Reviewer’s report

Title: Optimisation: defining and exploring a concept to enhance the impact of public health initiatives

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Reviewer: Adam Kamenetzky

Reviewer's report:

Overall, I enjoyed reading and gained a great deal of relatable knowledge from this thoughtful and well-written manuscript, and would like to thank the authors for their contribution. I’ve few corrective comments, as I think the vast majority of the paper is clear and succinct, so have focussed on suggestions that might help to improve the practical application of the study's findings. I hope these provide a helpful steer and would be happy to see a further version of the manuscript, if resubmitted.

Background

The study addresses a key issue that public health interventions - especially those evaluated in 'real-world' settings - have variable (and sometimes limited) effects. The authors highlight in particular the challenge of 'adaptation' of existing interventions, in light of meta-analyses that indicate this is an important factor to a programme being effectively transported to 'fit' local contexts. While 'optimisation' is well established as a formal means of adaptation in engineering and IT, and implicit in quality improvement practices in medical health care, the authors point out that such terminology is not well understood in public health interventions. Thus both the research topic and question, and the approach the authors take, seem well justified.

#1: Optimisation inherently feels like something that ought to be done, as part of a wider challenge to improve the quality and value of healthcare interventions. I thus applaud the authors' motivations for exploring this topic in the specific context of public health interventions - and feel that they provide a solid underpinning for the study. I just wonder if it might add weight to the background section, and make the case for optimisation to practitioners/policymakers for whom this research may be relevant, if they explicitly draw in evidence of the scale of the issue in public health (i.e. framing the need for optimisation)? Perhaps by expanding slightly on some of the references cited in the background section, particularly if any of these speak to issues such as effective spending of public resources / research waste / the 'know-do' gap, or similar?

#2: I wonder if there would also be illustrative value in summarising examples of the effects/impacts maximised by the interventions the authors refer to (p8 line18) as a result of optimisation in public health? This could act to strengthen further the case for optimisation, as well as link to points made later on the links between optimisation and the need to consider it inclusively of more robust evaluation of programme outcomes/impacts (p15 lines11-33).

Methods

The authors chose a 3-round Delphi process (two email rounds either side of a face-to-face workshop) as a means to build consensus on a definition of public health optimisation, among a group representing both public health research experts, and practitioners.
They sought to elicit participants' understanding what optimisation meant to them in the context of public health promotion, in advance of the first workshop. In parallel they undertook a literature search, and publish search terms (additional file 1). These appear comprehensive and grounded in relevant methods, and provide helpful and systematic search criteria for future reviews on this topic and/or applications to other areas of healthcare.

#3: could authors make clearer that the purpose of the literature review (and creating the conceptual maps) was to elicit the different criteria (/categories of criteria) that could/should/ought to be included in any definition of optimisation? They state 'Johnanna Briggs Institute method to identify frameworks relevant to the concept of optimisation' (p11 lines11-13) but not being familiar with this method, I feel the overarching aim is somewhat lost.

I found the conceptual maps (additional files 2 and 3) a helpful way of organising the themes from the literature search and participants' responses to the first round Delphi.

#4: the third combined conceptual map (additional file 4) is also useful - but colour scheme seems a bit random? Is there a way of using colours/shades a little more consistently (e.g. first/second/third order, or to differentiate between thematic branches)?

The authors provide a thorough description of the workshops, which seem well resourced and facilitated. They describe how they elicited thoughtful considerations of both a working definition of optimisation, and aspects such as scope and interpretation of such a definition, in a participatory fashion. It is notable that the team had experience of qualitative research methods (including input of a researcher with postdoctoral experience in qualitative research) and that their approach ensured sensitivity to divergent views, and enhanced the rigour of the qualitative analysis.

Results

Overall I found these clear, well written and consistent with the aims of the study (to define optimisation in the context of public health, and set out key considerations in optimisation for public health).

