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: Andria Jones

Reviewer’s report:

Peer Review: “Communication, perception and behaviour during a natural disaster involving a ‘Do Not Drink’ and a subsequent ‘Boil Water’ notice: a postal questionnaire study”

This is a well-written and interesting article, of primary importance in the fields of water quality and public health.

Major Compulsory Revisions

Methods:

1. A large number of associations were tested for significance, and it is difficult to assess whether the associations tested were hypothesized a priori or whether all possible associations between variables were tested. I think a clearer description of which associations were planned and tested should be included in the methods section to help clarify the results section. Further, if the multiple associations tested weren’t all a priori associations/hypotheses, then was the Bonferroni adjustment indicated used for all to account for spurious associations?

2. The specific statistical tests employed should be stated (“standard parametric/non-parametric tests” is not specific enough), as should the cut-point for significance (it appears a level of 5% was used).

3. The methods section indicates that general linear models were used - I might be mistaken, but I cannot see where these methods were used in the manuscript.

4. I think a brief description of the factorial analyses conducted needs to be included and would benefit the readership. On this note, please note that I am unable to assess the factorial analyses conducted and would suggest that someone familiar with these techniques review the paper.

Response rate and demographics (first page, lines 19 – 23): if not losing tap water during the event is a study exclusion criteria, then the response rate should be recalculated with these 36 individuals removed from denominator and from numerator (i.e. response rate is actually 159/964 = 16.5%, not 20% as indicated).

Results – Water behaviour, lines 8-17: I had to read this section and compare to Tables 4 and 5 several times, and I’m still confused as to the numbers presented. Perhaps the authors can re-word to clarify?
1. For the sentence “With regard to drinking tap water…”, the 47.2% (75/159) refers to activities “prepare/cook food with, brush teeth, drink, prepare babies bottles” – i.e. all actions which are unsafe with the Do Not Drink notice in place. However, the 29.3% (34/116) only refers to “drink” – shouldn’t this also include all of the other actions that are considered unsafe with the Boil Water notice in place? Alternately, the former statement (related to the 47.2%) should be changed to just include “drink”.

2. Further, related to line 10, I cannot determine where the 7.1% comes from (not in Table 6).

3. Results – Water behaviour, lines 16-17: where are these data presented? If just here, then inclusion of fractional data may help to clarify (e.g. XX/XXX participants (62.9%)).

4. Results – Water behaviour, lines 18: non-compliancy data are not presented in Figure 2 as this sentence states

Discussion: the issue of recall bias is not addressed, but definitely needs to be.

- Results, Advice recollection, lines 17-21

- Discussion, first page lines 21-23: the effect of a significant lapse in time (one and a half years) between the flooding event and the study must be discussed. The potential for recall bias here is enormous.

- Discussion, second page, lines 25 & 26 and continuing onto next page: again, the fact that the recall period was 1.5 years must absolutely be considered. This finding might reflect an issue with recall more so than the level of knowledge during the incident

Discussion, second page, lines 3 & 4: based on Figure 1, changes of information sources between the incident phases were not readily apparent. For the most part, it seems to reflect just minor changes

Discussion, second page, lines 15-17: given that the discussion (and conclusion) tends to weight the association between leaflet use and age rather heavily (i.e. that official water notices were “hardly used” by older participants), I recommend that these data be presented. Similarly, I think data to support the recommendation of evaluating information sources in vulnerable populations be presented (i.e. were vulnerable people in this study less likely to use the leaflets (other than age, I don’t think these associations were stated). Also, I am not sure that I agree that the water notices were of “low efficacy” – an average of 40% still seems considerable.

Discussion, second page, lines 22-23 (“Dissemination plans should be revised…”): a very good point. What recommendations might the authors have?

Conclusion: the conclusion states that family/friends functioned as a “main information channel”. The presented data do not appear to support this claim. In Figure 1, there are several information sources that were apparently used to a greater extent than familial sources (for example: leaflet through post, water
company and television were all used to a greater extent

Table 5: Title states Stages 2 and 3, but only results for Stage 2 are presented

Figure 2: it may be different in the printed version, but in my copy, the legends were difficult to read. Further, I think labels on the pie charts to indicate proportions would also help to clarify presentation of these results

Minor Essential Revisions

Title: I recommend that the title be made more informative by including the geographical location

Abstract: Method - line 17: I recommend that a statement be made to indicate whether Mythe treatment works is the sole supplier of water to the area under study

General: how are “Severn Trent Water” and “Mythe water works” related?

Background, first page - line 15/16: this sentence appears incomplete. Main issues associated with…?

Background, second page: Similar to abstract section, I recommend that a statement be made to indicate whether Mythe treatment works is the sole supplier of water to the area under study

Background, third page – lines 2-4: I would prefer a more explicit objectives statement (particularly seeing as multiple statistical associations were investigated)

Method – Study design and sample selection: how was the sample size of 1000 calculated/decided? What is the total population size of the affected region?

Method – Questionnaire design, page 2 – lines 3/4: for which data were the open-ended questions used?

Method – Scoring, line 20: what happened to data when re-coding into original categories was not possible?

Analyses – line 10: Correction required: “The data were” (not “Data was…”)

Results: related to Methods Section – Scoring: how common were these non-compliances with survey instructions? What are the potential implications?

Results – Participant backgrounds and experiences during the 2007 floods, lines 17 & 18: where numbers are stated, proportions should be included in brackets (e.g. “Forty-nine participants (X%) had previously…”)

Results – Participant backgrounds and experiences during the 2007 floods, lines 24 & 25: To when and under what circumstances does this sentence apply? Prior to flooding incident? Also, when referring to “untreated” tap water, do you mean
untreated at water works or untreated within the home? What do the remainder of participants prefer (124/151 = 82.1% plus 16.5% = 98.6%)

Results – Information sources, first page, line 25: “STW” not defined

Results – Advice Recollection, second page, line 13: where does “understandable” fit on the 5-point Likert scale described?

