Author's response to reviews

**Title:** Using Multiple Household Food Inventories to Measure Food Availability in the Home Over 30 Days: A Pilot Study

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**Author's response to reviews:** see over
Response to Reviewers

We thank the reviewers for taking their time to review our manuscript and providing insightful comments and suggestions for improving our article. We will address the comments by reviewer.

Reviewer: Maria Bryant

Discretionary revisions:

Major compulsory revisions

1. One of my biggest reservations with this paper is that it describes the methodology and the variability. It is not clear whether the level of detail described is limited by the manuscript size, but this has resulted in an inadequate report of each part. Thus, I would recommend that this was 2 rather than 1 paper; with the first being a methodology paper. This would allow the authors to provide more detail.

RESPONSE: We have followed the recommendation of this reviewer and restructured the focus of the paper. We acknowledge that this is a pilot study and have rewritten much of the background section.

a. For example, how long did each inventory take?

   RESPONSE: We provide average time for the first inventory and for the subsequent inventories 2-5 (first paragraph of results section).

b. What was acceptability like (participants and staff). It would also allow them to provide more information about the method itself, which presently lacks depth.

i. For example, what exactly does the inventory involve?; how was quality determined?; what did you do if fresh was purchased as portions (e.g. half a melon)? Feasibility could also look at multiple visit data (i.e. comparing the above across visits).

   RESPONSE: Details on what was involved in conducting the inventories is provided in the methods section. The research team acknowledged that inventories were easier after the initial visit. Participants welcomed the researchers into their homes; and all participants completed all aspects of the study.
2. While I suggest that the second paper could describe the variability, I do not think that the present data is sufficient to support the claims being made, primarily because of the sample size. Our own sample size calculations for a very similar study showed that we would need at least 80 households to enable the reporting of within and between household variations. Whilst this is based on fewer visits (3), it is highly unlikely that 9 participants would be adequate. Importantly, the rationale for determining variation is to provide researchers with an indication of the minimum number of inventories that would be required to collect reliable data. With only 9 households, this study is not able to provide this information. I would advise the authors to use the important lessons that they have learned as a means to develop a further adequately powered study to examine this with more confidence, and to treat this study as a pilot.

RESPONSE: We have refocused this paper on the methods and preliminary results from this pilot study. We acknowledge that we are underpowered to conduct a critical evaluation of variability.

Minor essential revisions

1. Methods: Were standard, validated questionnaires used to assess food accessibility and affordability? If not, this is a major limitation that needs to be highlighted.

RESPONSE: The food availability questionnaire, which was previously used in a large community health assessment, has been dropped from the paper. Instead of food accessibility, we show self-reported food-related activities (new Table 2).

2. Data analysis: The analysis section lacks detail. According to this, the authors only calculated frequencies. This is insufficient analysis to answer the research question.

RESPONSE: As a small pilot study, we are limited to presenting descriptive data.

3. Results: Since 1 family inventory was not completed in the time frame and the whole study is related to variability, I would say that you actually have 8 rather than 9 participants.

RESPONSE: We respectfully disagree with the reviewer. One participant with a sick child had to delay one visit by two weeks; otherwise,
everything was on schedule. We believe that we can reasonably use the full sample of nine participants.

4. Tables: The tables are essentially raw data. This is a great way to explore pilot data, but not appropriate for a journal reader.

RESPONSE: Tables have been reduced and information presented has been change to reflect the number of inventories in which food items were present.

5. Discussion: If most of your sample shopped once per week, you will see greater variation in a shorter period of time. Therefore, usual shopping frequency is a major factor to consider with variation.

RESPONSE: Interestingly, most of the participants (6/9) considered only one shopping trip during the five assessments to be major. However, it would appear that weekly shopping for grocery items could influence variation in specific items. This makes a great argument for multiple household food inventories.

6. It is too bold a statement to say “... this study verified the inadequacy of a single assessment”, since you were not adequately statistically powered. A smaller sample size may have greater or less variability.

RESPONSE: This has been revised as suggested by this reviewer.

7. P17. You’ve parenthesized (presence and amount) here but have not previously described how you assessed amount. Presumably, it is the total number of items. The importance laid on the number of items is based on the food item and size. For example, is 1 apple the same as 1 bag of grapes? It would probably be better to look at the number of portions, which will vary according to each food.

RESPONSE: We briefly describe the methodology for assessing the amount of specific food items present (see end of paragraph on HFI in Methods section). In future work, we will look at number of portions available.

