Reviewer's report

Title: Q fever in the Netherlands: public perceptions and behavioral responses in three different epidemiological regions: a follow-up study

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Reviewer: Agnieszka Rychwalska

Reviewer’s report:

The paper has greatly improved from the last version – the authors conducted additional analyses that helped them explain the trends in the data. However, there is a serious statistical error in the new analysis.

Major Compulsory Revisions

1. The correlations between variables were assessed through Pearson’s r – this statistics can only be computed for variables measured on interval or ratio scales. Only one variable in the analysis (“Knowledge”) fulfills this requirement. The other cognitive variables that are measured on Likert scales may be included in Pearson’s correlation even though technically these are ordinal scales (it is accepted in literature in cases where the scale is at least 5 point and there is sufficient number of cases). However, the socio-economic variables absolutely cannot be included in such analysis, especially those measured on nominal scales – even though one may denote gender as 0 or 1 or ethnicity as 1 or 2 it does not make sense to correlate such a score with anything! Similarly, the ordinal variables here (education – low/intermediate/high, number of children – 1/more than 1 or contact with disease – yes/no) should not be included. To obtain a full correlation matrix the interval variables should be treated as categorical ones and appropriate statistics should be used (Spearman’s #, excluding the nominal variables). However, since the ordinal variables do not have many categories and there are some nominal ones, #2 tests would be even more appropriate to assess the relations between variables.

Minor Essential Revisions

2. The description of those correlations that are properly computed (Likert scales and knowledge) is misleading. Authors report many “highly correlated” variables while in the table there is only one strong correlation (intention and perceived self-efficacy) which is estimated at a stunning .79 and notably is not described in the text (!). The authors seem to confuse high statistical significance of correlations with the strength of the relation – majority of the correlations described are below .1 (less than 1% of variance explained) and should not even be reported. There are a couple medium strength correlations (over .3) and a few weak correlations (over .1) that are worth mentioning.

3. The model describing the ability to predict preventive behavior is a bit confusing. Such a model (with all the variables included in this analysis)
constructed from data from a single run of the survey would explain what are the general indicators of proper preventive behaviors (i.e. how can we find the people that are behaving as advised knowing only their gender, level of knowledge etc.). In this case – with the availability of data from the same respondents from several years – the model could explain what variables predict better behavior in the future – i.e. which variables should public policy target at any given moment to improve preventive behavior in the following years. In this case it does not make much sense to include gender or age as predictors in the model because they are not amenable to controlled changes… (i.e. it is hard to imagine that the policy would be to wait until one reaches the age of 50).

Discretionary Revisions

4. Looking closer at the correlations matrix (such as it is…) it is notable that the higher the education the higher the knowledge of the disease. However, what is really surprising is that there is a negative relation between education and every other cognitive variable. This is a finding that might be worth mentioning in the text.

5. Similarly, it is interesting that intention to take preventive measures is so strongly related to perceived self-efficacy and not so much to perceived susceptibility, severity or anxiety. This is very much in agreement with social marketing research on AIDS that shows that threatening messages without implied efficacy lead to negative attitudes such as reactance while those accompanied by high-efficacy encourage positive behavioral change (e.g. Witte & Allen, 2000).

6. In the discussion section I would advise the authors to be more careful when describing the relatively low levels of perceived susceptibility as “remarkable”, “underestimated”, etc. With the numbers that the authors have provided in this version it seems that even in the high incidence region, in the year of the biggest outbreak only 0.0007 (0.07%) of the region’s population were diagnosed with Q fever. At the same time, the survey shows (as the authors mention earlier in the text) that around 15% of the respondents in this region felt susceptible.


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

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests