Title: Food consumption and undernutrition variations among mothers during the post-harvest and lean seasons in Amoron’i Mania Region, Madagascar

Authors:

Lantonirina RAVAOARISOA (lantonirinadr@yahoo.fr)
Julio Rakotonirina (juliorakotonirina@yahoo.fr)
Lalhyss Randriamanantsaina (rlalhyss05@gmail.com)
Jean de Dieu Marie Rakotomanga (rktjdm@yahoo.fr)
Michèle Dramaix (michele.dramaix@ulb.ac.be)
Philippe Donnen (pdonnen@ulb.ac.be)

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Author’s response to reviews:

Responses to Editor Comments:

1) Abstract: please report confidence intervals and/or p-values for the three variables that turned out to be significant predictors of malnutrition.

→ Corrected

2) As the study involved repeated measurement individuals, the” independence of observation” assumption of logistic regression is likely to be violated. Accordingly, the data need to be analyzed using statistical techniques (multilevel logistic regression analysis, generalized estimating equation …) that can accommodate dependence of observation. Accordingly, the results and discussion section need to be modified.

Explanation:

→ It is the incidence of malnutrition that was analyzed with logistic regression. Only well-nourished mothers were included in this analysis and he outcome was the nutritional status (malnutrition yes/No) at the end of study, so no repeated measurements were involved in the analysis. In the paper, the only analysis involving repeated measurements was the
comparison of mother's nutritional status in the two seasons and that was done with McNemar's test (comparison of paired proportions).

3) In the “study site” sub-section please provide more information on the agro-ecology and livelihood characteristics of the study area.

Inserted

→ Agriculture, mainly subsistence farmer, was the main activity of the population (agricultural household: 96%). Rice cultivation remains the most practiced, followed by cassava and potatoes. Rice is the staple food of the majority of the population and the harvest season corresponds to the rice harvest. In 2013, 86% of the population was living below the national poverty line.

4) In the sample size calculation, please comment on the adequacy of the sample for allowing seasonal comparisons. Post-hoc power calculation can be an option.

Explanation:

→ The computed sample size was rather large, allowed to reach an adequate precision and was in agreement with our financial resources but we didn't perform an "a priori" power analysis for the comparison between the proportions of malnutrition in the two seasons. We now performed "post-hoc" power analysis: based on 553 mothers, 20% malnutrition at baseline, a difference of 7% and a correlation of 0.66 between the 2 measures (or 9.8% and 2.9% discordant pairs of each type) the power of the study is 99.6%. We added a sentence in the discussion.

5) Please provide more information about the food frequency questionnaire used in the study.

Inserted:

→ The list of foods that was requested for frequency of consumption was requested was based on the list of foods used to calculate women dietary diversity score in low-income countries and the foods usually consumed by the population.

6) Was there any strong basis to dichotomize food consumption into two categories based once per week consumption? Please given more explanation.
Explanation:

→ This categorization was based on the results of our own study. If we had chosen an interval of less than once a week, no one would have been found in the group consuming some foods such as dairy products, eggs and meat.

7) The sub-headers “nutritional status”, “food consumption”, “social profile”, “economic profile” need to be removed. The header “variables of the study” is enough.

→ Corrected

8) It's not clear how you enrolled 55 pregnant women in the endline survey. The inclusion criteria says pregnant women should be excluded from the study???

Explanation

→ The status of "non-pregnant woman" was an inclusion criteria only at the beginning of the study. Including pregnant women at the beginning would have increased the number of lost to follow-up. According to custom, after childbirth, woman have a rest for 1 to 3 months (depending on their ability). If data collection at the end of the study was to coincide with this period, refusals to participate in the study would have been very high. We chose to include women who became pregnant during follow-up in order to know the effect of pregnancy (vulnerable group to maternal undernutrition). With 6 or 7 months of follow-up, women who became pregnant during the study would not have give birth except in cases of preterm births.

9) The variable “movable property possession” is not clear.

Inserted

→ Three indicators of economic level were created considering the possession of household goods. We used the Demographic and Health Survey (DHS) Madagascar list to establish our list of goods. The first indicator refers to possession of movable property (furniture, radio, TV, bicycle, etc.), the second refers to possession of farming equipment and the third the possession of farm animals. The corresponding scores for these properties were established by principal components analysis (PCA). The scores were categorized into three groups (high, medium and low) based on values as close as possible to the tertiles.
10) “bivariate” --> “bivariable”

→ Corrected

11) Please follow the journals guideline for formatting the tables

→ We formatted the tables following the journals guidelines