Reviewer's report

Title: Group interventions to improve health outcomes: a framework for their design and delivery

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Reviewer: Penelope H Hawe

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This is a well written, timely paper addressing a significant gap- the ‘black box’ of what constitutes a group-level intervention. The authors propose a framework of considerations to help investigators design and deliver interventions, presumably all of which would then be assessed as part of the process evaluation.

I believe they are right in their observation that too much individual-level theory has predominated what in fact should be theorised as something quite different (a group). At least, that is what one would conclude from reading within the public health and health science literature.

All my recommendations are discretionary. I believe addressing them would strengthen the paper.

Minor points that need addressing are as follows. The Background of the abstract is not really “background”. It is written as an introduction. The authors need to explain earlier in the paper what the ‘weak evidence base’ actually is that they keep referring to (the nature of the gap they are addressing). We hear about this only properly on page 6. Up until then the reader remains unconvinced.

Major points that need addressing pertain to the theoretical base they offer as part of their framework.

A major omission is the work of Rudolph H. Moos and his 30 year legacy in assessing the social properties of environments (e.g., group, wards, classrooms, correctional institutions, families, work settings etc). Moos’ work would likely help the authors put DIMENSIONS around the long list of dot points in Box 3, for example. The dimensions represent features of a social environment, as well as there be a corresponding set of measures (ie, group environment scale, ward environment scale, classroom environment scale etc) that are extensively used in the fields of social and community psychology already.

The other theoretical area of interest that is missed is that of activity settings in community psychology. While not as well developed measurement-wise as the social environment scales, activity settings analysis, again, would put an organised set of features around Box 1 and prompt the authors to think of the others they have missed and might consider including.

Also the commentary around social network theory is weak. The authors have
operationalised just one aspect of social networks (social support, which is one function of a social network) but neglected to consider all the other structural aspects of social networks that might be worth harnessing in a comprehensive framework for designing group-level interventions. This is important, as there is a strong literature using social network theory to explain the uneven distribution of resources across societies (and resultant health inequities). So they could either stick to the smaller, more circumscribed concept of social support (and re-label box 2) or keep the phrase “social network theory” and address it more comprehensively.

Finally, although the definition of interventions in group settings on page 4 is very broad, and would include for example, interventions in schools, neighbourhoods or worksites, the search strategy on page 5 was much narrower and contained the authors to literature where the word “group” was used. I wonder therefore whether it may not be best to make the definition match what they in fact operationalised. What they did was useful, but as it falls short of the broad definition at the outset, it may be wise to draw in and maintain coherence around a tighter and more bounded phenomenon ie, change processes within an observable health improvement group, as opposed to change processes in an organisation or community, which might be more complicated and worthy of a different or additional set of considerations.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests