Reviewer’s report

Title: Rapid Increase of Overweight and Obesity among Primary School-aged Children in the Caribbean; High Initial BMI is the most Significant Predictor

Version: 0 Date: 12 Oct 2017

Reviewer: Stephane Frayon

Reviewer's report:

General comment:

1. The fact that the children received a free lunch is a big problem in the methodology: the children's received the same lunch so the 24-hr recall may not differ a lot between participant. In this case, it will be more accurate to evaluate only the dinner? The school context (day of work, day off, days when the study was conducted) need clarification.

2. Result show that energy intake is the same for all weight category and this point need to be better discuss in three ways:
   - Balance between energy intake and physical activity, with limitation because physical activity is not evaluated in this study. Authors may hypothesize that heavier children are less active than the others?
   - Under-report of EI by the heavier children: may be another analyze need to be done by the authors showing that underreport of EI is correlate with some variables of the study?
   - The fact that free lunch is provided by the school (same quantity for all children?), see point 1

Specific comments:

Background:

What is the ethnic background of the population in these two islands? Afro-american or Caucasian? There is often a pluri-ethnic population in carribean islands, is this the case in this two islands?
Methods:

p4, line 25: The authors indicated that participants were selected in schools with a high proportion of children who received a government-provided school lunch but it's difficult to know if this a choice (why?) or not?

p4, line 33: It's not clear why schools were selected in rural areas in St Kitts and if the schools in Trinidad were in rural areas? How is define a rural area in this case?

p4, line 50: The methodology to obtain the weight need some precisions (clothes? shoes?).

p5, line 11: The reason for calculating the HFA z score is not clearly explain. Because the BMI use the height and weight, the use of height alone seems redundant.

p5, line 53: The authors claims that 'mean intake is a reliable mesure of the intake of (food?) groups' but also that the 'foods eaten by each child on one day is not representative of usual intake of that food group'. Please clarify this point. This a reliable mesure for what? to calculate total EI?

p6, line 33: What statistical tests were used to compare categorical data (chi2?). In the same manner, what test is used to compare mean (t test?).

Results:

p7, line 14: There is a lot of children excluded of the study due to missing data: the authors need to clarify why: absence of child during the study? parental refusal? We need to know if the exclusion differ from the baseline and 18 months later.

Table 1: Mean BMI z-score of children must be present in this table.

p8, line 58: 262 children were at risk of becoming overweight: how were defined this number? Is this represent the number of healthy weight children with a higher BMI? Is this number concern the baseline or the follow up?

Table 3: Which data are used in this table? baseline or follow up measurement?

In this table, the category 'children who became OV or OB', children overweight at baseline and children in the healthy weight at baseline were in the same group. Maybe their dietary intake differ? Same concern about the other category which collapse data from healthy weight and overweight children in a single category. I think it will be helpful to know if there is a difference in dietary intake among different weight group in baseline.

p10, line 52: The adiposity is not really evaluated in this study, only BMI which is only a good proxy measure of adiposity.
p10 table 3: why thin children were excluded of the analysis?

p11, line 11: the fact that overweight children underreport their energy intake more than non overweight children need to be pointed in discussion: this is an interesting point. Moreover, may be underreport can be tested in the multivariable analyse more than 'misreporting' as tested by the authors.

Table 4: title need clarification. The model used BMI change as variable and not adiposity i think

Table 5: same concern, there is no measure of adiposity here.

Discussion

p13, line 43: How the authors explain that obese children and healthy weight children had a similar dietary intake and similar energy intake in their study? Consumption of fruit alone may not explain the difference if EI is the same? What about the physical activity: this point need to be add in limitation of the study.

p14 line 4: The relationship between height and higher increased of BMI is not really explained here. Same concern about weight: how the authors explain that heavier children are gaining weight more quickly than others?

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

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