered as significant statistical level.

### Data Collection Summary:

- *Timing of measurements:* Measurements for cases and controls were taken at the same time
- *Dependent variables:* Children's weight status was determined by measuring height and weight and calculated age- and gender-specific BMI
- *Independent variables:* Conditions of gestation and child's birth, family aspects, breast-feeding time, feeding habits and physical activity practices were all assessed using a questionnaire completed by a parent or guardian.

### Description of Actual Data Sample:

- *Initial N:* 100 (50 normal weight and 50 obese children)
- *Attrition (final N):* 100 (50 normal weight and 50 obese children)
- *Age:* Six to eight years
- *Anthropometrics:*
  - *Obese children:* Weight of 41kg, height of 132cm, BMI of 23kg/m<sup>2</sup>
  - *Normal weight children:* Weight of 26kg, height of 127cm, and BMI of 16kg/m<sup>2</sup>
- *Location:* Brazil.

### Summary of Results:

The following variables were identified as risk factors for children's overweight:

- *Mother's overweight:* OR=10.44, 95% CI 1.30 to 83.92,  $P=0.0274$
- *Frequent snack in commercial establishments:* OR=70.49, 95% CI 2.17 to 182.74,  $P=0.0159$
- *Parents' constant limitation of the food consumed by their children:* OR=62.91, 95% CI 5.37 to 92.08,  $P=0.0012$ .

### Author Conclusion:

Children with an overweight mother, who frequently consume snacks in commercial establishments or who have parents that limit their intake of certain foods were more likely to be overweight.

### Reviewer Comments:

- Limited information regarding inclusion and exclusion criteria was provided
- Limited information regarding subject characteristics were reported
- Questionnaires used to assess risk factors were not adequately described, and were not validated instruments
- Confounding factors were not addressed using statistical analyses and power calculations were not performed to determine the number of subjects need to find effects
- The use of a case-control study design limits the causal conclusions that can be drawn from this study.

### Research Design and Implementation Criteria Checklist: Primary Research

#### Relevance Questions

1.	Would implementing the studied intervention or procedure (if found successful) result in improved outcomes for the patients/clients/population group? (Not Applicable for some epidemiological studies)	N/A
2.	Did the authors study an outcome (dependent variable) or topic that the patients/clients/population group would care about?	Yes
3.	Is the focus of the intervention or procedure (independent variable) or topic of study a common issue of concern to nutrition or dietetics practice?	Yes
4.	Is the intervention or procedure feasible? (NA for some epidemiological studies)	N/A

#### Validity Questions

1.	<b>Was the research question clearly stated?</b>	Yes
1.1.	Was (were) the specific intervention(s) or procedure(s) [independent variable(s)] identified?	Yes
1.2.	Was (were) the outcome(s) [dependent variable(s)] clearly indicated?	No
1.3.	Were the target population and setting specified?	Yes
2.	<b>Was the selection of study subjects/patients free from bias?</b>	No
2.1.	Were inclusion/exclusion criteria specified (e.g., risk, point in disease progression, diagnostic or prognosis criteria), and with sufficient detail and without omitting criteria critical to the study?	No
2.2.	Were criteria applied equally to all study groups?	???
2.3.	Were health, demographics, and other characteristics of subjects described?	No
2.4.	Were the subjects/patients a representative sample of the relevant population?	???

