Reviewer’s report

Title: Communication, perception and behaviour during a natural disaster involving a 'Do Not Drink' and a subsequent 'Boil Water' notice: a postal questionnaire study

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Reviewer: Pavani Ram

Reviewer’s report:

Thank you for the opportunity to review this comprehensive paper on the public’s awareness and responsiveness to a drinking water supply emergency in the context of a natural disaster. I have a number of comments, which I hope will help the authors to improve the paper.

Major Compulsory Revisions

1) There was an 18-month gap between the incident of interest and the administration of the postal questionnaire. While this is stated plainly enough in the methods section, the authors do not comment adequately on the likelihood that such a gap may have impacted critically on the respondents’ recall of both the events that took place as well as their own behaviors. This must be made clear in the discussion section.

2) A number of statistical methods are used, including factor analysis and general linear models. However, the results are presented in such a way as to obscure the meaning of the relationships detected. Unfortunately, many of the findings of these analyses are not discussed at all in the discussion. Really, much of the discussion focuses on the basic descriptive data. For example, what are the implications of the factor analysis presented in Tables 7 and 8? Why was factor analysis the appropriate analytic method here?

3) The primary audience for this paper is likely to be a practitioner community, particularly those who work in local health departments and water authorities. In order to make the findings of the paper most accessible to an audience with a wide range of statistical skills, where possible, the inclusion of relative risks (or odds ratios per the authors’ wishes) rather than chi-squares, etc, would be helpful so that the direction and magnitude of associations can be shown more clearly.

4) Some analyses applied to behavior during each of the water emergency stages are also applied to behavior in terms of bowser water boiling and use. This was quite confusing to this reader, since it was not entirely clear whether the provision of bowser water overlapped with one or more of the stages of the water emergency. What does compliance mean in the context of bowser water use?

5) On page 19, lines 21-25, the authors refer to consumers boiling water because of a belief that boiling renders water safe and that this is a “common folk belief”. Indeed, boiling water is practiced in much of the low- and middle-income world
for point-of-use water disinfection. International organizations typically recognize boiling among point-of-use water treatment strategies. The author should be clearer about the potential harms in consuming boiled water during a “Do not drink” phase of a water emergency.

6) The relationship between local radio use and use of water for personal hygiene is not entirely clear, and the lengthy tribute to BBC Gloucestershire on the basis of this one finding seems out-of-proportion.

7) The authors recommend distribution of bottled water over bowser water quite clearly. However, they make no mention of the environmental waste concerns ensuing from such a recommendation. Moreover, the authors conclude that the public may have purchased bottled water because of a lack of awareness of the municipal water supply’s responsibility to supply adequate water to its consumers. Might the public not be purchasing bottled water because of a lack of trust in bowser water? Might we need, instead, to understand whether and why the public does not trust bowser water and, if appropriate, mitigate this lack of trust?

8) What does it mean to “use” leaflets as an information source? Leaflets are a passive source of information, as long as they are successfully delivered to the hands of the consumer, right? The consumer needs to choose to read the leaflet but, otherwise, does not need to make a choice of a particular radio station or website.

9) Indeed, the language regarding information sources was, in general, a bit obscure. For example, there is mention of information sources “throughout” the stages of the water emergency. It’s not clear to this reader whether that implies that the particular information source was the means by which the respondent learned of the change in stage or whether that’s the means by which the respondent stayed informed during a certain stage (but that the information source might have switched during a subsequent stage).

Minor Essential Revisions

10) In this lengthy paper, the inclusion of information on previous flooding and water loss incidents did not seem very relevant or helpful. I would consider cutting this paragraph. Indeed, at 9 tables and 2 figures, there is much in this paper that is not directly contributing to the key messages that we are left with.

11) The meaning of the sentence on page 12, lines 3-5 is unclear.

12) In the methods section, under “Scoring”, the authors indicate a number of adjustments that needed to be made because of inappropriate questionnaire completion by respondents. However, we do not have a sense of how frequently such errors occurred. Given the small sample size, it would be really helpful to know the proportion of questionnaires that needed such post-hoc adjustment, as well as to know whether demographic or other factors affected proper questionnaire completion.

13) The paper shifts back and forth between referring to the stages of the water emergency by numbers (e.g., Stage 2 or Stage 4) and by name (“Do not drink”, “Do not boil”). For the sake of clarity, it would be best to use a consistent naming
system throughout the manuscript.

14) Please define “STW” at its first use, perhaps introducing it on Page 5 in the middle paragraph.

Discretionary Revisions

15) Figure 2 might be better represented by numeric data.

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

**Quality of written English:** Acceptable

**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.