Reviewer's report

**Title:** Maternal obesity, environmental factors, cesarean delivery and breastfeeding as determinants of overweight and obesity in children: results from a cohort

**Date:** 4 September 2014

**Reviewer:** Gaia de Campora

This manuscript (titled “Maternal obesity, environmental factors, cesarean delivery and breastfeeding as determinants of overweight and obesity in children: results from a cohort”) aimed at investigating risk factors of overweight and obesity in children at 6 years of age, considering – among others- type of delivery and breastfeeding. In their study, the authors performed hierarchical logistic regressions to identify the best predictors of overweight/obesity within breastfed and weaned children. Their findings highlight how the cesarean delivery is strongly associated with obesity, and how risk factors for obesity differ by the duration of breastfeeding.

This article adds to the extant literature by examining the role of early determinants for the onset of overweight and obesity in developmental age. This research is therefore of interest for both the obesity and perinatal fields.

Overall, the article has several merits. One strength is the sample size. Although this study went through several follow-up, the sample size is still quite good. Also, the authors used the appropriate statistical analyses to test their hypotheses.

In my opinion, however, some points should be addressed, and some additional information should be presented and discussed to further strengthen this interesting article. Therefore, I suggest the authors to address the following points.

**Major revisions**

1. The statistical analyses should be explained more clearly.

The Authors stated “The first step of analysis was to compare sample characteristics by breastfeeding duration using Student’s t test”. [p.4, first sentences of Statistical Analysis paragraph]

I found it hard to understand what the Authors tested here, and where the results of these analyses are reported. Initially I thought the authors wanted to compare the breastfeeding duration of overweight vs. non-overweight groups by using a t-test, however I did not see the result of such analysis in the Results section. In general, I believe that the manuscript would benefit from a clearer and more detailed/explicit description of the statistical analyses implemented by the
2. Criteria used to establish the cut-off’s should be described.

Table 1 and 2 report some of the variables as dichotomous (e.g., mother’s age < or > of 20). It would be important to clarify which criteria were taken into account to establish the reported cut-off’s (e.g., why did the Authors choose 20 as cut-off for mother’s age?)

3. Additional information about the existing literature on the breastfeeding.

The breastfeeding is a central variable in this research. A wide body of literature reports that being breastfed plays a protective role with respect to overweight and obesity (i.e., for the role in the acquisition of self-regulation skills, for the lower caloric intake compared to the formula). I recommend that the Authors further elaborate their review of the literature on this topic [see for example: Martorell, Stein and Schorer, 2001; Michels, Willett, Graubard, Vaidya, Cantwell, Sansbury, and Forman, 2007; Donath and Amir, 2008]

Minor revisions

4. It would be useful to describe any potential, cultural accounts for some of the results.

Often, but not always, high income family are also those with higher levels of education, and a wide body of literature reports that both these aspects work as protective factors, rather than being risk factors for overweight/obesity. Interestingly, the findings reported by the Authors seem to go in the opposite direction: “in the group of children breastfed for longer periods, lower family income was a factor of protection.” [p.7]. Might there be any cultural explanations for this result? Is this a frequently observed phenomenon in Brasil? (e.g., is education positively correlated with obesity, in Brazil?)

5. Authors might cite some additional studies describing the impact of low socio-economic status on the obesity condition.

Authors stated “studies indicate that school-age children whose parents have low socioeconomic status have higher prevalence of obesity, probably due to increased consumption of carbohydrates”. [p.7]. Here, the authors refer to a study conducted in Sweden which cannot be considered representative for the obesity epidemic problem world-wide, and it is not enough to describe the explanations underlying this condition.

Also, the authors stated that “Higher maternal level of education have been discussed in the literature as a variable that can contribute to increased rates of excess weight among children.” [p.7]. The references used by the Authors refer to studies conducted in Iran, Pakistan and Korea, and cannot be used to generalize the meaning of the link between low SES and childhood obesity. Furthermore, the study conducted in Korea revealed that only the daughter’s height – not the weight – was related to the level of education. Please clarify by adding additional evidences, or alternatively describe the limitations of the reported literature.

6. Authors should cite Drewnosky and Darmon’s study.
Authors explained that the link between the high income and obesity is due to the chance to buy a greater quantity of food. This explanation is originally from Drewnosky’s study, as cited by Shin et al. (2013).

7. The paragraph “breastfeeding” has some typing error on the first sentences.
8. Figure 1 is not below the label “Figure 1”.

Discretionary revisions

9. Author could consider to delete the term “non-modifiable”.

In light of the epigenetic studies and findings, also the genetic predisposition seems to be modifiable through the environment influence.

10. Some considerations might be added in the conclusion section.

Overweight and obese women are more exposed to the risk of caesarean delivery, which in turn can delay the arrive of maternal milk. This factor, among others, can have a role in determining the first mother-baby adjustment with respect to the eating habits.

11. Limitations should be deepen described (e.g., the authors might warrant caution with respect to the role of a number of potential moderators and mediators).

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.