Author’s response to reviews

Title: Factors associated with infants' and young children's (6-23 months) dietary diversity in Pakistan: Evidence from the Demographic and Health Survey 2012-13

Authors:

Sarosh Iqbal (sarosh.iqbal@gmail.com)

Rubeena Zakar (rubeena499@hotmail.com)

Muhammad Zakar (mzzakir@yahoo.com)

Florian Fischer (f.fischer@uni-bielefeld.de)

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Author’s response to reviews:

AUTHORS RESPONSE TO REVIEWERS

Dear Reviewers and Editor,

We are thankful to the reviewers for the positive evaluation of our manuscript, submitted to BMC NUTJ and the constructive comments and suggestions which significantly improved our manuscript. The reviewer’s comments are repeated below in italics followed by our response and action in red font. The complete revision in responding to the comments can be followed in the annotated version of the original manuscript.

Reviewer #1:

Reviewer comment # 1:

The mains objectives of the article is to first assess the dietary diversity of the infants and young children aged 6-23 months in Pakistan, and then to explore the relationships between dietary diversity and various sociodemographic factors. Although the manuscript does not bring innovative insights for this particular field, it allows to fill a gap attending there was no data about dietary diversity of the infants and young children and sociodemographic factors in Pakistan. Nevertheless, this work suffers from severe methodological issues that need to be addressed by the authors before considering publication. These issues concern the choice of the dietary diversity score, the lack of appropriate command to take into of the complex sample design of the PDHS and the lack of explanation about the representativeness of the sample.
Authors’ reply

Authors’ took this research idea mainly recognizing the importance of dietary diversity for infants and young children and also to fill the data gap in the context of Pakistan, using the secondary analysis of cross-sectional demographic health survey data. We really appreciate the comments of the Reviewer and incorporated changes as suggested to improve this manuscript.

Reviewer comment # 2:

Major comments: Lines 10, 85 to 97, 142 to 147, 155 to 156: Unless the authors could provide extremely relevant justification for using a 15-food group classification for calculating a dietary diversity score, they should follow the guidelines proposed by the WHO and use a 7-food group classification. As highlighted in different reports and publications cited by the authors, the choice of the food group classification affects the correlation between the dietary diversity score and the nutrient adequacy of the diet: the 15-food group classification used by the authors does not seem as optimal as the one recommended by the WHO.

Authors’ reply

Authors were of the view of using the 15-food group classifications as given in the DHS tool and also opted in previous similar studies on dietary diversity. However, the dietary diversity score has been revised from 15-food groups classifications to 7-food groups as recommended by the Reviewer in the light of guidelines of WHO. Likewise the analysis and narration of article has also been revised.

Reviewer comment # 3:

Lines 78 and 79: Whereas the authors clearly mentioned that the PDHS "used a multistage cluster sampling design", they did not provide any information regarding the use of appropriate command or version to take into of this complex sample design in the analysis (e.g. IBM® SPSS® Complex Samples). If the authors did not take into account the complex sample design in their analysis, their results cannot be accepted. Please clarify this point.

Authors’ reply

The analysis has been revised using the SPSS Complex samples as advised by the reviewer. However, in case of Simple binary and multiple linear regression, the SPSS linear regression command other than Complex Sample was used for analysis, as SPSS Complex Sample offers analysis for only ‘General Linear Model (GLM)’. Authors are not clear of using GLM so used the conventional linear regression command.
Reviewer comment # 4:

Lines 81 and 82: Whereas the authors clearly mentioned that "the analysis was limited to information on infants and children aged 6-23 months", they did not mentioned how this selection differ from the initial sample and if it could affect the representativeness of their results. Attending that I found a report mentioning that the PDHS is a "nationally representative sample of 13,558 ever-married women in all selected households" (http://dhsprogram.com/pubs/pdf/SR208/SR208.pdf), the author should clarify this point and consider to recalculate the sampling weights.

Authors’ reply

DHS surveyed the ever-married women of reproductive age (15-49 years), so that’s why the total sample size was 13585. Nevertheless, child health related information such as information on nutrition; vaccination and diseases were collected from women who had at least one child during the last five years preceding the survey. According o the objective of this paper and WHO recommendations, the analysis for this study was limited to children 6-23 months old. The same has been revised in article as mentioned below:

“Ever-married women of reproductive age (15–49 years) was found eligible to administer the standard questionnaire. Of the eligible women, a total of 13,558 ever-married women aged 15-49 years were successfully surveyed giving the response rate of 93 percent. The component of child’s health was the part of woman’s questionnaire, which was asked only to the women who had atleast one child during the last five years, giving the number of 7,461 women. Out of these, the research selected the mothers having last born child of 6-23 months of age. Hence, this analysis was limited to the youngest infant and child between the ages of 6–23 months, which yielded a sample size of 1,102 children. Moreover, PDHS 2012-13 used a 24-hours recall method to collect data on infant and young child feeding practices for the last-born child below 2 years of age living with their mother.”

