

Reviewer's report

Title: Trends in sugar supply and consumption in Australia: Is there an Australian Paradox?

Version: 1 **Date:** 11 October 2012

Reviewer: Rosemary Stanton

Reviewer's report:

Overall comment

This is a useful paper and requires only minor changes, as suggested. Once these issues are addressed, I recommend its publication.

Major compulsory revisions: none

Minor and discretionary revisions are listed in their order through the text (below)

Title: Trends in sugar supply and consumption in Australia: Is there an Australian Paradox?

Abstract

Background

“Consumption of excessive refined carbohydrate, in particular sugar, has been linked to increased risk of excess weight gain.”

This is a difficult statement to prove, apart from the substantial evidence showing the role of sugar-sweetened beverages in obesity. Consumption of excess kilojoules from any source leads to weight gain. The material under ‘background’ in the main part of the paper describes the contentious role of refined carbohydrates appropriately and this needs to also occur in the abstract.

(Minor essential revision)

First sentence: Consumption of excessive kilojoules increases the risk of excess weight gain. The fact that high consumption of refined carbohydrates, especially sugar, contributes to an excess kilojoule intake has been recognised in dietary guidelines that recommend avoiding or limiting sugar and foods containing added sugar.

(Discretionary revision) Suggest you re-phrase the following sentence to read:

In spite of limited data, one recent paper suggests that Australian sugar consumption has decreased over the same time period that obesity has increased, a so called “Australian Paradox#.

Methods:

(Discretionary revision)

Suggest changing “Foods high in sugar and specifically fructose were identified”

to

Foods high in sugar were identified. As you do not look at foods specifically high in fructose, this should be omitted.

Results

(Discretionary revision)

Include:

Australia produces and exports sugar from sugar cane and the sugar in imported foods has received little attention.

Also (Discretionary revision)

Since sugar consumption is often expressed as kg/yr, it would be useful to translate the 30g of sugar/day from imported foods into 'almost 11kg/head/year'.

(Minor essential revision)

'and probably increased' is conjecture. Suggest it be omitted.

Conclusion

(Discretionary revision):

2nd sentence. I am unaware of policy actions being set in place to achieve broader environmental changes in Australia. Suggest omitting this part of the sentence.

Last sentence, suggest changing to read:

This would provide an inexpensive addition to survey data and could assist in monitoring sugar consumption trends in the food supply. Such information would also help inform public health policy.

Background

(Discretionary revision):

2nd sentence

Omit the comparison with the USA as the incidence of overweight and obesity is much higher than in Australia and the comparison invites argument that detracts from the point you are making.

(Discretionary revision):

May be more meaningful to quote the ABS data showing that 68% of Australian men and 55% of women are overweight. The percentage figures make more sense for an international audience who may not know whether actual numbers represent a large or small percentage of the Australian population.

(Minor essential revision)

Reference 4 – the 4th author is Rusticelli (not Rustcelli)

This reference does not state that the proportion of overweight people will rise by 15% over the next 10 years. Judging by figure 36 in ref 4, the 15% increase only

applies if you start well before 2012. ABS data from Australia shows that 61% of Australian adults are already overweight or obese. Ref 4 also states (for a different age range) 72. Projected trends in adult overweight and obesity (age 15-74) over the next 10 years, based on the assumption that the entire distribution of BMI in national populations would continue to evolve following the patterns observed in the past, predict a progressive stabilisation or slight shrinkage of pre-obesity rates in many countries (e.g. Australia, England, US), with a continued increase in obesity rates.

This is problematic because of the different age range used and also because data shows the percentage of children who are overweight in Australia is levelling off. Suggest you amend the text to simply state that the proportion of overweight and obese Australian adults is predicted to continue rising over the next 10 years. (Note that you need to include obese as well as overweight and also state 'adults').

(Minor essential revision)

Same paragraph: Reference needed for the predictions about type 2 diabetes

(Discretionary revision):

References 5 and 6 could be replaced by more recent data.

(Discretionary revision):

Some current treatments for overweight and obesity are showing results so perhaps could say ...'Most current treatments.....

(Discretionary revision):

Reference 7 is old and superseded by many newer references. See Sievenpiper et al Effect of fructose on body weight in controlled feeding trials: a systematic review and meta-analysis. *Ann Intern Med.* 2012;156(4):291-304.

References 8 and 9 are old and a better reference would be

Du H et al. Dietary glycaemic index, glycaemic load and subsequent changes of weight and waist circumference in European men and women. *Int J Obes (Lond).* 2009 Nov;33(11):1280-8.

References 10 and 11 are inferior to the Sievenpiper systematic review and meta analysis (mentioned above)

(Minor essential revision)

My concern is that the paper starts out to examine sugar consumption in Australia but is diverted into a discussion of fructose and Glycaemic Index (GI), using selective studies to fit a particular line of thinking. If the authors want to examine the validity of theories related to fructose or GI and weight, they need to do this properly with up-to-date references that use systematic reviews or meta analyses. Instead these aspects of 'sugars' are tacked onto the topic their paper addresses.

