Author's response to reviews

Title: High Magnitude of under nutrition among HIV infected adults who have not started ART in Tanzania--A call to include nutrition care and treatment in the test and treat model

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Author’s response to reviews:

Response to the comments raised by editor and reviewers

Editor Comments: The reviewers have provided you with detailed, constructive feedback, included below - please be sure to address these important points of clarification in your revision.

Authors’ response: Thank you very much for the opportunity given to review our manuscript. We have addressed all the comments raised on point-by-point below.

Ramadhani Mwiru (Reviewer 1):

I was very pleased to read a well-written paper on magnitude of undernutrition in a population of HIV-infected people in Dar es Salaam, Tanzania. This is very relevant paper on this very relevant topic. Despite this being a very relevant and well-written paper, I have few comments below that the authors may wish to consider to improve the paper.
Authors’ response: Thank you for the time you took to read and provide us with precious comments.

Title page

1. Please cross-check the names of co-authors
   * Siril vs. Sirili
   * Ferdinand vs. Fedinand

Authors’ response: We have crosschecked and revise the names of co-authors mentioned and all others appropriately in Page 1.

2. Please cross-check the names of the institutions
   * African Academy of Public Health vs. African Academy for Public Health

Authors’ response: We have revised the institution name to African Academy for Public Health in Page 1.

Study settings, population and sampling

3. More details about the study setting and sampling strategy would be helpful. E.g. how were these 7 CTCs selected? Out of how many CTCs?

Authors’ response: The Trial of Vitamin (TOV3) was conducted in all the care and treatment centers (CTCs) where People living with HIV were receiving HAART. Such CTCs in Dar es Salaam were being managed under the Tanzania National AIDS Control Program with the support of the President’s Emergency Plan for AIDS Relief program and in collaboration with the Harvard School of Public Health, Muhimbili University of Health and Allied Sciences, and the City of Dar es Salaam Regional Office of Health making the MDH consortium. At the time of the study preparation in 2006, MDH was overseeing only 7 care and treatment centers, of which were the study sites of this trial. We have addressed this comment by providing more information in Methods section Page 8.

4. Measurements
   * Severity of undernutrition - the moderate and mild categories cut-offs are confusing, please revise

Authors’ response: Thank you for the comment. We have revised the order to remove confusion. Please see under Measurements in Page 4.
   * Show cut-offs for age quintiles and wealth index quintiles
Authors’ response: We have revised the manuscript and included the cutoffs for age quintiles. For the weighted wealth index, categorical display of index in quintiles is the more preferred standard by the scale inventors (The World Bank). However, we have included the cut-off points in the ‘Methods’ in page 4, line 28-29.

5. Page 5; data analysis
* How did you handle missing variables?

Authors’ response: Missing variables were excluded as cases during regression analyses when the variables introduced into the modules were being analyzed. We have further explained this under ‘Analysis’ in page 5 line 9-10.

Results

6. General characteristics/table 1:
* Second sentence talks about mean age of males vs. females, however, mean age is not shown in table 1

Authors’ response: We have edited the text about age and insert before the explanations of Table 1. Please see in ‘Results’ in page 5 line 21-22.

* Line 38/39, correct the p value, p=9 may be incorrect

Authors’ response: We have edited the typographical error to p=0.949 in Page 5, line 26.

7. Descriptive characteristics/table 1
* First paragraph talks about prevalence of undernutrition referring to table 2. The information is actually in table 1. Please revise and make reference to appropriate tables.

Authors’ response: We have made revisions in the references for tables. Please see the ‘Results’ section in page 5 line 30-32.

* Paragraph 2; line 8 magnitude of undernutrition comparing women to men should be done by row percents - 30% vs. 26.6% not 30.7% vs. 34.4%

Authors’ response: We have revised the magnitudes of undernutrition by sex to 30% vs. 26.6% in ‘Results’ section in page 6, line 7 and Table 2.

* Para 3; line 26, p value =0.381 not 381

Authors’ response: We have revised the typographical error to p=0.381 in page 6 line 18.
Paragraph 4: HIV disease stage; should be 6% undernutrition for those in stage 1 vs. 48% undernutrition among those in stage 4 not 1.2% vs 28.3%. Please revise the para.

Authors’ response: We have revised the result section to make it easier to understand in ‘Results’ page 6 line 20-21.

You did not talk about variable - any starchy, alcohol dependency, and social support

Authors’ response: Social support was explained in line 17-18, page 6. We have revised the result section to include explanation about alcohol dependency. Results of any starch was not significant in this study, and were therefore removed after revisions.

Factors associated with undernutrition/table 3

Para 1; please show multivariate results for emotional distress, just replace the depression variable with emotional distress and get results for emotional distress

Authors’ response: We tried different models to get the best model fit. The model with depression presented a higher R squared.

Line 51; 36% should be 37%

Authors’ response: We have revised the typo with 37%

Page 7; be consistent in the use of undernutrition vs. underweight

Authors’ response: We have revised the text for consistency, in page 7 line 1

Discussion

Line 21/22 - remove the ? mark

Authors’ response: We have removed the ? mark

Para 2: why is it especially important in the era of test and start when your study population was pre-ART patients?

