Author's response to reviews

Title: Australian children's consumption of caffeinated, formulated beverages: a cross-sectional analysis

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Author's response to reviews: see over
To whom it may concern,

Thank you for the ongoing review of our manuscript and providing us the opportunity to improve the quality of our paper.

Comments and revisions are detailed below, and changes have been made within the manuscript.

With thanks,

Kelsey Beckford

Reviewer 1: Rosanna Watowicz

I have remaining concerns about the significance of this article. I can see the importance in reporting caffeine intake in children, but this study seems to be examining a very specific sub-category of caffeine intake. The authors state that there are potential adverse health outcomes associated with CFB intake (lines 93-94), but I continue to struggle with this argument. Are the health outcomes from a Diet Coke (a CFB) any worse than those from a frappuccino (a non-CFB)? Also, coffee and tea account for a higher proportion of caffeine intake than CFBs, which seems to be discounted. In the discussion, I believe the authors are trying to argue that CFB consumption and sugar-sweetened beverage consumption are related. If that is the case, then why not examine all caffeinated SSBs (for example, sweetened tea) and not only formulated beverages?

This study aims to address the consumption of caffeine as an additive within the food supply, not naturally occurring caffeine in beverages such as tea, coffee, sweetened teas or frappuccino. This is of relevance to the setting of food policy that allows or restricts the use of food additives, a highly topical area within the current food policy environment. Data such as these are necessary as they help to explore the impact of adding caffeine to SSBs, specifically, patterns of consumption, and develops the evidence base as to the potential impact of either extending the approval or further restricting caffeine approved used as a food additive.

Putting aside the fact that not all caffeinated SSBs were included in this study, the idea that caffeine may increase SSB intake is somewhat interesting.
Only those SSBs that contain caffeine as a food additive were included in the CFB definition, see response above.

I had difficulty with the articles that are cited to provide the basis for this discussion/argument. The authors state that the inclusion of caffeine in SSBs has been proposed to increase consumption (lines286-287). This statement is the crux of the argument linking SSBs and caffeine, however I was unable to locate the article through PubMed, the Obesity Reviews archives, or even a google search (citation 26, Riddell et al, 2010). I assume that these authors are able to properly paraphrase the conclusions from their own study, but since this citation is so important in the discussion, I would have liked to read the article. The other important citation in this section was 27 (Keast et al, 2011), however I believe that the conclusions from this citation may have been extrapolated too far in the present article. Keast et al conclude that the removal of caffeine from SSBs would allow sucrose to be decreased without affecting flavor, thereby reducing energy intake. I do not think this implies that removal of caffeine from the product would decrease intake as the authors state in lines 288-289.

Thank you for the review of this section. We have corrected the error in reference 26 and modified the text with respect to the interpretation of reference 27. In addition we provide an additional reference from a recently published article exploring the impact of adding caffeine to SSBs on consumption.

While the data presented seem scientifically sound and may be of interest to a limited number of individuals, I fail to see the importance of this study as it is presented. I think the authors would be better served to present data on caffeine intake as a whole, or caffeine intake from all SSBs (not just CFBs).

The aim of this study was to specifically determine the intake of SSBs that have caffeine added to them as a food additive. This is of importance as the addition of caffeine to SSBs can be modified through food regulatory processes and thus CFB intake is a behaviour that is potentially modifiable through alterations to current food regulations.

Of minor note, some of the small changes that the authors reported correcting in the most recent cover letter have not be entirely corrected. This seems to be a minor oversight which can be easily addressed. Specifically, the term "soft drink" is still used in lines 154-155 and the term "increased" is still used in like 225.

Corrections have been made within the revised manuscript.
Reviewer 2: Amy Branum

Discretionary Revisions

1. Discussion section p. 13 lines 283-289: I still think the Authors are overstating the relative importance of CFB relative to SSB as it pertains to obesity and overweight. The discussion through this section implies that children and adolescents are drinking SSBs because the caffeine content makes them addictive and not because of the taste or other preference. I think this could be debated. In lines 284-285 it is stated that consumers of CFB had higher energy intakes and were more likely to be overweight and obese but since SSBs account for such a high proportion of CFBs, it is not clear if the association is due to SSB consumption vs. CFB consumption in particular, and since the Authors did not test for differences between CFB and non-CFB-SSB consumers, it is hard to know what the important association is. In general I would still encourage the Authors to modify the text regarding associations between CFB and overweight/obesity.

   Thank you for your comments on this section. We have modified the text and included an additional supporting reference. We agree that the premise that the addition of caffeine to SSB makes them addictive could be debated, we look forward to this important debate within our profession. We consider it of vital importance that we as nutrition scientists foster an evidenced based debate on food additives within our food supply and their potential impact on health.

2. Discussion, p. 14, line 295: The Author state that CFB consumption significantly increases total caffeine intake but this seems pretty obvious. Why would consumption of a food or beverage with caffeine not increase total intake?

   Potentially the consumption of a CFB could replace consumption of beverages with caffeine occurring naturally, thus it could be argued that CFB do not add to the total amount of caffeine consumed by children. These data strongly indicate that using caffeine as a food additive (ie in CFB) adds to the amount of caffeine children consume, displacement of other sources of caffeine is not evident from these data.

3. Limitations section, p. 15, lines 325-328: The description of the survey in this section makes it hard to tell if the survey was really nationally representative or not. It says it was based on a nationally representative sample but then end results do not appear to be representative. I think this needs more clarification.
We have modified the text to clarify that these data come from the national nutrition survey but like all survey’s based on voluntary participation, some differences in the current sample demographics and the broader Australian demographics need to be considered in the interpretation of the outcomes.