Author's response to reviews

Title: High fluoride water in Bondo-Rarieda Area of Siaya County, Kenya: a hydro-geological implication to public health in the Lake Victoria Basin

Authors:

Enos W Wambu EWW (wambuenos@yahoo.com)
Stephen G Agong SGA (sagong@jooust.ac.ke)
Beatrice Anyango BA (banyango@yahoo.com)
Walter Akuno WA (wakuno@jooust.ac.ke)
Teresia Akenga TA (tezakenga@yahoo.co.uk)

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Author's response to reviews:

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To
The Editor of the BMC Public Health
RE: POINT-BY-POINT REPORT ON REVISION ON MANUSCRIPT

We are grateful for very helpful suggestions that we received from our reviewers. I have considered the reviewer comments and attempted to the best of our capacity to assimilate them where this has not been possible I humbly submit an explanation against the relevant reviewer comment in the table below.

Whereas I have made every endeavour to ensure that our manuscript is flawless there could one or so typos or grammatical errors that may have escaped our eye. I humbly request for your indulgence.

Reviewer: Kamala Kanta K Satpathy
I am very grateful to the Prof Satpathy to have found time to review my work. I am particularly very grateful for the suggestion, which I have attempted to incorporate in the manuscript has described hereunder.

REVIEWER'S COMMENTS SPECIFIC RESPONSE POSITION OF RESPONSE IN PAPER

Reviewer's report:

a) Calibration graph for 0.1, 0.5, 1.0, 5.0, 10.0 ppm should be provided. 100 ppm is not at all necessary.

A: I addressed this and included a calibration curve.
P7L28-30

b) Detection limit of the method needs to be mentioned.
A: I inserted specifications for the detection limit according to the manufacturer manual P7L29-30

c) When values are reported up to third decimal, e.g. 2.919 ppm; is it possible to estimate at 0.009 ppm. Thus, avoid third decimal.
A: I addresses this important analytical observation and rounded all my values to 2 d.p. all values throughout the ms

d) Fig. 2 in text in page 6 has to be changed to Fig. 3.
A: I changed this accordingly P10L16

e) Total number of samples is 127 or 128. Check in Table 1, 2 and 3. This mismatch needs to be corrected.
A: I regret this mix-up in the values. I have gone over the value carefully and corrected this in the tables and in the texts T1, T2, T3, P2L14, P78L10 etc

f) Mean and mean plus standard deviation should be removed from Table 3 and 2 respectively. % of sample > 1 ppm fluoride should be introduced in Table 3 like that of Table 2.
A: I inserted % of samples > 1 ppm as suggested by the reviewer.
The reviewer suggested the removal of ‘mean plus standard deviation’ from Table 3 and 2. However, the second reviewer was suggesting the opposed i.e. that I should include this in both table. I regret that i chose to go by the second reviewer in this case. T2, T3

Reviewer: Fakir Yunus
Major Compulsory Revisions
1. Title: This paper evaluated the fluoride level in potable water sources in different parts of Kenya however the author mentioned in the title that Excessive fluoride in portable water sources which may mean that the author have prior information of high level of fluoride in water before conducting the study. I would suggest to change the title.
A: The reviewer was uncomfortable with the initial title of the manuscript. In this revision i have suggested an new title: ‘High fluoride water in Bondo-Rarieda Area of Siaya County, Kenya: a hydrogeological implication on public health in the Lake Victoria Basin’. Any other suggestions will be welcome. P1L1-3

2. In the background paragraph:
2.1: The author should consider writing more about fluoride and its health effect at the very beginning of the background and then should write that there were limited research had been conducted so far.
A: I have re-written the entire background to reflect the suggestions made by the
reviewer namely:

• Further discussions on the benefits and hazards of fluoride on human health
• Novelty of the research; the fact that similar has not been conducted in the entire L. Victoria basin, it is usually assumed this is not a fluoride enriched region
• I have attempted to explain what I think could be the source of fluoride in this area, which is not volcanic.

P3L10-33 to P5L1-21

2.2: The author did not properly explain the beneficial effects of adequate fluoride and adverse effects of excess fluoride on health in the background. To justify the research the author should consider writing more about the health effect of fluoride, not only dental fluorosis.

