Author's response to reviews

Title: Strengthening community-based tools for Dengue prevention: a cross-sectional survey in a temperate region (Madeira, Portugal)

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Version: 2 Date: 22 November 2013

Author's response to reviews: see over
Dear Dr Silvestre

Thank you very much for the detailed revision (yours and from both Referees). We are certain that it has greatly contributed to improve the manuscript’s clarity. As suggested by Referee 1, we recognized that a correction in the manuscript’s title was of great value. Thus, the title was altered to: “Strengthening the perception-measuring tools for dengue prevention: a cross-sectional survey in a temperate region (Madeira, Portugal)”. As suggested by both Referees, part of the methodology section was re-written. Definitions of the terms ‘concepts’, ‘topics’, ‘myths’, ‘topic-related concepts’, ‘community perception’ and ‘health-literacy’, were stated (Page 2 and 4). A complete revision of the manuscript was done by a native-English speaker. So as to improve clarity, three extra ‘Additional files’ were added to presenting data which was “not shown” in the previous manuscript.

The remaining questions and comments made were answered. A point-by-point response was given in italic format and in the following order: additional editorial requirements (pag.1), comments to referee 1 (pag.3) and comments to referee 2 (pag.8)

I am available to discuss any other further issues you may feel opportune. Thank you again for the important feedback.

Yours Faithfully

Teresa Nazareth

Additional editorial requirements

Please make the following changes during the revision of your manuscript.

Ensuring that the manuscript meets the journal’s manuscript structure will help to speed the production process if your manuscript is accepted for publication:

(1) After reading through your manuscript, we feel that the quality of written English needs to be improved before the manuscript can be considered further. We advise you to seek the assistance of a fluent English speaking colleague, or to have a professional editing service correct your language. Please ensure that particular attention is paid to the abstract.

**English revision done by a native speaker**

For authors who wish to have the language in their manuscript edited by a native-English speaker with scientific expertise, BioMed Central recommends Edanz (http://www.edanzediting.com/bmc1). BioMed Central has negotiated a 10% discount to the fee charged to BioMed Central authors by Edanz. Use of an editing service is neither a requirement nor a guarantee of acceptance for publication. For
more information, see our FAQ on language editing services at http://www.biomedcentral.com/authors/authorfaq.

(2) Please format the abstract according to our guidelines for research articles (http://www.biomedcentral.com/bmcpublichealth/authors/instructions/researcharticle#formatting-abstract).

Done: 283 words; defined sections were added

(3) Please clarify in the manuscript why oral consent (rather than written consent) was obtained.

We rejected the written because it could impair the questionnaire’s recruitment. In fact, accordingly to local official demographic data, there are a 16.2% and 27.8% of illiterate people in the two counties considered in the study: Funchal am Câmara de Lobos (according to the most recent official data at the moment of the study). Moreover, regarding what was observed in the pre-test, due to the socio-cultural context of the island, a written consent could intimidate people to participate.

(4) Please include a Competing interests’ section in the manuscript. This should be placed after the Conclusions/Abbreviations. Please consider the following questions and include a declaration of competing interests in your manuscript:

Financial competing interests

? In the past five years have you received reimbursements, fees, funding, or salary from an organization that may in any way gain or lose financially from the publication of this manuscript, either now or in the future? Is such an organization financing this manuscript (including the article-processing charge)? If so, please specify.

? Do you hold any stocks or shares in an organization that may in any way gain or lose financially from the publication of this manuscript, either now or in the future? If so, please specify.

? Do you hold or are you currently applying for any patents relating to the content of the manuscript? Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript? If so, please specify.

? Do you have any other financial competing interests? If so, please specify.

Non-financial competing interests

? Are there any non-financial competing interests (political, personal, religious, ideological, academic, intellectual, commercial or any other) to declare in relation to this manuscript? If so, please specify.
If there are none to declare, please write 'The authors declare that they have no competing interests'. For more information please visit the instructions for authors on the journal website.

We would be grateful if you could address the comments in a revised manuscript and provide a cover letter giving a point-by-point response to the concerns.

Please also ensure that your revised manuscript conforms to the journal style (http://www.biomedcentral.com/info/ifora/medicine_journals). It is important that your files are correctly formatted.

Reviewer's report

Title: Strengthening community-based tools for Dengue prevention: a cross-sectional survey in a temperate region (Madeira, Portugal)

Version: 1 Date: 26 September 2013

Reviewer: Veerle Vanlerberghe

Reviewer's report:

The topic of manuscript is interesting, but the text is difficult to read. The authors use often words as concepts, myths, topics, without specifying the 'knowledge' behind, which makes it difficult to understand the results of the analysis.

General remark:
• The title doesn't fit with the content of the paper. The paper is not about community-based tools for dengue prevention, but about measuring knowledge on dengue and its prevention.

Altered (Pag.1)
• The abstract need to be adapted according to the changes in the text (as stated below: the topics need to be explicated, if there is an assessment of tool, the methodology of this assessment need to be explained, …)

Altered (Pag.2)
• The authors start from a viewpoint that knowledge is a measure of behaviour, which is not at all universally accepted, even stronger most researchers think the association between these two aspects is very low. Hence relevance of measuring knowledge is debatable and not 'indubitable', as stated on page 3.