Results – Advice Recollection, second page, line 14: I suggest, “Whether consumers recalled being given tap water advice…”

Results – numerous locations throughout manuscript (e.g. Results – Advice Recollection, second page, line 15 & line 17): the authors have chosen to use the term “predicted” to describe the associations between an explanatory variable and outcome. I would argue that “predicted” be replaced with “was associated with” throughout the entire manuscript as the former implies a causal mechanism, which was not determined

Results – Advice Recollection, second page, line 22: seems to be unclear – can it be reworded to indicate the association (for e.g. If used local newspaper then advice was deemed to be more clear by participants?)

Discussion, first page, lines 1-2: I believe a reference is required for this sentence

Discussion, first page, line 12: remove the word “out” ("with or without out treatment")

Discussion, third page, line 16: “notice” should replace “noticed”

Discussion, third page, line 19: “Similarly, overall non-compliance was also higher: 62.9%.” higher compared to what?

Discussion, fifth page, line 14-15: what is “Gold Command”? 

Discussion, fifth page, lines 21-23 ("We did, however, find…"): suggest clarification - what were the results specifically? That the higher the number of information sources used, the less non-boiled water consumption?

Discussion, sixth page, lines 1-2 ("Initial results from our study"): please reference

Table 1: suggest that “United Kingdom” be added after “Gloucestershire”. Suggest that actual p-values be stated rather than “ns”. What is the definition of “Elementary” occupations? Also suggest that the footnote (or methods section) indicate how the adjustments described in the footnote were made.

Tables 3 & 4 – Titles, as well as Results – Information Sources, first page, lines 17 and 24: Here, “Stages” are used instead of “Do Not Drink” and “Boil Water” terminology that was used throughout the paper. I would suggest that one terminology be used throughout the manuscript for consistency (either the latter as it is more descriptive, or a combination of both)
Discretionary Revisions

Abstract, Line 9: I suggest, “During the summer of 2007” replace “Summer 2007”

Abstract: Conclusion – line 6: I recommend that the word “Current” be replaced as its meaning is unclear (e.g. “existing” vs. “up to date”)

Background, first page, line 4: suggest that “doubly” be replaced by “particularly” or similar, as importance not enumerated

Background, first page, line 7, and Discussion, third page, line 7: I suggest that “one-third” replace the fractions

Background, first page - line 8: I suggest the “report” be replaced by “reported”

Background, first page, lines 9/10: I suggest the following edit clarity: “Further, following terrorist attacks…”

Background, second page, lines 4/5: may require further explanation as readership may or may not be familiar Hurricane Rita

Background, second page, line 7: Suggest amount be stated (e.g. …the equivalent of two months of rain (X mm) fell over Gloucestershire…”

Background, second page – line 12: space required between “48” and “hours”

Method – Questionnaire design, page 1, line 23: suggest re-wording “incident stages”, as it is not entirely clear

Method – Scoring, page 2, line 2: minor, but “do not drink” and “boil water” should be capitalized for consistency with rest of paper

Results – Response rate and demographics, second page, line 4: suggest “… high in the higher social classes than in the lower classes”.

Results – Response rate and demographics – lines 20 & 21 (“Compliance surveys sent out…”): this sentence is technically a discussion, not a result, and should be moved to Discussion section

Results – Participant backgrounds and experiences during the 2007 floods, lines 16-22: not being from the 2007 floods, these lines don’t really fit within the section title. Also, when did these events occur?

Results – Information sources, first page, line 5: I suggest that number/proportion of respondents be stated for the sentence, “Those who did not find out about the planned shutdown…”

Results – Information sources, first page, line 22: “generally did not to seek” – the word “to” should be removed

Results – Information sources, second page, line 7: suggest replace “does” with
“did” (past-tense)

Results – Information sources, second page, line 9: space required between “Stage” and “2”

Results – Information sources, second page, line 10: suggest replace “Bonferroni” with “Bonferroni adjustment”

Results – Advice Recollection, second page, lines 12 & 13: where numbers are stated, proportions should be included in brackets (e.g. “Twenty-three consumers (X%) stated…”)

Results – Water access and preferences, line 3: suggest indicating proportion after “21 participants”

Results – Water access and preferences, line 15: generally “preferred” (past tense). Also, to when and what circumstances does this sentence apply? (i.e. during the event or preceding it?)

Results – Water access and preferences, line 24: referring to getting tap water from family/friends – I assume this would be from regions other than the affected area, but might want to clarify

Discussion, third page, lines 7-8: I suggest a minor revision: “If unsafe actions such as….preparing/cooking food are considered, non-compliance…”

Discussion, third page, lines 16-17: I suggest briefly stating where and when was this previous study was conducted

Discussion, fourth page, line 16: I suggest briefly stating where and when was this previous study was conducted (e.g. “… was lifted in Willocks and colleague’s study of 2000 hospital employees in the North Thames region, UK, in <year>.”)

Discussion, fifth page, line 6: BBC Gloucestershire “estimates” or “estimated”

Discussion, sixth page, line 5: suggest “1/5” be replaced by “20%”

Discussion, sixth page, line 7: suggest consumers “were” without main tap water…

References, Reference 20: I believe “ter” should be capitalized (?)

References, Reference 22: I believe “BMJ” should read “British Medical Journal”

References, Reference 24 & Reference 36: are these compliant with the journal’s reference formatting requirements?

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the
statistics.

Declaration of competing interests:

I declare that I have no competing interests.