Author's response to reviews

Title: Exchanging and using research evidence in health policy networks: a statistical network analysis

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Version: 2 Date: 15 July 2014

Author's response to reviews: see over
Responses to reviewers

Reviewer's report
Title: Exchanging and using research evidence in health policy networks: a statistical network analysis
Version: 1 Date: 21 May 2014
Reviewer: Thomas Valente

Reviewer's report:
This is a great field of study that applies network analysis to an important policy implementation issue: namely the role networks play in getting evidence into policy discussions. A few comments to improve the MS.

First, I think you should create a sort of consort diagram showing the recruitment chains for the snowball samples and how they evolve by topic.

A consort diagram has been added as Web Appendix 1.

Second, the organization of the paper into “Step 1” “Step 2” etc. is distracting. It is not typical of a journal article and it doesn’t adequately portray your research project. I would reorganize into a traditional format.

The manuscript has been reorganized into a traditional format.

Third, on page 11 authors write “…. toggled from 0 to 1.” It is my understanding that all ties are toggled those absent to present and those present to absent.

That sentence was rewritten as: “when the value of $Y_{ij}$ changes from 0 to 1.”

Fourth, the description of “use of research evidence” is rather clunky. It seems the authors conducted in-depth interviews with the participants about their use of research evidence. Initially the authors thought they could construct a 5-point scale but instead determined, based on their experiences(?), that it made the most sense to categorize as dichotomous, they either used evidence or did not.

We clarified how the research use data were collected during interviews and analysed.

We changed the text in the analysis section: “While we had hoped to explain the ordinal outcome of ‘evidence use’ in regression models, those models did not converged and each actor’s score was collapsed into a binary dependent variable where the fourth category (“I cited the research evidence in my own professional reports, documents or conversations”) and fifth (“I made efforts to use the research evidence in decisions related to this policy issue”) were coded as ‘use’ and the third category “I participated in meetings for discussion and dissemination of the research evidence” and those below it were coded as ‘non-use.’”

Fifth, the authors are not always clear on the relationship between
The general model is that homophily and closure accelerate diffusion at the dyadic and even sub-group level but at the macro-level they create barriers to diffusion because the structure they impose or imprint on the network. This comes out in the discussion in which the authors write that closure is associated with the limited diffusion of ideas. It depends on the level of analyses.

The language was tweaked in the hypothesis section, and also in the discussion.

Minor edits:
Page 4: Yet, few of these studies are able to accurately explain why some relationships form and other do not … others

Thank you.

Page 8: “when evidence is provided without a request, might indicate the dissemination of research evidence for symbolic or political uses [39], perhaps … in this study’s context of lower capacity and demand for research evidence, and higher symbolic and political uses.”
I’m not sure this paragraph makes sense

The paragraph was rewritten as:

A lack of layering could many things. A tendency for dyads to have provision ties without request ties might indicate that evidence is being disseminated for advocacy purposes, and at the most extreme might signal the symbolic or political use of evidence in that network [1]. On the other hand, a tendency for dyads to form request ties without provision ties might suggest that no evidence is available to fulfill the request, or that actors are refusing or ignoring requests, suggesting either a poor climate for evidence or a lack of manners. We do not expect much layering to occur in these networks. Instead, we anticipate that research is provided by a small group of development partners and researchers, often in the absence of requests.

Page 10: “Ties were coded as 1 if at least one of the actor-pair reported that a tie existed.”
I don’t understand how you can measure entrainment if you dichotomized the networks

We are measuring the co-existence of two network ties (provision and request), measured through two different networks. In this way it is like a multiplex network.

Page 12: “AE models included covariates …”
AE include …

Done.
Page 12: “… outdegree,” a term not otherwise included in the …”
I think this may need to re-phrased as outdegree is included in the model as density (or edges)
Done.

Page 14: “All models converged, avoiding degeneracy problems typical of ERGMs [43].”
If ERGMs typically have degeneracy problems, we couldn’t use them. Suggest revise:
All models converged.
Done.