Moreover, the sampling weights are also recalculated as suggested for the eligible respondents according to the defined criteria and so addresses the representativeness.

Reviewer comment # 5:

Lines 130 to 131, 158 to 159: As recommended in the WHO guidelines, the authors should consider studying separately breastfed and non-breastfed children. Because breast milk is not counted in any dietary diversity indicator, it is attended to find 'better' results for children who are not breastfed than those who are breastfed. Stratifying the sample by the breastfeeding status would provide clearer insights.

Authors’ reply
Authors feel that results may be reported separately for breastfed and non-breastfed children. However, this research primarily focus on dietary diversity score, which cannot be directly compared. As recommended by WHO that ‘the dietary diversity scores for breastfed and non-breastfed children should not be directly compared, because breast milk is not “counted” in any of the 7-food groups’. This point has also been highlighted by the reviewer.

Reviewer comment # 6:

Other comments: Lines 44 to 45: Explain why this reference is the most relevant.

Line 196: Explain why this reference is the most relevant.

Authors’ reply

These references have been added just to reiterate the importance of dietary diversity for children’s growth.

Reviewer comment # 7:

Lines 55 to 58, 63 to 64: The reference 21 is the same as the reference 16.

Lines 63 to 64: The reference 25 seems very similar to the reference 20. Please explain the added value of citing both references.

Authors’ reply

Yes, the cited references are same and were repeated mistakenly. These have been corrected as indicated.

Reviewer comment # 8:

Lines 80 and 81: Please provide more information regarding the questionnaires and the design of the study. For example, what is the exact duration of the survey and is there a seasonal effect to take into account in the analysis?

Authors’ reply

The information has been added regarding study design and questionnaires. Please refer to lines # 82-96. Moreover, the data was collected during October, 2012-March, 2013, almost a month
after rainy season. And this research didn’t take into account any seasonal effect for the analysis of factors associated with dietary diversity.

Reviewer comment # 9:

Lines 100 to 101: Please consider to consider the variable "child age" as a categorical variable (6-11 months, 12-17 months and 18-23 months) as recommended in the WHO guidelines. How it affects the results? Same remarks for the age of the mother.

Authors’ reply

The variables of ‘child age’ has been revised into categorical variable (6-11 months, 12-17 months and 18-23 months) as suggested. Likewise the mother’s age variable was also transformed into categorical variables (15-24 years, 25-34 years, 35 years and above). The results have also been revised accordingly.

Reviewer comment # 10:

Lines 103 to 109: Please provide more information and references regarding the calculation of the mother's empowerment index.

Authors’ reply

More information is added as given below, with references:

“The mother’s empowerment index was constructed based upon her participation in various decisions included final say in making household purchases, final say on how to spend money earned by herself and her spouse, final say on own healthcare and final say on visiting family or relatives. The possible responses where the woman has ‘a say at all’ (either alone or jointly with the husband/partner or jointly with other person) were combined together. Moreover, the mothers’ opinion or attitude towards domestic violence on the number of circumstances that justified beating of wife (here referred as mother): a) going out without telling spouse, b) neglecting the children, c) arguing with spouse, d) refusing to have sex with spouse, and e) burning the food. Thus, the empowerment index was generated combining mothers’ participation in decisions-making and attitude towards domestic violence. The details on the construction of empowerment index is published elsewhere.”

Reviewer comment # 11:

Lines 116 to 117: Please provide more information and references regarding the calculation of the wealth index.
Authors’ reply

More information is added supported by the reference as mentioned below:

“The wealth index was measured on the basis of household assets, housing condition and ownership of a number of consumer items. The assets scores were used to classify women into five quintile (richest, richer, middle, poorer and poorest) according to the relative wealth of their households”.

Reviewer comment # 12:

Line 203: The references concerned both dietary diversity indicators calculated at the individual-level and household-level. Because these indicators do not have the same interpretation, the authors should not mix these references.

Authors’ reply

Revised the references as suggested.

Reviewer comment # 13:

Line 207: Attending the reference 35 refers to a work where a 7-food group classification was used, the authors cannot compare with their results based on a 15-food group classification. Also, the reference 35 seems very similar to the reference 16. Please explain the benefit of citing both references.

