

Author's response to reviews

Title: Physical activity, energy requirements, and adequacy of dietary macro- and micronutrient intakes of older persons in a rural Filipino community

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Author's response to reviews: see over



Nehme Gabriel, MD
Editor-in-chief
Nutrition Journal

10 March 2009

Dear **Dr. Gabriel,**

Re: Physical activity, energy requirements, and adequacy of dietary macro- and micronutrient intakes of older persons in a rural Filipino community

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We thank the editors and reviewers for the helpful comments and suggestions to this paper. We here re-submit our manuscript (**MS: 2584577122174316**) revised as per reviewers' comments.

We detail the reviewers' comments and our revisions in the succeeding pages. In general, we have given a more detailed methodology and have rewritten the Results and Discussion sections to emphasize the age decile differences and to take into account the weaknesses of the paper. As well, we have streamlined the number of tables from 9 to 5 but added two figures that we felt were more illustrative of the points of this paper. There are now two additional tables at the end of the manuscript.

We confirm that this is an original research and has not been submitted for publication in other peer-reviewed journals while under consideration for the *Nutrition Journal*.

We hope you will find the paper acceptable.

Sincerely yours,

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Reviewer: Laura Sands

Reviewer's report:

The manuscript, "Physical activity, energy requirements, and adequacy of dietary macro- and micronutrient intakes of older persons in a rural Filipino community," is a clearly written paper that describes older Filipino's nutritional intake.

Major Compulsory Revisions:

The introduction didn't discuss why the current study provides novel information to the literature on nutritional intake in older adults.

- There are limited data on the nutrient requirements of older persons that could be used as a basis for health policy. Partly, the dearth of data may be due to the inherent difficulty of collecting dietary data. Another factor may be the presence of different groups of older persons (free-living, homebound, or institutionalized; healthy, frail or sick), with the resulting difficulty in generalization of recommendations. Many of the researches on the elderly focus on the homebound or institutionalized; and the frail or sick. In addition, assessment of the nutritional situation often does not adjust for energy expenditure.
- This cross-sectional study was designed to determine the adequacy of energy and nutrient intakes compared to the energy requirements of older persons living in private households in rural Philippines, with emphasis on how this picture changes as the person ages.
- These paragraphs have been modified and added to the Background of the study.

Most results include hypothesis tests for age differences, gender differences and SES differences. All are important, but it was un-

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clear whether the authors want the reader to focus on the age decile differences, the gender differences or the SES differences. For example, Table 3 presents the characteristics of the sample by gender, which suggests that the authors' focus on gender differences. Then Table 4 presents results for age, gender and SES differences resulting in 39 p-values. With a sample size of 98, having as many as 39 hypothesis tests is too many. Then Table 5 presents results so that the columns reflect gender and the rows reflect age deciles, suggesting that they are focusing on differences between genders, stratified by age. The Discussion section included some explanation of differences between age deciles, and a little discussion of how SES may affect nutritional status, but there was no explanation of gender differences. I found little rationale in the introduction or discussion for all the hypotheses they tested. For this manuscript, I suggest the authors focus on testing hypotheses for one factor (e.g. differences in age deciles), then use the other variables (e.g. gender and SES) as covariates. In another paper, the authors could focus on explaining the differences in SES or differences in gender (both of which would require greater consideration of how social roles impact gender and SES differences in nutritional intake and energy expenditure).

- The emphasis of the paper is on the age decile differences. This has been clarified by extensively changing Tables 3 to 8 to reflect age as the main explanatory variable, with gender and SES as co-variates.
- The Discussion has also been modified to reflect this emphasis.

Specific comments:

Introduction: The second and third sentences of the first paragraph may be deleted.

- These sentences have now been deleted.

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Methods:

Lines 5 and 14: How were patients assessed to determine whether they were 'coherent' and 'had the ability to comprehend?'

- The elders with no history of major illnesses, did not take medications or nutritional supplements, and who were ambulatory were asked to join the study.
- The description of the older persons as "coherent" and "had the ability to comprehend" has now been deleted.

Line 5: Does 'free-living' refer to living in the community as compared to a nursing home? What does 'free-living' mean?

- The participants in the study were all living in private residences and were not home-bound or institutionalized. This sentence was added to the Methods.

Lines 10-11: How was the list of 179 older persons validated? Was this a random sample of all older adults in specific communities? How were the names for the list compiled? How representative is the sample of all older Filipinos?

- The Department of Social Welfare and Development had a list of 179 older persons living in the rural villages of Palsara and Malabanan. This list was validated through house-to-house visits by field staff.
- The villages of Palsara and Malabanan were of low socio-economic status, with a higher poverty incidence than the average for the country. There was a high prevalence of malnutrition among schoolchildren from an earlier study in the area.
- These have been added to the Methods.

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Lines 17-19: For which analyses were the finer categorizations of age used? If these finer gradations were not used in analyses, please delete this sentence.

- . This sentence has now been deleted.

Statistical Methods:

A little clarification is needed related to the footnotes for Tables 4-8. For example, results are presented for the three age categories. In addition the footnotes say, 'Significant differences among age groups in multiple linear regression analysis taking age, gender and SES in to account.' The footnote gives the impression that the authors are including age twice in the regression equation used to test for age differences. I am sure this is not the case, but I think the footnotes should be clarified.

- . The tables have been extensively changed and the footnotes have been revised.