Discretionary revisions

1. Background:
   a. P4. We can not be certain that food availability influences food intake because we are not confident in the measures. There is actually quite a debate...not “little debate”.
RESPONSE: We have adjusted our initial text.

b. P4. UPC scanners are tools that can be used in a number of methods (including household inventories).

RESPONSE: We deleted a specific reference to UPC and discussed home inventories and store/food service receipts.

c. P8. Text “Most studies use a single…….foods in the home” is unnecessarily repeated.

RESPONSE: This sentence has been rewritten.

2. Methods:
   a. P9. What do you mean by “prospective participants”?

   RESPONSE: This term has been deleted.

b. P10. What you have described as Food accessibility is usually referred to as food purchase behaviours (food accessibility in home inventory studies usually refers to how accessible it is to eat the foods in the home, like cut fruit on a counter).

   RESPONSE: We now refer to the presence of food items in the home as household food availability.

c. P12. Did researchers perform the kitchen appliance inventory?

   RESPONSE: The researchers did perform a kitchen appliance inventory; however, we are not reporting that data.

d. P.13. No need to include the text “Household food inventory…..displayed by participant”.

   RESPONSE: This has been deleted.

3. Results:
   a. P13. What is a ‘minor cancellation’?

   RESPONSE: This has been rewritten.

b. P.14. Text describing each demographic is not needed as it has already been written.
RESPONSE: This has been rewritten.

c. P.15. There is a lot of subjective and/or non-specific text here. Be specific and avoid phrases like, “several households”, “did not have much”, “most homes”, “the majority of homes”, unless you are providing the numbers too.

RESPONSE: This has been rewritten to be specific.

4. Discussion:
   a. Avoid bold statements about your results. You are not adequately powered to generalise that your data is transferable. This has been thrown in as a passing comment in P19.

RESPONSE: We have revised the text as suggested by this reviewer.

b. P18. Reference where the criticism came from for “provided snapshot”.


c. P.19. You’ve said that the average time to complete was 30 minutes. If you write a feasibility paper, you should give the exact numbers for each visit (e.g. average time for 1st visit, average time for 2nd visit etc.

RESPONSE: We now provide average times for the first inventory and for subsequent inventories.
Reviewer: Amy Gorin

Major Compulsory Revisions

1. A main aim of the study is to examine the feasibility of conducting multiple home visits over the course of the month. The authors report 100% attention among the 9 families enrolled. No information is provided about how many families were asked to participate but refused to enter the study. Knowing this information is critical before conclusions can be reached about the feasibility of conducting multiple home visits in a larger sample. In general, the small sample size makes drawing definitive conclusions about feasibility premature.

   RESPONSE: We have changed the focus to describe this as a pilot study and a necessary first step in understanding household food availability through measurement at multiple times. Additional information is provided about the recruitment of this convenience sample.

2. The results show some intra-month variability within households, although there is also a fair amount of consistency across assessments. The meaningfulness of this raw data is difficult to determine. A major limitation of the study is that the link between food availability and dietary intake is not explored.

   RESPONSE: We agree that it would be ideal to have dietary intake data. However, this pilot study provides a necessary step in the measurement of household food availability. Future work will include dietary measures.

3. How meaningful is the variability?

   RESPONSE: The meaningfulness of the variety will be examined in future studies that include dietary intake and other outcome variables. Our purpose was to determine if there is intra-month variation. We feel that, as the argument is successfully made for multiple dietary recalls, the argument could be made for multiple measures of household food supplies in order to describe what is usually present.

4. Does conceptualizing household food intake across the month serve as a better predictor of diet than the standard cross-sectional approach? Measuring 251 items seems to be a potentially burdensome activity – are all items necessary? In general, the validity of the household food inventory (i.e., as it relates to dietary behavior) needs to be established.

   RESPONSE: We agree that the relationship between household food availability and dietary behavior needs to be established. We plan on future studies to examine this. We are continuing to review the food items to determine what items could be eliminated. Future work with a larger sample will aid in this endeavor.
5. No mention is made of how the food insecurity and perceptions of food availability surveys are related to the household food inventory results or dietary behavior.

RESPONSE: Perceptions of food availability have been deleted from this paper. We make some references to specific cases where food insecurity was associated with frequency of food presence.

Discretionary Revisions

1. The introduction, while providing adequate coverage of the existing literature, is a bit choppy.

   RESPONSE: The introduction has been rewritten.

2. The conclusions are somewhat repetitive.

   RESPONSE: We have attempted to eliminate some of the repetition.