I suggest you stick to the topic of Trends in sugar consumption and remove references to fructose and GI. No data has been included anywhere in the paper for intake of fructose or foods that are high in fructose and its inclusion is irrelevant in the context of the data presented and distracts from the major content of the paper..

If you really want to go into GI, you will need to note that fructose has a very low GI and regular sugar has a moderate GI. Contrary to the findings of systematic reviews (for example conducted in preparing the most recent US dietary guidelines), GI is not connected to weight gain or loss. If this paper aims to disprove the tenets of the 'Australian Paradox', a diversion into areas of fructose or GI is neither relevant or useful.

Final paragraph in background: need to note that Australia has imported very little sugar until recently. Some data on the timing of increased imports of foods containing sugar would be useful.

(Discretionary revision):

Suggest changing 'However, anecdotal evidence suggests big increases in the amount of processed foods imported into the country over the same time period. We were unsure whether this source of sugar is accounted for in the estimates of sugar consumption quoted by Barclay et al.'

to

However, imports of processed foods into Australia has increased and we were unsure whether Barclay et al included this in their estimates. This paper therefore aimed to (1)

Method

Data search strategy: should note that you have not included other foods that contribute sugar, such as breakfast cereals, flavoured milk, soy beverages, drinking chocolate (or beverage bases used in milk drinks), sauces and marinades, cakes, canned fruit, jellies, ice blocks and desserts other than ice cream. Or were these foods included?

(NB Your reference 30 shows major increases in consumption of flavoured milk with intake almost doubling between 1998-99 and 2007-8

Extra references needed

ABS, Customised report, 2011. Was this obtained as a personal communication? If not, it needs to be referenced.

Working Tariff system for international trade data.

Input-Output classification system used in the Australian National Accounts was listed as reference 22 but needs that number repeated with re-use within the text.

(Minor essential revision)

Under 'Data sources and acquisitions' the FAO and Sugar yearbooks were used to obtain 'estimates' rather than 'measurements'.

The figures in the Results section note that values have been deflated to represent constant 1988 prices. The fact this was done and the way it was done needs to be included in the method.

Data treatment

(Minor essential revision)

Ref 28 referred only to children. Need some explanation as to this and why data on children has been used.

(Discretionary revision):

The 2nd paragraph that starts 'Examination of import data' is more part of the discussion than the results. Or your method of dealing with this should come under Method section.

The last two paragraphs in this section might also be better placed in the Discussion.

Results

(Discretionary revision):

3rd paragraph seems to be the most important part of the results and should be highlighted with figures given for the changes.

Also note that the data in figure 5 may underestimate total imports since it relates only to processed products high in sugar content. The possibility of a increases in a large number of products with a lower sugar content should also be mentioned as it would be expected to add to the total sugar in imported products.

Discussion

2nd line – insert reference number (18) for FAO balance sheets.

(Discretionary revision):

2nd paragraph - suggest the sentence 'As we found the value of imports into Australia of manufactured, sweetened foods have grown substantially over the last 20 years, one could conclude that the consumption of sugar contained in these imported foods has also grown'

be strengthened by re-writing as

The value of imports into Australia of manufactured sweetened foods has grown substantially over the last 20 years, and we conclude this should be taken into account inn the overall consumption of sugar.

Is it possible that the increased consumption of imported foods containing sugar has been accompanied by a decreased consumption of similar foods produced in Australia? For example, if we eat more imported confectionery, are we consuming a correspondingly lower quantity of locally produced confectionery?

3rd paragraph

Suggest you note that 'Time series data on apparent consumption of sugars exist in Australia from the 1930s until 1988-9.

Last paragraph in this section

Suggest you note that they have used this sole source of data to conclude that efforts by health authorities and government guidelines to limit sugar consumption in Australia are unwarranted and unlikely to impact on overweight, obesity and metabolic diseases.

Also, remove 'certainly' from the following sentence as it appears unnecessarily apologetic. Suggest the last two sentences be edited to read

Our data do not prove a causal association between sugar consumption and obesity. However, the effect of imported foods containing sugar undermines claims made in the Australian Paradox and show such a theory cannot be used as a basis for assuming that sugar consumption is not a significant factor in obesity in Australia.

Need for new and improved data collections

3rd paragraph

Suggest you change

.....and policy actions have been set not only in terms of altering individual behaviours, but also in achieving broader environmental changes, including reshaping the food supply

to

...and policy actions have been set to alter individual behaviours. Broader environmental changes are also likely and will reshape the food supply.

(I am suggesting this change because although the PIMSEC report mentions such things, extensive lobbying meant that environmental considerations were withdrawn from the forthcoming Dietary Guidelines in Australia. For this reason, I do not think that Australia has yet taken the policy actions that will be needed for reshaping the food supply.)

4th paragraph – useful to give a reference for specific under-reporting of unhealthy foods (see for example Krebs-Smith S et al. Low energy reporters vs others: a comparison of reported food intakes. Eur J Clin Nutr 2000;54:281–7 or Heitmann B, Lissner L. Dietary underreporting by obese individuals—is it specific or non-specific? BMJ 1995;311:986–9.)

Level of interest: An article of importance in its field

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 I have no competing interests