

Author’s response to reviews

Title: Consumption patterns of meat, poultry, and fish after disaggregation of mixed dishes: secondary analysis of the Australian National Nutrition and Physical Activity Survey 2011-12

Authors:

Zhixian Sui (zhixian.sui@sydney.edu.au)

David Raubenheimer (david.raubenheimer@sydney.edu.au)

Anna Rangan (anna.rangan@sydney.edu.au)

Version: 1 Date: 23 Apr 2017

Author’s response to reviews:

Professor Tirang R. Neyestani
BMC Nutrition

RE: Manuscript ID NUTN-D-17-00028

Title: Consumption patterns of meat, poultry, and fish after disaggregation of mixed dishes: secondary analysis of the Australian National Nutrition and Physical Activity Survey 2011-12

We thank you for the opportunity to enable us to revise our manuscript in light of the comments from the reviewers. Please find detailed below our response to each comment raised by the reviewers, and a copy of the amended manuscript highlighting the changes made using Word Track Change.

On behalf of the authors, thank you for considering this manuscript for publication in BMC Nutrition. We look forward to your response.

Yours sincerely

Zhixian Sui

Postdoctoral research associate, PhD, MPhil, BHN
School of Life and Environmental Sciences
THE UNIVERSITY OF SYDNEY
Location: NE Level 4 Charles Perkins Centre | The University of Sydney | NSW | 2006
Email: zhixian.sui@sydney.edu.au
Reviewer(s)' Comments to Authors:

Reviewer: 1

General comment: This is an interesting and well-written article that indicates the importance for future population studies and food consumption surveys to disaggregate reported food information to obtain more accurate estimates of consumption. However, the article could be improved by clearly describing in the methods section the difference between the 'per-capita' and 'per-consumer' results, as I believe these terms are not that commonly used in nutritional studies (in Europe). As this was not explained I presumed the difference was "consumers only" (per-consumer) and "all subjects" (per-capita). I could also not find an explanation in a previous published article [10].

Our apologies for not clearly defining the terms ‘per-capita’ and ‘per-consumer’. We have now included the definitions of these terms in the Methods section under ‘Data and statistical analysis’.

Methods:

“Descriptive statistics were used to report the proportion consuming, per-capita (average intake among all subjects) and per-consumer intakes (average intake among consumers only) of total and individual meat, poultry and fish categories.”

Specific comments:

ARTICLE:

P4L107: Please explain the term 'Automated Multiple-Pass' 24-hour recall and add a reference if possible.

The National Nutrition and Physical Activity Survey of Australia adapted the US Department of Agriculture Automated Multiple-Pass Method during the 24-hour recall to reduce bias in the collection of food intakes. The method includes a pre-set guideline which navigates the interviewer through the recall, posing standardized questions and providing response options for different foods and beverages. We have now explained the term in the revised manuscript and referred to the original reference by the US Department of Agriculture:

“A total of 12,153 respondents were interviewed face-to-face for the collection of dietary intake data using a 24-hour recall. The recall process followed the 5-step Automated Multiple-Pass Method which navigates the interviewer through the recall, posing standardized questions and providing response options for different foods and beverages [17].”


P5L118: ‘… and for fish was 'fish…..': delete the second 'was' in this sentence

Deleted as suggested:

“The major food group for meat/poultry was ‘meat, poultry and game products and dishes’ and for fish ‘fish and seafood products and dishes’…..”

P5L138: Placing the sentence 'The AUSNUT…..time period [20]' immediately after the first sentence of the 'disaggregated classification' section of method, makes it more understandable, as this immediately describes what this recipe file is based on.

Thank you for the suggestion. We moved the sentence as suggested. Now the paragraph reads like:

“Disaggregated classification: In order to capture all meat/poultry/fish consumed on the day prior to the interview, all meat products and mixed dishes were disaggregated into individual components using the AUSNUT 2011-13 recipe file [18]. The recipe file is based on information found in common Australian cook books and recipe websites, known commercial kitchen preparation procedures and product preparation instructions, gross composition data, and cooking and preparation practices observed during the survey time period [29]…..”