[Subsection: Themes 1, 2, 3 etc. (from p14, line53 onwards)]

#5: Though this is a personal preference, I wonder if the authors might improve the accessibility of key points of this section of the results, by making all subheadings a sentence? E.g. for Theme 1 ('Pre-conditions for optimisation') (i) Good quality outcome data and the resources to analyse/evaluate program outcomes are necessary for optimisation, (ii) Optimisation should be undertaken where there is good evidence of unrealised benefits and/or lack of implementation, (iii) Organisational support and leadership for activities such as end-user engagement is fundamental to optimisation (or similar)

Theme 1

['Pre-conditions for optimisation']

(i) (p15 line13 onwards)
The authors present insightful and important points linking a requirement for good quality impact assessment and/or outcome data as a pre-condition for optimisation.

#6: I felt that this point deserves greater emphasis (e.g. stronger conclusion/recommendation?), perhaps by stating the reverse case - how can we expect to optimise interventions without efforts to obtain, analyse, make accessible etc. data on programme outcomes/impacts? Then places emphasis - and by inference a need for support/resource/capability-building - on actors working in the system (practitioners, researchers, but also research/governance organisations and funders?) to support activities that go beyond local data capture / local impact assessment, and instead look to make best (and methodical) use of what the authors describe as existing and/or inexpensive data sources 'particularly suited' to wider optimisation processes (p15 lines38-47).

(ii) (p15 line51 onwards)
On the theme of setting targets for optimisation with due consideration of whether any 'meaningful improvement' can be realised (p16 lines12-17), this feels eminently sensible. That said, I felt that there was a degree of implicit/tacit knowledge from those involved in the study on what would/could meet this threshold.

#7: Similarly to #2, I wonder if providing some examples would help to illustrate what a 'sufficiently important' public health issue would be, and thus the benefits of optimising?

(iii) (p16 line22 onwards)
On the theme of support and resources for optimisation, this feels like very important, if not a limiting, factor.

#8: again I wonder if citing/describing some examples of good/emerging practice might help to encourage positive behaviours in this regard?

['Parameters considered following a decision to optimise']

(i) (p16 line56 onwards)
The authors' finding that impact 'is more likely to be maximised if optimisation occurs throughout the public health translation continuum' strikes me as having wider relevance than just public health research. It reminds me of wider discussions on impact (my own experience being principally in and around research funding organisations) and, in a resource-constrained system, the tension between supporting activities that increase the likelihood of impact, versus those that seek to evaluate impact - with well-planned methodical evaluations forming a virtuous feedback loop between these two aspects.

#9: Without straying too far beyond the immediate thematic focus of this study, I wonder if the authors might widen applicability of their findings by referencing some of the research (on research) literature that explores factors associated with wider impacts? For instance:


(ii) (page18 line7 onwards)
The authors reinforce the importance of including end-user perspectives and priorities in the
optimisation process - and provide a good example of a case that sought to optimise care for patients with hip fractures (specifically system-level costs and reductions in infection), but had not considered individuals' quality of life.

#10: I'd like to see more of these 'micro-level outcomes expectancies' if/where they are available, to help illustrate points where macro/abstracted view might risk being a little hard to relate to?

Theme 2
Helpful that the authors reinforce the value of programme logic models as means to underpin evaluation: again, I felt this has broader relevance to the opportunities/challenges of research impact assessment as a whole. Also the value of non-quantitative evaluation 'analogue' methods as appropriate for determining factors influencing impacts.

Theme 3
The authors' final point on identifying considerations relevant to when 'the point of optimisation' is reached is useful, particularly if considering resource constraints.

Conclusions
I generally felt that while the conclusions as stated were entirely appropriate, the authors might be able to strengthen their findings further by a) highlighting the benefits that optimisation, done well, can bring about, and b) reflecting on aspects that relate optimisation to wider opportunities/challenges around research impact and its evaluation (as noted in previous comments)?

[re. 'Contributions to the literature' (p6 lines 9-27)]
#11: Can the 2nd and 3rd bullets in this section then be updated more around a theme of 'recommendations for optimisation', rather than their current somewhat more abstracted 'we note [but do not state explicitly here the] seminal issues' / 'we recommend further research be undertaken' (which you'll forgive me paraphrasing - somewhat flippantly - for effect!)

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