Page 16: “The statistical significant …”
Significance
Done.

Page 16: “… suggests a dose-response effect; or, an actor …”
Change “or” to in other words
Done.

Page 16: “… predictive of research use than their other attributes …”
Drop “other”
Done.

Page 17 and page 19: ” Taken together, these findings support taking a network lens when designing knowledge translation or evidence-informed policymaking interventions and focusing on strategies than increase an actors’ capacity to provide and request evidence.”
See Valente (2012) Network Interventions
Thank you, that reference was added.
hard to come to replicable policy advice.

The investigation of the formation and the use of network relationships is robust, but no external mediating (out-of-network) factors, such as the actual content at stake or the ‘necessity’ to produce policy, that may induce or limit the uptake of the research are discussed. This is a pity, because it might have added to the conclusions of the study and because the specific context seems to matter quite a bit - as the case of child health seems to illustrate; and the strengths and limitation and conclusive sections states.

To the paragraph about case selection in the methods section (p. 9), we added:
High quality and locally relevant research evidence was available to inform each of these policy cases and each decision involved some amount of uncertainty that could have been addressed using research evidence, typical of many health policy decisions made by ministries of health in Sub-Saharan Africa.

The following was added to the limitations section (p.18):
The finding linking frequency of exchanges with likelihood of use is likely generalizable across policy issues and jurisdictions. However, understanding how evidence is being used (and therefore why it is being exchanged) will require knowledge of specific issues and context. Linked studies exploring the contextual factors surrounding evidence use in these cases add clarity to the motivations for evidence exchange and use; for example that dense exchange networks for child health were associated with symbolic use, that there was little motivation for evidence use in the malaria case, and that evidence was used instrumentally to change policy in the HIV case. Future examples of policy networks will enable the refinement of theories related to network-based markers of evidence use and exchange.

I also have not come across the description of the actual policy cases and research studied (p. 9). Thus the conclusion, that the findings support a network lense (i.e. individual connectedness) seems only to be confirmed within the fluid limits of the specific network boundaries at stake (p. 17).

- To the editors of IS: I am in the process of publishing the linked studies, which are currently available as part of my dissertation chapters online. Would it be acceptable to reference those chapters?

Possible limitations of the assumed generalization to other countries and policy arena's could have been discussed in more detail as well. The strengths and limitations section is (far) to meagre from my perspective.
- See addition to limitations section, above.

The policy implications may not be that easy in practice. For example mapping the network is (much) more difficult than mapping the formal organizational structure (p. 19).
- The reviewer raises a good point. This section now includes:
While well-designed sociometric surveys remain the gold standard for network mapping, we acknowledge that sampling or ego-based approaches may still add-value above and beyond the status quo. Many local stakeholders have excellent intuition about their networks that can be harnessed to this end.

Minor comments
1. Not only in developing countries may policy decisions be made by a range of actors (ref 27-29). (p. 6) 
   - We changed “particularly” to “including” to be more inclusive.

2. I am not convinced why the use of research is weak due to these 'barriers'. Maybe, it can be the case that as a result of lack of competition, the effect of the sparsely available research is in fact quite large (p. 6). It is for example interesting what the researchers do held from the fact that there seem to be very few full-time researchers among the interview sample (p. 10 and table 1).
   - We added a statement in this section: “the overall number of researchers, and thus research capacity, tends to be fewer in LMICs than in HICs.”

3. Please elaborate why closed networks are dominated by international actors (p. 7).
   - We removed this sentence for other reasons, so it is no longer an issue.

4. Why is high density of research provision consistent with complex knowledge (p. 17 - 18)?
   - This point was clarified: “consistent with other studies that find the transfer of complex or tacit knowledge is aided by closed, cohesive networks that enable repeated exposure necessary for the synthesis and interpretation of complex ideas.”

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Acceptable
Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.
Declaration of competing interests: none of these