Comment on nhess-2020-402

Anonymous Referee #1

Referee comment on "A simulation-optimization framework for post-disaster allocation of mental health resources" by Stephen Cunningham et al., Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2020-402-RC1, 2021

The authors present a new framework considering the issues of mental health related to disasters by natural hazards. This simulation approach aims to help decision makers to allocate mental health resources according to their priorities of mental health severity or economic loss. The manuscript has a clear structure and provides a literature review on the topic as background for the framework. In the section 'methods' the three-phased approach is presented and explained in detail. The application of the framework is presented in section 4 followed by a discussion, the limitations of the approach and a brief conclusion.

The study addressed a topic in the context of risk management, which is known but has less attention in the planning of a post-disaster recovery process. Thus, I think this is an important topic and framework for NHESS community. The study is innovative in combining different approaches for developing a coupled-state transition and linear optimization model for the allocation of the mental health resources.

However, several input parameter of the model are based on studies in the beginning of the century and I miss the consideration of current research of possible contributing parameters or differences between groups. Furthermore, more detailed and scientific based information on the SVI is needed. I recommend extending the literature research in this context and adapting or including accordingly these parameters in the framework.

More specific comments:

Line 35 onwards: Do you have any information for comparison - years before the event or the situation one year later?

Section 2.1: I recommend including further recent reviews and meta-analysis studies in this context to provide a wider overview and more details in your study. E.g.: to name only a few important article:

https://www.sciencedirect.com/science/article/abs/pii/S0887618513000583

https://www.cambridge.org/core/journals/the-british-journal-of-psychiatry/article/psychological-distress-and-psychiatric-disorder-after-natural-disasters-systematic-review-and-

metaanalysis/D84B03CEC50473E56938D2C09CD7464E

https://www.proquest.com/openview/fb9b872a410b4ef72fc968fc3aa197ef/1?pq-origsite=gscholar&cbl=31252

https://www.sciencedirect.com/science/article/abs/pii/S0003999315001409

Section 2.2.: please provide also scientific literature in this context. What is the difference to SoVI developed from Susan Cutter and her team and widely used in the U.S.? Why you did not apply this scientifically proofed approach? see: http://artsandsciences.sc.edu/geog/hvri/publications

Section 2.3.: Please provide a short input about other possible models in this context.

Section 2.4.: Please check if you can find more recent estimations for this part or provide a methods to adapt this to the current situation (indexation of the costs, ...)

Line 498: please provide citations. Do which studies to you refer to?