Authors’ reply

Since now this article used the 7-food groups/types for DDS instead of 15-food group classification so, this can be applied. Moreover, reference was repeated mistakenly, which is corrected.

Reviewer comment # 14:

Lines 219 to 220: How this sentence is relevant considering the rest of the paragraph? In addition, how the cited reference support the sentence?

Authors’ reply

This sentence is deleted from this paragraph being irrelevant
Reviewer comment # 15:

Lines 220 to 221: Please provide references.

Lines 221 to 225: There is a problem of reference. The authors mentioned a study from the Southern Andes and cited a study in UK.

Authors’ reply

Correct reference is mentioned as suggested.

Reviewer comment # 16:

Lines 234 to 238: While the authors explain how low sociodemographic status might affect feeding practices, please explain how changing the behavior of the communities could be enough to improve the consumption of more diverse foods. What about the structural and environmental aspects of the food insecurity: availability, accessibility and stability?

Authors’ reply

Revised the discussion and conclusion part as suggested, after adding structural aspect of food security.

Reviewer comment # 17:

Table 4: Redundant information (R², β (SE) and p-value) regarding the sex of the child (Male, Female).

Authors’ reply

Revised as suggested.

Reviewer comment # 18:

Table 5: Why the authors present the results related to the level of education whereas there are not statistically significant? Why the results regarding the LHW did not have the same reference in models B and C, respectively No and Yes as reference?

Authors’ reply
Analysis has been revised using sample weights, showing significance with level of education. Likewise reference value for LHWs is revised as suggested.

Reviewer #2:

Reviewer comment # 1:

General comments: This is an interesting and well written manuscript describing a secondary analysis of cross-sectional demographic and dietary survey data in Pakistan. The objective was to study relationships between socio-demographic factors and dietary diversity among children aged 6-23 months. The findings in relation to dietary diversity of children are important.

Authors’ reply

Many thanks for your encouraging comments. Authors appreciated your kind comments.

Reviewer comment # 2:

The authors conclude that because there is a cross-sectional association between socio-demographic factors and diet diversity that this relationship is causal. A major recommendation to the authors would be to recognise that association does not imply causation. It is likely that availability and affordability of nutritious foods is an issue for at least some of the households. This issue is not well covered in the discussion.

Authors’ reply

Authors considered the comment of the Reviewer and revised discussion accordingly.

Reviewer comment # 3:

The conclusion recommends 'education programmes' and 'practical efforts to change the behaviour of communities'. I think the authors could be more specific about their recommendations and also consider how other factors (e.g. availability) that they have not assessed in this study might affect dietary diversity. These are mentioned in the introduction but not in the discussion.

Authors’ reply

Revised the conclusion part as advised.
Reviewer comment # 4:

Abstract: Lines 4-6: I suggest re-wording the aim statement. At present it appears that mother's diets are an outcome in the analysis.

Authors’ reply

Revised as suggested, as given below:

“This research aims to examine the current practices of dietary diversity amongst infants and young children aged 6–23 months and the various contributory factors associated with young children’s dietary diversity in Pakistan.”

Reviewer comment # 5:

Lines 16-18: Please state whether the associations were positive or negative.

Authors’ reply

Revised and added ‘positive association’ as advised.

Reviewer comment # 6:

Introduction: It would be helpful if these terms could be defined: 1) malnutrition (e.g. low weight for age/ height for age/ weight for height / other?), 2) 'food insecure' Lines 36-37: Presumably this refers only to adults. Are there any data on the proportion of children for whom energy requirements are met?

Authors’ reply

Authors have defined the terms of malnutrition and food insecurity as advised by worthy Reviewer. Regarding lines 36-37 of earlier manuscript, authors added the food security in relation to households. Moreover, the data on proportion of children, met the energy requirement is not available in dataset of DHS.

Reviewer comment # 7:

Lines 42-43: Was the NNS able to show causation or was an association observed?
Authors’ reply

No specific causation or association was presented in the NNS report regarding household food security. Further NNS used the standard internationally validated food security questions, which was determined on the basis of four categories: food secure, food insecure without hunger, food insecure with hunger (moderate) and food secure with hunger (insecure). However, in case of malnutrition causation/association was observed.

Reviewer comment # 8:

Lines 51-53: These points may be more appropriate in methods and discussion sections.

Authors’ reply

Revised and added in the discussions section as suggested

Reviewer comment # 9:

Lines 61-62: Could the authors give brief examples of cultural influences?

Authors’ reply

Example of cultural influences is added, as given below:

“For example, in case of Pakistan, various nutritious foods are not given to the infant and young children with misconception that they would cause illness or children would not be able to digest food other than breastmilk.”