Data Collection:

Page 2, lines 1-3: During a single observation period (e.g. one day) how many hours of observation occurred? Was there opportunity to observe the subjects' activity patterns throughout the morning, afternoon, and evening?

- . During a single observation period, the field staff stayed with the subjects from 4 to 6 hours at a time. The subjects' activities were variously observed in the morning, afternoon and evening.
- . These have now been added to the Data Collection section.

Results:

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Page 3, Lines 5-13 (referring to Table 6): Why didn't the authors discuss the age differences in energy, protein and carbohydrates (note typo in Carbohydrates for Table 6)?

- The paragraph has been modified to discuss the age differences in energy, protein and carbohydrates.

Discussion: The authors didn't describe the limitations of the study. For example, was the sample representative of all older Filipinos or older adults from other countries? How accurate were the food recalls? Do the authors have evidence of interrater reliability for portion sizes, etc.

- More discussion on the limitations of the study has been added to the end of the Discussion.



Reviewer: Christopher Bates

Reviewer's report:

1. This manuscript describes a cross-sectional study of dietary intakes, and some related indices in 88 elderly people from a rural Filipino community. The data-set is clearly of some value and interest, but I have some criticisms of the conclusions, and of certain aspects of the method-descriptions, data-analyses, and conclusions, provided.

- Thank you for this review and we revised the manuscript extensively to reflect the comments here.

2. Firstly, I question the use of the term "malnutrition", especially as applied to micronutrients, in this study which apparently has only measured intakes (of food and hence has estimated nutrient intakes). To me, "malnutrition" implies "inadequate status", -- which was not measured, except in terms of anthropometry and serum (?) cholesterol concentrations. Micronutrient "status" per se, was not measured, as far as I can ascertain.

- We have used the term "inadequate status" to describe less macronutrient intake than would be able to supply energy expenditure based on the basal metabolic rate per desirable body weight. However, we accept the reviewer's observation that this can create confusion and have changed our terms to "inadequate compared to the estimated energy requirements" and have removed all references to "inadequate status" and "malnutrition".

3. Secondly, in the 3rd page of the Discussion, the authors imply that (any) estimated nutrient intakes that fall below the 'dietary recommendation', automatically imply inadequacy or deficiency. Since dietary recommendations are nearly always set at levels that cover

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the needs of nearly all members of a defined population category, they are usually greater than the mean requirement, so that an (individual) intake that is less than the official recommendation may still be adequate, for many, if not most, individuals! Only status measurements can resolve this uncertainty - preferably those which have a 'functional' link!

- We accept the reviewer's comments on relationship between recommended daily intake and estimated micronutrient intakes. We have revised the tables and the Discussion to reflect the comparison to recommended intakes merely as comparisons to a standard.

4. I also think that the methodology description, especially of the 24h food recall, is inadequate, and needs considerably expanding (possibly in an appendix?). For instance, how was the recall administered and by whom? - how was it checked for completeness? - is it possible that the participants might have deviated from their usual eating habits in order to simplify their participatory involvement (ie, was their recorded diet typical of their 'usual' diet)?, and what seasonal and other periodic variations (eg weekday vs weekend) may have affected the estimation of their 'usual' dietary intakes?

- Registered dietitians conducted three non-consecutive 24-hour dietary recalls (two weekdays and one weekend). Food models and household measuring tools were used by dietitians to aid the subjects in estimating their food intakes. Portion sizes were estimated using measuring cups and spoons and food models. Dietary intakes of fat, protein, carbohydrates, and the micronutrients were assessed by using the Philippine Food Composition Tables. The results from the three dietary recalls were averaged.
- This paragraph has now been added to the Methods.

5. It isn't entirely clear to me, whether the chosen population sample was intended, and then considered, to be 'representative' of a

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wider Filipino population, or whether it was a 'convenience' sample. Were the chosen villages 'typical' of the wider rural Filipino population, for example?

- The villages of Palsara and Malabanan were chosen as study sites because they have a large elderly population as recorded in the local Department of Social Welfare and Development (DSWD). The DSWD list of 179 older persons from these villages was validated through house-to-house visits by field staff with the help of the local health workers. These older persons were interviewed to determine their age, medical history and dietary habits. A total of 100 older persons with no history of major illnesses, did not take medications or nutritional supplements, and who were ambulatory were invited to participate in the study.

- These villages had low socio-economic status and a high prevalence of malnutrition among schoolchildren based on an earlier study in the area.

- These have now been included in the description of the study site.

6. It seems a pity that the paper contains very little food-type-information, relating to diet quality, eg how much green vegetables, fruit, dairy products, meat and fish, etc, were consumed?

- Their typical diet consisted mostly of rice, fish and vegetables.

- This sentence has been added to the Results of the manuscript, however, further food-type information has not been analyzed as yet.

7. Also, the blood indices data is only briefly summarized - will this aspect be reported in more detail elsewhere? - as it could be considerable interest - provided that available QC information enables it to be compared with the existing and future data from other published studies. (It isn't clear to me, whether the blood analyses

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were done on serum or on plasma, and if the latter, what the anticoagulant was?)

- . The blood indices, in particular, the vitamin A status of the subjects were reported in an earlier publication in Am J Clin Nutr 2004, 79:633-41.

We thank the editors and reviewers for their time and effort. We hope that the revisions we have incorporated have made the paper clearer.

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