Reviewer's report

Title: A Brief Educational Intervention Improves Disinfection Behaviour Change Strategies

Version: 3
Date: 16 April 2015
Reviewer: Alexandra Nicholson

Reviewer's report:

I enjoyed reading your article, which was nicely presented and clear to read. I have made a few suggestions and comments about the content. I am not overly familiar with psychological research and analysis, but more familiar with epidemiological and public health research hence some of my comments reflect this.

- Major Compulsory Revisions

1. I am confused by Table 1 and the following seemingly supporting text on lines 171-175. Does the text in these lines actually relate to information in Table 1? It appears that there is additional information in the form of data on completers and non-completers on action control (is this control or intervention group data or both?). This is also different information to that in the table. Also I am confused by the statement on line 171 that no differences at baseline were found concerning the randomisation, but yet baseline differences were found between the experimental and control groups (lines 179-181). How do differences concerning the randomisation at baseline and differences at baseline differ from each other? It may be that I don’t understand the tests you have applied to check randomisation.

- Minor Essential Revisions

1. Could you explain what is meant/defined as ‘disinfectant’ behaviour. I was unsure if you were talking about medicated soap and/or hand sanitizer or other combinations.

2. Line 29/30: N=242 does not tally with the n= 190 (exp) and n= 117 (control). Also this sentence read to me as if the control condition received an intervention as well as the experimental group.

3. I wonder if the conclusion, line 40 is too strong: i.e. ‘…which then produced change in behaviour’. This gave me the impression that the intervention was effective at changing behaviour in a meaningful way. However in your discussion when discussing the results you note that the intervention ‘…failed to result in visible changes in hand disinfection behaviours’.

5. Line 103 and 105: If I have understood correctly should these read ‘coping planning’ rather than ‘planning’?

6. Line 110: N = 242, this is also noted in the abstract but does not tally with the n= 190 (exp) and n= 117 (control) mentioned in the abstract.

7. Line 110/111: I think it is more appropriate to note ‘around half’ rather than ‘most’ students were from health related disciplines. I am also interested to know what other disciplines were represented.

8. Lines 113- 115: I understand that classroom allocation was decided by the school, rather than random allocation by the research team. I think this needs to be made clear in the paper.

9. Line 116: I wonder how you can be sure that participants remained blind to their allocation during the study. If you have data/information to suggest this, it could be included.

10. Measures: I wonder if in translation some subtleties have been lost; examples on lines 127/128, 131/132, and 134/135. See also point 4 under discretionary revisions.

11. Drop out analyses: I think it would be useful to note how many participants did not complete the questionnaires at the 6 week follow-up point for both the control and experimental groups, so it is clearer the overall N that is later analysed.

12. Line 180: “(in favour of the experimental group)

13. Figure 2 notes n=239, I’m assuming this is based on incomplete data for some comparisons hence it is not 242 as mentioned previously.

14. Discussion: I think you need to note a few other limitations to the study: that there was no formal randomisation which will have likely contributed to the baseline differences; and that there could have been potential contamination across classrooms.

- Discretionary Revisions

1. I think it would be relevant to reference your related paper in relation to the psychological mechanisms affecting hand hygiene behaviour: Evaluating brief motivational and self-regulatory hand hygiene interventions: a cross-over longitudinal design

2. I think it would be useful to have some relevant reference/s as examples to support the assertion on line 53/54.

3. Line 117: could you briefly make clear that participants were recruited over the course of 8 months. I was confused at first to why the experiment and data collection period was 8 months, yet data collection took place at baseline and 6 weeks.
4. I think a copy of the measures would be useful as supporting material.

5. I think a copy of the intervention or more detailed information on the intervention would be very useful as supporting material.

6. Lines 133 and 135: Cronbach’s alpha – I’m imagining that are these demonstrating that the internal consistency of the coping planning and action control scales were good at both time points (T1 and T2) as measured using the study data. I wondered if this information is better placed in the results section.

7. It may read better to have the Experimental and Control conditions section prior to the Measures section.

8. I find it easier to read and am more familiar with reading the tables and figures either immediately prior to the supporting or associated text or after this text. For example I found it confusing to read table 1 prior to the section ‘Experimental effects’ that described the information in this table.

9. Figure 1: It could be useful to have a graph for behaviour also showing the effect of time on behaviour.

10. Line 218- 220: I would have benefited from a brief description of what ‘total indirect effect’ means/how calculated as well as ‘indirect effect chain intervention…’ to enable interpretation. I accept I am not familiar with such analyses, but I still think this could be useful information.

11. Line 268-270: end of this sentence could benefit from a reference.

**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 I have no competing interests.