Authors’ response: test and treat is aimed to increase ART coverage. For ART to give desired results in terms of clinical outcomes, it is important to also consider nutrition interventions. It should be noted that, right before the initiation of ART, such individuals have a one in four chance of undernutrition. Therefore integration of nutrition care is essential.

Para 3 - what are some examples of those nutrition specific and sensitive interventions that should be integrated within ART services?
Authors’ response: Nutrition specific interventions include improving feeding practices such as frequency, diversity, and quantity. It also include prevention and treatment of opportunistic infections leading to nutritional challenges such as diarrhea. Nutrition sensitive interventions include improving food insecurity, access to health care, poverty alleviation and education pertinent to food and nutrition. Text has been added into ‘Discussion’ in page 7 lines 37-41.

12. Page 8; line 16/17. It may not true that individuals with depression were more likely to be undernourished in this study. Of course table 2 is suggestive but in multivariate model (table 3) depression is not associated with low BMI, p=0.138

Authors’ response: Depression was not associated with undernutrition at multivariate regression. However, the high magnitudes of participants with symptoms suggestive of depression calls for integration of psychosocial services into care and treatment along with nutrition care. Text has been edited to reflect this explanation in ‘Discussion’ in page 8 line 16-17

Tables

13. Table 2

* Why is N=3,999?

Authors’ response: The total population recruited for this study was 4000 randomized into intervention and control arms. However, one case lacked age variable and therefore leaving 3999 with complete data for this variable.

* Move the variable age (mean years) to table 1 or revise the text referencing this variable

Authors’ response: We have revised the text as suggested

* For appropriate comparisons use row percents for variables - age (quintiles), sex, wealth index, depression, alcohol dependency, clinical stage, dietary diversity (binary), and any starchy (24 hours)

Authors’ response: We have revised according to the description of the text.

14. Table 3

* Show multivariate results for emotional distress variable

Authors’ response: We could not include both depression and emotional distress under same model. We have therefore retained depression and dropped emotional distress owing to the multicollinearity as explained in the text.
The aim of the paper is to examine the nutritional status and associated risk factors among HIV positive adults prior to ART participation in Tanzania. The findings show that under-nutrition is prevalent, dietary diversity is lower, and that nutritional status varies by gender and age. The authors recommend that nutrition care be included as part of CTC treatment.

The findings from this study confirm that there is a link between food insecurity and HIV-status among PLWHIV especially in Sub-Saharan Africa. While these findings are not new, they do strengthen the argument for including nutritional interventions as part of HIV care and treatment.

The following suggestions are offered to strengthen this paper.

Authors’ response: Thank you very much for the positive comments aimed at strengthening our manuscript.

1) Include literature that addresses the food insecurity-HIV link and argues for nutritional interventions as part of CIC. See African Journal of AIDS Research 2009, 8(4) for several papers on this topic.

Authors’ response: We have strengthened our discussion by adding this reference and further explanation in discussion section, page 7 line 20-26, and added reference no. 13.

2) Consider using a syndemic theoretical framework for explaining the link between pre-ART PLWHIV and undernutrition.

Authors’ response: Thank you for the comment. We have revised the manuscript and added the theoretical framework for the link between pre-ART state and undernutrition in the ‘Discussion’ section page 7 line 20-26.

3) Nutrition status should be nutritional status throughout paper

Authors’ response: Thank you for this comment, we have changed the text as required in our revised manuscript.

4) Are there any data in the literature showing the improvements in nutritional status among PLWHIV in CIC with and without nutritional intervention. Discuss.

Authors’ response: Nutrition interventions includes nutrition specific and sensitive interventions. As explained in the discussion section, and according to the UNICEF conceptual framework, nutrition specific interventions comprise of those targeting to direct causes (feeding practices, food intake) and diseases conditions such as diarrhea and other opportunistic infections for the case of PLWHIV. For nutrition-sensitive interventions include improving food availability, health care services, poverty, and education, that can help improve direct causes mentioned above. All of such interventions aimed at ameliorating poor nutrition status are still regarded as nutritional interventions.
5) What might account for the differences in nutritional status by gender and age as described in the results

Authors’ response: There was significant differences in nutrition status between male and female. However, after adjusting for other covariates and confounders, such difference did not reach a statistical difference level. On the other hand, age retained its independent association with undernutrition through multiple logistic regression analysis. This can be explained in terms of other social and biological attributes that goes with age. For example, women tend to accumulate more fat and therefore weight than their male counterparts. This biological phenomenon tends to also increase with age. Moreover, as for the age, the older one gets, accumulation of fat outgrows lean tissues, making people of the general population heavier with age. Similar explanation may also be for this HIV-positive population, that, adjusting for the disease and feeding practices, and other influential variables, ageing was still a factor associated with low magnitudes of undernutrition.

6) What was only BMI used to determine the prevalence of under-nutrition in this study.

Authors’ response: We analyzed data that was collected at the baseline. In this trial, data collected included height, weight, age, feeding practices, and other variables. We used BMI to determine undernutrition status owing to completeness of the data. Other variables like skin fold thickness had more missing data and therefore could have reduced the power of our results.