We do not believe in knowledge as a measure of behavior, but instead as one of the variables that affect its change, as stated in several behavioral models (ref 16 from the manuscript). The
presented score assesses several variables (recognized as behavior determinants): knowledge (Mosquito Breeding Topic), self-efficacy (Domestic Attribute Topic), auto-efficacy (Control Measures Topic), perceived susceptibility (Local Context Topic), and perceived severity (Medical Importance Topic). In that sense we believe that you are right and that the name of the tool should be altered (it was altered to Score of Essential Perceptions instead of Score of essential Knowledge). The term 'knowledge' was replaced by 'perception', since it describes more precisely what in fact was measured.

• To evaluate if one measurement tool is better than another (which is stated as one of the objectives of the study), it must be compared with another measurement tool. I couldn’t identify the comparison tool in the article, so it’s not possible to judge if the proposed tool is better. Hence the objective: assessment of a novel tool needs to be withdrawn or the assessment methodology need to be explained.

In reality two methods were presented: the frequencies to the answers (that correspond to the percentage of acknowledgment of some concepts in Figure 2) and the number of Essential Perceptions that the population has perceived. Both methods were associated with the presence of breeding sites (Table 3). In fact, even though concepts 7 and 9 seem to reveal a good community perception, they do not associate with the absence of domestic breeding sites. In contrast the EP-score levels show a significant association, revealing to be a good measure of the community perception about their behavior in the aegypti-control.

• One of the objectives of the study was also to explore (introduction) and evaluate (abstract) community involvement of Madeira residents (pg 3): I didn’t find this aspect back in the article. Measuring knowledge is not measuring community involvement.

According to your recommendation the aim of the study was clarified and standardized in both sections. In fact, we not only assessed community perceptions (Graphics 1, 2 and 3) but also explored community involvement, according to their EP-Score results and their source reduction practices (Table 3).

• The difference between topics and concepts is not well explained, neither why they were categorized separately.

Altered (Pag.2 in ‘Perceptions evaluation’ section)

Specific remarks:
• The five main topics and the concepts are not clearly explained in the methods, which makes it difficult to read the article. Also in the results, authors talk about concept 1 or concept 2 (and not naming the concept itself) and the reader has always to go back to the tables to understand about what the authors are talking about.
• On page 4 – knowledge evaluation: knowledge, behavior and comprehension of the program are used intertwined: who ‘should’ do domestic aegypti control can hardly be called a ‘knowledge’

Actually the correct term is ‘community perception’ and not, ‘knowledge’. Perception regarding a particular behavior was measured. What it explained is, in other words, that in order to evaluate associations between the community perception and their behaviour, a particular behaviour has to be identified. In that sense knowledge/attitudes/beliefs or perceptions are measured in order to evaluate community involvement in that particular behaviour. Commonly inquiries cumulate several subjects (symptoms, mosquito-byte protection, vector-control, etc.) to optimize resources and minimize the number of community interventions. Community perception regarding a mix of subjects cannot evaluate their involvement in specific activities. We selected only one behavior to be evaluated and correspondent perceptions were measured, as mentioned in page 4.

In Madeira's context, during this survey, since there wasn’t any dengue disease yet, the chosen behavior was the ‘source reduction’ (meaning domestic breeding site removal).

• Page 4 – EK score: ? each resident him/herself evaluates or scores the number of essential concepts he/she assimilates: how was this standardized? . An EK-score of 10 is sufficient knowledge: what's the basis for this threshold? . Explicit also the theory behind the link between knowledge score and individual compliance in domestic behavior? People having a high knowledge on the disease or transmission, are therefore not having a good behavior (take the example of ‘stop smoking’: everyone knows, but therefore they don’t stop!)

Several changes were made in the Perception evaluation paragraph in methods sections in order to clarify those questions.

However, they are here explained by other words. There are several similar models in the literature (Health Belief Model, Extended Parallel Model, etc.) None of them is the perfect model to explain changing behaviour, but they present determinant variables involved in the changing behaviour process. Preferably models should be adapted/built accordingly to the context of the study. The basis for this score was the behaviour-model that we developed, including five variables (topics) that determine the behavior (source reduction). We cover five variables (topics) described to be determinants of the behaviour, chosen and adapted according to the target-behaviour (source reduction), Madeira’s scenario and dengue’s context. To double-evaluating them, two topic-related concepts were defined which sums a total of ten concepts. The score has thus a range from 0-10. To notice, incomplete score results (see Statistical analysis in Methods sections and Table 4) gave evidence about the necessity of all the five selected topics.
The association found between the calculated Score levels and the presence of breeding site suggests that the “measured perception” can indeed determine behavior.

- Page 5: topic’s understanding: are these other topics than explained on page 4? What’s the difference between knowledge evaluation and topic’s understanding? Topic related concepts: what is this? Where do the ‘myths’ enter in these wordings of topics, concepts, topic’s related concepts?

  Methodology section was re-written. All the questions are related to the criteria of the model used, that we call ‘Essential-Perception’ model.

Altered (Pag.4)

- Results: Explicit the concepts and topics and topic’s related concepts and myths, ….otherwise the result section is difficult to understand.

Altered (Pag.5)

- Results: you demonstrate in results that knowledge have little association with behavior... so why authors continue to stress that knowledge evaluation is important? As stated in discussion: last sentence of page 7? I don’t find evidence for this association behavior-knowledge in the article.

See Table 3 (Pag.14) and Results/entomological its determinants and correlations with knowledge (Pag. 5).

- Discussion: ‘... the level of education was the most determinant in the knowledge concerning domestic … emphasizing the relevance of extensive health education programs.’ ?can authors explain the logic behind this sentence? Level of education has normally nothing to do with health education programs.

Centres for Disease Control and Prevention defines ‘health literacy’ as the degree to which an individual has the capacity to obtain, communicate, process, and understand basic health information and services to make appropriate health decision. Even though health-educational activities cannot improve educational level, they can strengthen health literacy. Also, communicating health-messages according to the community’s health literacy level is crucial to ensure the understanding of those messages. In areas with low education levels, health literacy is likely to be low. Thus, in these areas, appropriate educational messages are even more critical.

- Discussion: ‘... suggesting that measures that make the problem more ‘visible’ would be of a great impact...’: isn’t it the nuisance (being bitten by mosquitoes) that make people adopt preventive practices? How would you make this more ‘visible’??????

The nuisance of living with aggressive mosquitoes only partially reflects the problem it implicates. Actually, after some years of coexistence with this nuisance mosquito people are less affected by their bites. Some of them even do not develop the typical itching-papules reaction and therefore, do not realize when/where they have been bitten. This decrease of allergic reaction, along with the small size of the Ae. aegypti mosquito, make the problem less
visible. In fact, people are hardly aware of mosquito presence inside their own houses.

A possible activity would be the distribution of home-made trap-bottles that catch adult mosquitoes who have been attracted by the stagnant water while ovipositioning. The trap-bottle would make evident the presence of mosquitoes in that environment (ex: a living room).

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests

Reviewer’s report

Title: Strengthening community-based tools for Dengue prevention: a cross-sectional survey in a temperate region (Madeira, Portugal)

Version: 1 Date: 29 September 2013

Reviewer: Solange dos Santos

Reviewer’s report:

The paper entitled Strengthening community-based tools for dengue prevention: a crosssectional survey in the temperate region (Madeira, Portugal) is a relevant research that addresses a topic of interest to control the dengue. The theme provides an important contribution to the field of vector-borne infectious diseases in regions whose geography - an island - is the differential of this study.

With respect to writing, sometimes there is a difficult understanding English, and I suggest that we make a review of the content of the article in this aspect. Suggest some alterations to make the article more clear and understandable.

*English revision done by a native speaker*

The introduction addresses the problem of dengue in Madeira in Portugal, in a clear and objective adopting a theoretical citing several studies in the area that support the theoretical results. However, the quote of epidemiological data in the world (WHO 2009) I suggest that authors can use a more current reference.

*A 2013-reference replaced the previous one*
Regarding the method I consider the need for some clarification, it is important for authors to revise the description of his work in this section:

- the design of cross-sectional study is cited in the title and abstract, but in the article, this design is not mentioned, so I suggest is cited in the article body cross-sectional study;

  *Altered Pag. 4*

- Suggest include the characterization of geography - variations in temperature and rainfall - in the study area;

  *An extra 'additional file' with these data was prepared.*

- the calculation of the sample there is no information of the island’s total population - suggest a better detailing of the island's population; review the data presented regarding the study sample - there are different values - in short (1276/1183), the method (1082 + 20%) and results (1276/1182). The investigation and application of the interviews are well described.

  *Island’s total population was included (Pag.4)*

  Those mentioned values refer to different things, as following:

  1. 1083 was the minimum questionnaires needed to accomplish the aimed 90% of confidence level and 2.5% of precision. We aimed to increase 20 % (1300) to count for missings. In fact we accomplished to do 1276 questionnaires, out of those, 1182 were complete (higher than the aimed 1083, thus the statistical conditions were maintained. A value in the abstract was corrected (pag.2) (Table 1 was altered)

The results are consistent, well presented, which were addressed aspects of the proposed method. There are some issues that are reviewed by the authors suggest:

a) in Table 1 number of participants by gender does not match the value of the sample and interviewed at the end of the research: it is well to an analysis performed - (n = 1276 - 761 female / male 506);

  *In fact, not all the respondents have answered to all the socio demographic questions. From the 1182 individuals that entered in the EP-Score analysis, all of them have answered to the thirteen questions involved in the score calculation. However, not all of them have answered to all the socio-demographic items. Correct 'n' values were added to Table 1.*

References - the authors cite Article Santos et al, 2011 - reviewing the article title.

  *Altered Pag.10*

The authors discuss the results with the literature and an adequate theoretical

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published
Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

No, 'I declare that I have no competing interests' below