Author's response to reviews

**Title:** Designing effective visualizations of habits data to aid clinical decision making

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**Author's response to reviews:** see over
Dear Sir/Madam,

Manuscript title: ‘Designing effective visualizations of habits data to aid clinical decision making’

Please accept our revised submission to the BMC journal of medical Informatics & Decision Making. A point-by-point account follows at the next page.

Please do not hesitate to contact us if you require further information or documentation.

Yours faithfully,

Malcolm Clarke, Reader, Department of Computer Science, Brunel University
"Although the authors addressed many of the issues raised by the reviewers some issues still remain unsolved including a central point: The wording has changed from “good visualization techniques” to “effective visualization techniques”, and “optimum presentation” to “clearest presentation”, but as stated by reviewer 1 (and also implied by the statement of reviewer 2) the article needs to improve the presentation of evidence based on qualitative or quantitative data and the path of argumentation leading from user feedback/data to design decisions. Reviewer 1 asked for more details of the scoring process (and the revised version says that a 5-Point-Likert-Scale was used to rate the perceived effectiveness). Nonetheless, the article gives no operationalization of effectiveness (i.e. a measurable specification of effectiveness). Thus, it would be important for the reader to know the exact wording of the items/item used to rate effectiveness.

We want to thank the editor for the valuable comments and suggestions.

The first quote (i.e. effective visualization techniques) refers to a definition, that was found in text as referenced, and reworded slightly in our manuscript.

The second quote, (i.e. clearest presentation) relates to a detail for the initial presentation the authors chose before the first UCD cycle.

Separately from previous quotes, the reviewers’ comments indeed question providing evidence for the decision making as part of the UCD process. It is important to understand the UCD cycle is based on the subjective feedback of the participants, mainly the qualitative feedback. We have re-evaluated and improved this in the manuscript, and included this primarily in the introduction.

Additionally, the paper should link the lines in Tables 3&4 more clearly to the alternative visualizations given in the figures and mentioned in the text (preferably by using identifiers for the different variants in figures, text, and tables, respectively). In the result section the qualitative feedback could be reported in a more structured way and combined with the quantitative scores leading to an argumentation like “In order to visualize aspect X, the effectiveness of the alternative visualization X.1, X.2, X.3 ... was rated .r1, .r2, .r3, respectively. Qualitative feedback stated that ... (“<representative statement>”). Thus, variant X.y was preferred”.

To improve clarity, group identification numbers have indeed been added and subsequently referred to as suggested. The qualitative feedback was the main criteria in the UCD cycle, which has now been emphasized in the manuscript.

Reviewer 2 asked to add some background about “User Centered Design” in the introduction – which makes sense, because UCD is named as an important aspect of the methodology in the summary. The revised manuscript (8011227111279917_article) does not mention UCD in the introduction and I cannot find substantially enhanced text in the methods section.

We have now included description and explanation on UCD in the introduction.

The limitation session has not been moved to the discussion as proposed by reviewer, but more or less vanished by rewording the introduction.

After re-evaluating this, the point of limitation that was previously mentioned in the introduction is, as the reviewer had queried, actually a limitation of the inCASA study, and not our study. This should therefore not be included in our study as it would confuse the reader.
Indeed, the authors moved the two paragraphs (named by the reviewer as exemplifying the problem) from the discussion to the results section. Nonetheless, e.g. lines 361-363 still read like stating a result instead of referring back and appraising the findings."

We have moved this line to the result section, and summarise it in the discussion. We have checked each of the statements in the discussion and ensured these were first stated in the results section.