A: I attempted to explain this as I have explained above. However I limited myself to a simple outlining of the hazards because other works have ably delved into that subject. I have directed the readers to relevant sources. Same as above

2.3: The author should explain more details on why he chose to study in Bondo-Rarieda area of Siaya county, Kenya. Is there any previous evidence of high fluoride in water in that part? If not, should explain how the author hypothesized?

A: To my knowledge, there is no previous fluoride surveys in this region, at least in the study area, so far. I have attempted to explain how I hypothesized to come up with this research project as it was suggested by the reviewer.

P4L1-P5L21

3. Method section:

3.1: Study area: The author should consider adding few more point in the study area. For example, how many divisions are there i.e Bondo-Rarieda area of Siaya county, Kenya. how many water sources and what are they and what are the principle water sources for drinking?

A: I have labelled the Divisions in the map of the study area. All sampling sites have been plotted into this map. I was not possible to enumerate all the water sources. Moreover, a number of water points are privately owned or are not just accessible because of poor infrastructure; this is the usual problem you encounter when you carry out a survey in rural areas typical to most developing nations. However using Conchran’s equation I was able to estimate the variability and determine a sample size, which statistically sound and representative.

I have outlined the most common types of water sources found in this area. F2

3.2: Study duration: The author should write the study duration.

A: I have responded affirmatively to this suggestion and provided the duration of sampling P7L17-20
3.3: Sampling site: The author should focus the following questions:
3.3.1: How the author chose to collect various water samples from 5 divisions?
3.3.2: How the author got the number of collected samples from each study site?
A: For 3.3.1 and 3.3.2, I have given the criteria I used to obtain the samples from the different divisions. There was a lot of variability between the divisions regarding infrastructure, accessibility and availability of the water sources which are reflected in the selection protocol the I provided in one of the tables. I also explained the sampling procedures, how the individual samples were obtained from sampling site and the eventual treatment during analysis T1, P7L2-20

3.4: Sample Size: How the author chose to take 127 water samples. The samples were 128 and not 127.
A: I have corrected this throughout the manuscript and explained how the sample size was obtained P7L2-15

3.5: Sample collection: The author mentioned that he collected water sample from different types of water sources, but did not mentioned what are they in the article (except in the table)? The author should consider writing the different types of water sources from where he collected 127 water sample.
A: I have listed this water source types in the relevant texts as suggested by the reviewer. P7L11-15

3.6: Data analysis: The author should mention the software that he used for data analysis.
A: I have given the protocols I employed in data analysis and the software as suggested by the reviewer. P8L4-7

4. Result and discussion section:
4.2: The author concluded that 40% of the children <10 years are at risk of developing dental fluorosis. However, the author did not properly explained how he came up with this conclusion. The author should explain that why only the children are at risk, why not others in the community?
A: Fluorosis seldom develop in adults because it is a developmental malady of calcified tissues i.e. teeth and bones. Adults are seldom attacked by fluorosis, rather the children when the teeth or the bones are developing and that is it is irreversible. P11L10-

Minor Essential Revisions
1. Result and discussion section:
1.1: Topographical variation: The author mentioned that topographical variation were presented in Figure 2, however the author explained it in Figure 3.
A: Checked and corrected.
This Figure is now Figure 5 in the text and in the caption P10L6-9, F5

2. Constructing table: In Table: 2: The author should consider constructing table as Mean±SD.
Discretionary Revisions
A: Inserted Mean±SD in T2 as suggested by reviewer T2

A: GENERAL COMMENT OF AUTHOR; I carried out general editing in several points in the text, tables and in the figures. The texts that have been changed in highlighted in green.
To make clarifications which were requested by the reviewers I had to add two other figures i.e. Figure 1 and Figure 3 are new. I have renamed the other figures accordingly.
Otherwise I am grateful to the editorial team and to the reviewers for finding time to consider this manuscript. I welcome and appreciate any further suggestions by the reviewers and the editorial team that they fill can make this work even better.
I also expanded authorship to include my colleagues who assisted me at variation stages and participated in different activities as i have explained in the section on ‘authors’ contributions’

NB:
A:=response by author
P=PAGE
L=LINE
T=TABLE
F=FIGURE

Thank quite in advance and warm regards,
Enos W. Wambu
Corresponding Author