Reviewer comment # 10:

Lines 67-69: Make clear that the study is investigating associations rather than contributory factors.

Authors’ reply

As indicated by worthy Reviewers, the study intends to investigate the association. Revision has been made likewise.

Reviewer comment # 11:
Methods: A bit more detail on the survey response rates would be helpful. Were there any exclusion criteria? If women had more than one child in the specified age range, were all children included in the data collection and analysis?

Authors’ reply

The detail of survey response rate and inclusion/exclusion criteria is added as mentioned below:

“The component of child’s health was the part of woman’s questionnaire, where ever-married women aged 15–49 years having a child born in last five years preceding the survey was found eligible to administer the standard questionnaire. Of the eligible women, a total of 13,558 ever-married women aged 15-49 years were successfully surveyed giving the response rate of 93 percent. PDHS 2012-13 used a 24-hours recall method to collect data on infant and young child feeding practices for the last-born child below 2 years of age living with their mother.”

Reviewer comment # 12:

Lines 85-89, please make clearer how the dietary data were collected. Were women asked whether children had consumed each of the food groups in the past 24 hours using the 15 food groups as a checklist, or were women asked to recall all of the foods consumed by the child in the past 24 hours?

Who conducted the interviews? Were all of the data collected by interview?

Authors’ reply

The data on dietary diversity was collected using 24-hours recall method, as indicated below:

“PDHS 2012-13 used a 24-hours recall method to collect data on infant and young child feeding practices for the last-born child below 2 years of age living with their mother.”

Moreover, the interviews were conducted by National Institute of Population Studies (NIPS) Pakistan, employing the field teams who collected data through interviewing the concerned respondents.

Reviewer comment # 13:

Line 107: the authors could consider using the term 'domestic violence'.

Authors’ reply
Revised the term ‘domestic violence’ as suggested

Reviewer comment # 14:

Line 117: how was wealth assessed?

Authors’ reply

Authors added details of measuring wealth quintile with reference, as given below:

“The wealth quintiles (measured on the basis of household assets and ownership of a number of consumer items and divided into five quintiles such as, richest, richer, middle, poorer, poorest)”.

Reviewer comment # 15:

Statistical Analysis: Were variables assessed for normality of distribution? It may be more appropriate to use median and inter-quartile range instead of mean and SD for some variables including birth order, parity, number of children, dietary diversity score.

Authors’ reply

Authors assessed the normality of distribution. However, considering the IBM® SPSS® Complex Samples design, there is no such provision of using median and interquartile range. Hence authors used means and SE for all continuous variables.

Reviewer comment # 16:

Results: Lines 143-147: more detail could be given in this section about the diversity of diets e.g fruit, vegetables, dairy etc.

Authors’ reply

Revised and added more details of food groups as suggested

Reviewer comment # 17:

In table 1, it may be interesting to divide the children into thirds by age and present the diversity data for each third as well as the overall intakes.
Authors’ reply

Revised as suggested

Reviewer comment # 18:

Line 146: Meat is an animal / flesh food. It may be better to say ‘very few children consumed liver, kidney and other organs’

Authors’ reply

As per comments of Reviewer # 1, the 15-food groups classification has been changed into 7-food groups as recommended by WHO as well. Hence the percentage of children had meat/flesh food has also changed.

Reviewer comment # 19:

Table 2: please give a description of the autonomy and diet diversity score as a foot note.

Authors’ reply

Revised and added as suggested

Reviewer comment # 20:

Discussion: Lines 192-196. These three sentences could be condensed into one sentence.

Authors’ reply

Revised as suggested

“An emphasis on dietary diversity amongst children, composed of a number of food items and food groups is essential to ensure adequate and balanced nutrients for a child’s growth and development”

Reviewer comment # 21:

Line 197: suggest changing 'influencing' to 'associated with'. Are there any national/ international recommendations for infant diets? If so, could the results of the survey be compared with these?
Yes, there are international level WHO guidelines/recommendations for frequency of meals/diet for infants and children. It suggests that infants start receiving complementary foods at 6 months of age in addition to breast milk, initially 2-3 times a day between 6-8 months, increasing to 3-4 times daily between 9-11 months and 12-24 months with additional nutritious snacks offered 1-2 times per day, as desired. Nevertheless, PDHS datasets do not have this variable having frequency of meals at present.

Reviewer comment # 22:

Line 207: Which countries are included in this comparison?

Authors’ reply

Revised and added name of country like Ethiopia, as suggested

Reviewer comment # 23:

Lines 219-220: Please clarify what is meant by 'individual food intake strongly influences dietary diversity'.

Authors’ reply

This sentence is deleted being irrelevant.