<b>3.</b>	<b>Were study groups comparable?</b>	Yes
3.1.	Was the method of assigning subjects/patients to groups described and unbiased? (Method of randomization identified if RCT)	N/A
3.2.	Were distribution of disease status, prognostic factors, and other factors (e.g., demographics) similar across study groups at baseline?	N/A
3.3.	Were concurrent controls used? (Concurrent preferred over historical controls.)	Yes
3.4.	If cohort study or cross-sectional study, were groups comparable on important confounding factors and/or were preexisting differences accounted for by using appropriate adjustments in statistical analysis?	N/A
3.5.	If case control or cross-sectional study, were potential confounding factors comparable for cases and controls? (If case series or trial with subjects serving as own control, this criterion is not applicable. Criterion may not be applicable in some cross-sectional studies.)	Yes
3.6.	If diagnostic test, was there an independent blind comparison with an appropriate reference standard (e.g., "gold standard")?	N/A
<b>4.</b>	<b>Was method of handling withdrawals described?</b>	Yes
4.1.	Were follow-up methods described and the same for all groups?	Yes
4.2.	Was the number, characteristics of withdrawals (i.e., dropouts, lost to follow up, attrition rate) and/or response rate (cross-sectional studies) described for each group? (Follow up goal for a strong study is 80%.)	Yes
4.3.	Were all enrolled subjects/patients (in the original sample) accounted for?	Yes
4.4.	Were reasons for withdrawals similar across groups?	Yes
4.5.	If diagnostic test, was decision to perform reference test not dependent on results of test under study?	N/A
<b>5.</b>	<b>Was blinding used to prevent introduction of bias?</b>	Yes
5.1.	In intervention study, were subjects, clinicians/practitioners, and investigators blinded to treatment group, as appropriate?	N/A
5.2.	Were data collectors blinded for outcomes assessment? (If outcome is measured using an objective test, such as a lab value, this criterion is assumed to be met.)	Yes
5.3.	In cohort study or cross-sectional study, were measurements of outcomes and risk factors blinded?	N/A
5.4.	In case control study, was case definition explicit and case ascertainment not influenced by exposure status?	Yes

5.5.	In diagnostic study, were test results blinded to patient history and other test results?	N/A
<b>6.</b>	<b>Were intervention/therapeutic regimens/exposure factor or procedure and any comparison(s) described in detail? Were intervening factors described?</b>	<b>No</b>
6.1.	In RCT or other intervention trial, were protocols described for all regimens studied?	N/A
6.2.	In observational study, were interventions, study settings, and clinicians/provider described?	No
6.3.	Was the intensity and duration of the intervention or exposure factor sufficient to produce a meaningful effect?	N/A
6.4.	Was the amount of exposure and, if relevant, subject/patient compliance measured?	No
6.5.	Were co-interventions (e.g., ancillary treatments, other therapies) described?	No
6.6.	Were extra or unplanned treatments described?	No
6.7.	Was the information for 6.4, 6.5, and 6.6 assessed the same way for all groups?	No
6.8.	In diagnostic study, were details of test administration and replication sufficient?	N/A
<b>7.</b>	<b>Were outcomes clearly defined and the measurements valid and reliable?</b>	<b>No</b>
7.1.	Were primary and secondary endpoints described and relevant to the question?	Yes
7.2.	Were nutrition measures appropriate to question and outcomes of concern?	No
7.3.	Was the period of follow-up long enough for important outcome(s) to occur?	N/A
7.4.	Were the observations and measurements based on standard, valid, and reliable data collection instruments/tests/procedures?	No
7.5.	Was the measurement of effect at an appropriate level of precision?	No
7.6.	Were other factors accounted for (measured) that could affect outcomes?	No
7.7.	Were the measurements conducted consistently across groups?	Yes
<b>8.</b>	<b>Was the statistical analysis appropriate for the study design and type of outcome indicators?</b>	<b>Yes</b>
8.1.	Were statistical analyses adequately described and the results reported appropriately?	Yes
8.2.	Were correct statistical tests used and assumptions of test not violated?	Yes

8.3.	Were statistics reported with levels of significance and/or confidence intervals?	Yes
8.4.	Was "intent to treat" analysis of outcomes done (and as appropriate, was there an analysis of outcomes for those maximally exposed or a dose-response analysis)?	No
8.5.	Were adequate adjustments made for effects of confounding factors that might have affected the outcomes (e.g., multivariate analyses)?	No
8.6.	Was clinical significance as well as statistical significance reported?	Yes
8.7.	If negative findings, was a power calculation reported to address type 2 error?	No
<b>9.</b>	<b>Are conclusions supported by results with biases and limitations taken into consideration?</b>	<b>Yes</b>
9.1.	Is there a discussion of findings?	Yes
9.2.	Are biases and study limitations identified and discussed?	Yes
<b>10.</b>	<b>Is bias due to study's funding or sponsorship unlikely?</b>	<b>Yes</b>
10.1.	Were sources of funding and investigators' affiliations described?	Yes
10.2.	Was the study free from apparent conflict of interest?	Yes