Reviewer’s report

Title: A visual interactive analytic tool for filtering and summarizing large health data sets coded with hierarchical terminologies (VIADS)

Version: 0 Date: 10 Dec 2018

Reviewer: Ronald Cornet

Reviewer’s report:

The authors describe the development of a tool to visualize patient information that is encoded with use of hierarchies.

This is relevant, as it can help to provide insight in the population at hand.

The authors clearly motivate why there is a need for such software and adequately describe the development process and the resulting software.

The VIADS tool is made available for public access as a web-based service which renders it useful for a broad audience.

These main areas need to be further elaborated:

1. Relation to treemapping. The examples shown in Figure 3 are not very convincing to me. It seems that all categories are presented equally large, with color indicating the size of the population. Treemapping provides a great way of presenting larger categories as larger squares. See for example the work on cushion treemaps described in https://www.win.tue.nl/~vanwijk/ctm.pdf. There are quite a few implementations of treemaps, among others for R, in javascript, for example https://cran.r-project.org/web/packages/treemap or https://bl.ocks.org/mbostock/972398. At least this manuscript should refer these and compare the approach of nesting rectangles to the pruned-tree representation used in this implementation.

2. User evaluation. In the discussion the authors acknowledge that they have not conducted a formal evaluation of VIADS. However, in light of the comment above, the manuscript should reflect on the impact of different ways of representation on the user experience. This can either be via references to literature, or using a (preliminary) comparative user evaluation.

3. Security. It would be good to address whether there is any use of the data by the service providers. As this can be used to present patient data, it is important that privacy is safeguarded and the data are not reused in any way by the service providers, or if they are reused, in what way. Do notice that whereas a https-url is provided, the http-url also works. This leads to a potential security breach. Make sure any unsecure (http) request is forwarded to https.
4. Polyhierarchies. The manuscript mentions SNOMED CT. However, SNOMED CT is a polyhierarchy. The authors don't reflect on the way (if any) to represent this in a mono-hierarchic tree. The manuscript needs to acknowledge polyhierarchies and describe whether or not these can be presented.

Textual suggestions:

P1 L46: Change publically to publicly

P2 L16: SNOMED CT is no longer an acronym. Remove "Systematized Nomenclature of Medicine - Clinical Terms", also from the "Abbreviations" section. Further, it does not have a hyphen. Check manuscript and replace "SNOMED-CT" with "SNOMED CT"

P7 L44: Filtrong should be Filtering

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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