P6L164: Please add 'fatty acids', it is 'long-chain omega-3 fatty acids' and check the whole article to make it consistent (P13L340)

Thank you. We have now checked the manuscript for consistency.

P6L166: Please clearly explain the difference between per-capita intakes and per-consumer intakes (how was it calculated?)

We have updated the Methods section to include clear definitions for the terms ‘per-capita’ and ‘per-consumer’.

P8L205-207: You are describing daily intakes (as you mention on P6L170) so please mention this or change unit to 'g/day' everywhere. Also check the whole article (including tables) to make this consistent.

Thank you. We have now checked the manuscript and added ‘g/day’ for consistency.

P8L207: Add a space between 11.7 and g

Thank you. We have now checked the manuscript to ensure spacing is consistent.

“…and lamb (males 11.7 g/day, females 7.7 g/day) (Table 3).”
P8L218: '… of total weight consumption': would delete the 'weight' and just say 'total consumption' also for P8L219

Thank you for the suggestion. We have changed the sentences as suggested.

P8217-218: Can you explain how you calculated these percentages? A quick calculation using results from table 3 results in 22.8% for children and 16.3% for adults

Our apologies. We misread the rows in the table when preparing the manuscript. We have now corrected the numbers in the text and we have checked the manuscript for the numbers to be consistent.

from table 3 results in 22.8% for children and 16.3% for adults.

P10L250-254: This paragraph was quite confusing for me and might benefit from being re-written. Supplementary table 3 provides absolute intakes of energy and nutrients coming from meat/poultry/fish. Maybe the 'contributed from' and the percentages you provide for the survey classification between brackets make this paragraph confusing, because there is no comparison for the reader to make (the table provides absolute intakes and not contributions to total energy or nutrient intake).

Our apologies for the confusion. We have edited the paragraph to state the differences using the exact numbers rather than proportion.

“Results from this analysis reveal that energy, protein, total fat, saturated fat, iron and zinc contributed from meat/poultry/fish were significantly higher for the disaggregated classification (differences before and after disaggregation: energy 345 Kj; protein 4.8 g; total fat 8.0 g; saturated fat 1.6 g, iron 0.4 mg; zinc 0.5 mg).”

P10L259: In article [10] you already provided these disaggregated data on meat/poultry/fish, although not as detailed as in this article, so maybe the fact that you provide more detailed meat/poultry/fish classifications and stratifications for gender/age could be highlighted.

Thank you for the suggestion. We have added this as a strength in the Discussion:

“All meat categories and meat types were well described, and stratifications by gender, age, and socio-economic subgroups were undertaken to enable comparison to other studies…”

P10L267: put the comma after brackets …( stir-fries),

Thank you, this has been amended.

P10L272: delete 'out'

Thank you, this has been amended.
"on the day of the survey" is confusing as 24-hour recalls are used and "the day of the survey" is actually the day after the recall day when people are reporting what they have eaten the day before. On P11L281 you use "on the day prior to the interview" which is correct. Please rephrase this.

Our apologies for not being consistent. We have revised the manuscript and used “on the day prior to the interview”:

“Consumption of processed meat was relatively common with 38% of the population reporting consuming some type of processed meat on the day prior to the interview, …”

TABLES:

Table 1-3-supplementary table 2: g/day is the correct unit

Table 2: In the title you say '… by gender' but it is also by age group (children-adults).

We have now revised the manuscript and corrected the units and the titles of all tables.

Table 5: long-chain omega-3 'fatty acids', add in title 'by gender and age group'; make it clear that 2-18 and 19+ are age groups

Supplementary table 2: explain somewhere that SEIFA categories refer to socio-economic categories

Supplementary table 3: "Daily” intake or add ",/day" to units.

All changes have been made according to suggestions.

Is it possible to display statistical significant differences in table 2-3-4-5-supl2?

Thank you for the suggestion. We have displayed the statistical significances in all tables, with a detailed explanation of analysis undertaken in the footnote.

