Author's response to reviews

Title: Fruit and vegetable intake and characteristics associated among adolescents from southern Brazil

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Author's response to reviews: see over
Dear Dr. Gabriel,

We appreciated the careful review of our manuscript and the opportunity to submit a revised version. Please, see below an itemized response to each comment. The manuscript was modified accordingly.

We look forward to hearing from you. Please, feel free to contact us if you need any additional information.

Best regards,

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Answer to the reviewers' comments (Jalila El Ati):
We thank to the reviewer for the additional comments, which help us to further improve the manuscript.

**Title:** Fruit and vegetable intake and characteristics associated among adolescents from southern Brazil  
**Version:** 3  
**Date:** 4 September 2012  
**Reviewer:** Renata B Levy

**Reviewer's report:**  
Fruit and vegetable intake and characteristics associated among adolescents from southern Brazil. The paper aim is to assess the intake of fruits and vegetables and their association with sociodemographic characteristics among adolescents from southern Brazil, I consider an important topic for nutrition and public health. The paper had reviewed the classification that used to includes rice and beans as part of the 5 a day, as we suggested doing.

Minor Essential Revisions

1) Material and methods  
**Diet Evaluation:**  
3th paragraph: You used the world “leguminous” seem wrong to me. It is not part of 5 a day.

**Answer:**  
We remove this word and rephrase the paragraph.

2) Results/ Discussion  
3th paragraph: “Vigorous physical activity can probably explain the consumption of fruit per day, which could have contributed to five days” How can physical active explain the consumption of fruit?

**Answer:**  
The association between vigorous physical activity and high intake of fruits was reported by Fernandes et al. It was interpreted as being part of positive habits in the adolescent’s lifestyle, which might be clustered with other healthy behaviors such as lower rates of smoking, adolescent pregnancy, and adequate fiber intake. We included a paragraph in the discussion to accommodate this interpretation.

**Change in the manuscript:**  
The association between vigorous physical activity and higher intake of fruits seems to be part of positive habits in the adolescent’s lifestyle [40], which might be clustered with other healthy behaviors such as lower rate of smoking [41]. Even so, it was detected an association between overweight and five-a-day intake. This association could reflect that those adolescents eat more everything, including fruits and vegetables, or even that those who have the higher BMI are eating more fruit and vegetables because they are trying to lose weight. The cross-sectional design does not preclude that reverse causality is a potential explanation for this finding.
3) 3rd paragraph: “body mass index was positively associated with five-a-day” AND Figure 2 “intake 40% higher than those with normal BMI.” For those analyses, you must control for the total energy intake. It is reasonable to assume that those who have the higher IMC are those that eat more everything, including fruits and vegetables. To say, that there is a positive association over the consumption of fruit and vegetables and IMC, you must control for total energy intake. Another hypothesis for the positively association between five a day and IMC, that can’t be discarded is reverse causality. It is possible that those who have the higher IMC are eating more fruit and vegetables because they are trying to lose weight. In a cross-sectional study this can’t be discarded.

Answer:
Please, see that the main focus of our investigation was to describe the dietary patterns of fruits, vegetables, and five-a-day intake and not the underlining reasons for such consumptions. The data are mostly presented in table 3 (unadjusted analysis). We agree with the reviewer that those who have the higher BMI should be those adolescents who eat more everything, including fruits and vegetable. The cross-sectional design does not preclude that reverse causality is a potential explanation for this finding. Therefore, we rephrased the results and included this interpretation in the discussion.

Changes in the manuscript:

Results:
Table 3 shows... Body mass index was associated with five-to-day.

Figure 2 demonstrates that independently of age, sex, alcohol consumption, and physical activity, adolescents who had overweight had a 1.4 prevalence of five-a-day intake in comparison to those with normal BMI.

Discussion:
The association between vigorous physical activity and higher intake of fruits... Even so, it was detected an association between overweight and five-a-day intake. This association could reflect that those adolescents eat more everything, including fruits and vegetables, or even that those who have the higher BMI are eating more fruits and vegetables because they are trying to lose weight. The cross-sectional design does not preclude reverse causality as a potential explanation for this finding.

4) Discussion
2nd paragraph: “in the absence of information aiming the population, potatoes, rice and beans could be seen as belonging to the group of plant origin, and counted as five-a-day servings.” AND 6th paragraph: “In addition to increasing consumption of fruits and vegetables, young people should be informed that rice and beans are not part of five serving per day. Both affirmation needs references, I don’t think this doubts exist.

Answer:
We do not have references for this statement, but we observed during data collection that adolescents tend to include them among vegetables. We rephrased this paragraph.
Change in the manuscript:
The recommendations of the five-a-day program in Brazil… Information aiming the adolescent population should be provided including items belonging to the five-a-day program.

5) 6th paragraph: “Finally, the diversity of fruit and vegetables can be an additional barrier to success” Why should it be an additional barrier?

Answer:
We rephrased the sentence.

Change in the manuscript:
A systematic review of the effectiveness of the… Finally, the diversity of fruits and vegetables can be an advantage to be explored in a five-a-day program.

Quality of written English: Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:
I declare that I have no competing interests