FIGURES

Figure 1: please add g/day in the figure

Added g/day in Figure 1 on the y-axis as suggested.

Reviewer: 2

Firstly, I would suggest recreating tables 2 and 4. It would be clearer for the reader to have the proportion consumer and per consumer intake data present together and also discussed concurrently throughout the text as one has to keep jumping between the tables to get an
understanding of the per consumer data. While the tables are large, perhaps it could be split by age group. For example, while lamb is highlighted in the text as having the largest per consumer intake values, the proportion of consumers is <10%.

As suggested, we recreated a new table combining data from Tables 2 and 4. However, this table is quite large and not user-friendly even before adding all the details about gender and age differences, and therefore we have not included it in the final manuscript. (It is included as a separate Example Table at the end of the file if it is deemed appropriate).

Details of statistical analyses should be listed in the table legends and clarified in the tables rather than just the text for ease of interpretation.

We have combined this comment together with the comments from Reviewer 1 and indicated the statistical significance and the analysis in the tables and footnotes.

If possible, it would be helpful to account for underreporters in the tables which characterised contribution to nutrient intake would be helpful, or at least a statement to the effect that there was/was not an effect.

Thank you for the suggestion. As highlighted by the ABS, there appears to be a high level of under-reporting for both males and females in the NNPAS 2011–2012. The impact of under-reporting in the assessment of meat consumption is unknown. Evidence suggests that unhealthy foods with high fat and sugar contents are more likely to be underreported. Hence, we have added comments and references in the Discussion addressing the potential effect of underreporting and requesting further research in this area:

“Of particular importance to nutrition surveys is a widely observed tendency for people to misreport their food intake. The prevalence of potential under-reporting behaviour in the NNPAS was calculated to be between 19-23% using the Goldberg cut-off (energy intake vs. basal metabolic rate <0.9) by the ABS [16]. The impact of misreporting in the assessment of meat consumption is unknown. Some studies suggest that unhealthy foods with high fat and sugar contents are more likely to be under-reported than core foods such as meats and alternatives [41, 42] although this is not a consistent finding [43]. Further work into the impact of under-reporting on the consumption patterns of different foods from the survey results is required.”


If the data were available, details of the contribution to other dietary fats (e.g. MUFA/PUFA) would be helpful given that meat is a significant contributor to their daily intakes. In this article, it is stated that females have a higher % of fat from meat/poultry/fish than males but there is no real difference in saturated fat intake, hence this suggests that the difference is coming from other fatty acids and should be commented on.

Thank you for the suggestion. We have carried out analysis for MUFA and PUFA and found the results to be very similar to total fat. Hence, we have added the information for MUFA and PUFA on Supplementary Table 3, which describes daily nutrient intakes from meat/poultry/fish and supplies the comparison before and after disaggregation. We didn’t discuss the change of contribution in the manuscript because the direction of the change before and after disaggregation is the same as total fat.

It should also be clarified in Table 5 that the proportion of energy and line 316 key nutrients from meat/poultry/fish are 'per day'.

We have corrected the title of Table 5 as suggested.

The discussion would benefit from a repeat of results being stated and include more 'higher level' critique - e.g. lines 280 - 293. Discussion data should also link % consumer and consumer intake data.

The authors should bear in mind the usefulness of this aggregated data for non-nutrition purposes e.g. assessment of intakes of contaminants of food chemicals which may occur in meat. Such disaggregated intake data is highly suited for this use.

Thank you for the suggestion. We have added an additional paragraph linking the proportion consuming with nutrient contribution. We have also listed contaminants of food chemicals as another area that would benefit from the use of disaggregated data:

“The significant discrepancy between the contribution of meat/poultry/fish to intakes of key nutrients, in combination with the high proportion of participants consuming meat/poultry/fish, highlights the importance of recipe disaggregation. Another area that would benefit from the use of disaggregated data is the risk assessment for chemical food contaminants that may occur in meat.”

Minor: line 316 contains a minor typo and referencing style requires attention.

We have checked the manuscript for spelling errors and have updated the reference style for BMC Nutrition.