Reviewer's report

Title: Development of a Nursing Intervention to Facilitate Optimal Antiretroviral Treatment Taking among People living with HIV

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Reviewer: Jill Francis

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This manuscript describes systematic processes for developing an intervention to facilitate optimal antiretroviral treatment taking among people living with HIV in Montreal. The intervention development processes are based on Intervention Mapping and include identifying a theoretical and evidence base to support the selection of methods and strategies for change. The acceptability of the intervention is then tested by asking healthcare professionals to comment on and rate the information and documentation and by pre-testing the intervention on four people with HIV. Evaluation plans are outlined.

This is a good example of systematic, theory-based intervention design process. The authors report that a trial to evaluate the intervention is already underway and this is welcome. I think this manuscript is publishable but first requires editing and clarification. Importantly, it also should report data from the feasibility/acceptability studies with healthcare professionals and people living with HIV. These data would be needed in order to justify the progression to full trial.

Discretionary Revisions

1. Page 3: “overall needs” – I am unclear what this term means. Whose needs? Is need the issue or are there other types of factors that could be addressed?

2. At the top of Page 5, the sentence commencing, “the needs assessment ends with…” would benefit from a reminder to the reader of the basis of this work in intervention mapping (ref 16, 17).

Minor essential revisions

1. Introduction: I agree that ARV treatments probably bring hope to people living with HIV-AIDS, but the first three publications cited did not measure hope and so, for a scientific publication, it is probably preferable to report only what was measured in these studies.

2. Page 3: “asses” should be “assess”.

3. Mapping of the list of intervention mapping steps on to the structure of the paper: To be consistent the literature review (Page 4) should precede the “analysis of target population” (Page 3). Presenting the literature review first would strengthen the analysis section. For example, before referring to the lack
of interventions to make taking antiretroviral treatments “easier” it would be helpful to have evidence that this factor is a predictor of the treatment taking behaviour.

4. Page 4: The refusal of one (out of two) clinic to participate requires further comment. Can the authors provide any evidence that the clients of these two major centres do not differ significantly on measurable factors? This would have important implications for the potential generalisability of the intervention developed. Why was Montreal the only location selected? Are there other centre in the Province that could have provided variation in key variables and thus results in a more generalisable intervention? In addition, this point is introduced too early as it relates only to Step 5. Hence, it is a distraction at this point.

5. Page 4: “High perception of self-efficacy” – Self-efficacy is, by definition, a perception, so “perception of” is not needed in this phrase.

6. Page 4: Is there a difference between “attitudes” and “personal attitudes”? I think all attitudes are “personal”.

7. Page 5: The desired behavioural outcome are specified as “enhance self-efficacy and positive attitudes to facilitate optimal antiretroviral treatment taking ...”. I think that self-efficacy and attitudes are cognitive outcomes, not behavioural outcomes. It would be preferable to specify the behavioural outcome (i.e., optimal antiretroviral treatment taking) and reiterate that the proposed mediators of this change (self-efficacy and attitude) would be the proximal targets of the intervention.

8. On Page 5, although I see the distinction between “behavioural outcomes” and “performance objectives”, I do not understand the shift from “behavioural” to “performance” here. Presumably these are “behavioural objectives”?

9. Table 1 and related text: This is rather confusing in its present state. First, it would be helpful if the POs in Column 1 matched the POs as described in the text. Second, I do not understand the sentence, “Change objectives were formulated by correlating the performance objectives with the predictors...”. The performance objectives and predictors were not measured as continuous variables and no correlations are reported. Do the authors mean to say that “Change objectives were formulated by examining the performance objectives in the light of the predictors”?

10. At this point, are “change objectives” the same as “intervention objectives”? If so, consistent language should be used.

11. Page 5: I don’t fully understand the phrase “useful theory-based learning and behavioural-change strategies”. What is meant by ‘useful’? Do the strategies have to be evidence-based? What is the relationship between ‘learning strategies’ and ‘behavioural-change strategies’? I’m guessing that the former change knowledge and the latter change behaviour but I am not clear that both of these will be measured.
12. I am not clear about what is an ‘intermediate theory’. I am guessing this refers to theories that might account for the identified predictors and propose mechanisms by which they influence behaviour.

13. Page 6: The authors twice state that Bandura “believes” a certain principle. Strictly, it is better to say that he “argues”, “proposes” or “theorises”, as these can be directly inferred from the publications and do not infer a current internal state. Similarly, I would recommend replacing “in Bandura’s opinion” with “According to Self-efficacy theory, …” and re-word the phrases, “He considers that ..” and similar phrases on Page 7: “Bandura sees”; “He considers”; “the author thinks” etc. (Also, “consider” on Page 7.)


15. Page 6: Re-wording is also advisable at “the most influential form of learning about self-efficacy”, as the point is not that individuals learn about self-efficacy. Rather, mastery experiences increase individuals’ self-efficacy.

16. On Page 7, why does the term “self-efficacy” change to “personal efficacy”? Consistent wording would be preferable.

17. Page 8: “resistance to change” should be “resistant to change”.

18. Page 9: I am not clear about what is a “theoretical method”. Perhaps “theory-based method” is better.

19. Page 9: The “philosophy of empowerment”. I do not think one needs both a theory and a philosophy in this situation. The construct, self-efficacy is absolutely about the individual’s control over his/her own situation and behaviour and increments in self-efficacy are presumably the same as “empowerment”. The presentation of a theory-based approach to intervention development is, I think, undermined by a sudden recourse to a philosophy. I have no quarrel with philosophies or value systems but the theory already described appears sufficient for this argument.

20. Page 14: in what sense is the intervention “adapted”? What has it been adapted from? I think perhaps the authors mean “designed”.

21. Page 14: [Health professionals] “believe” [the intervention to be important]: As for an earlier point about inferring “belief” above, it would be better to say that they report that the intervention is acceptable etc.

22. Page 15: I do not understand that phrase “almost entirely based on the component of information they provide”.

23. Page 16: That prior evidence shows benefit of intervening with individuals rather than groups is surely important and should have featured earlier, as the basis for some of the decisions about how to deliver the intervention (page 9)?

24. Page 16: The idea of the Rueda’s “three criteria of efficacy” is introduced
here but needs explanation.

Major compulsory revisions

1. Rationale: That no previous interventions have been “based on a theoretical framework that provides a comprehensive understanding of the behaviour …” is a strong rationale for the study. The fact that no intervention has been developed for Quebec is less persuasive. The other persuasive factor, to me, would be if the authors argued that that the five interventions that have been demonstrated to have a clinical effect are inadequate or could be optimised.

2. On page 5, five “performance objectives were formulated”. What were the methods used to formulate these objectives? Are they replicable and robust?

3. Figure 1: This is an effective figure but requires re-formatting. It would be a lot easier to understand if the outcome variable (treatment taking) is presented on the right hand side of the page, with predictors on the left, and intervention strategies and mediators in between predictors and outcomes. The use of “coping” in this figure could be updated: I think the authors are referring to what is now commonly referred to as “coping plans”.

4. Page 9: intervention description. I am assuming that the authors are presenting a scientific method for designing and intervention but I am not clear about the methods by which the authors move from the “methods” and “strategies”, or behaviour change techniques, listed in table 2 to the description of how these will be delivered (four 45- to 60-minute sessions with nurse, etc).

5. Page 9: intervention description. I would like to see much more specific descriptions of what is actually said in each session (for example, presented in a Box). Alternatively, are the authors intending to upload the intervention manual or protocol that might include this kind of information?

6. Page 14: Importance ratings by health professionals and by HIV-positive individuals: these data, and quotations from their comments, should be reported in a Results section.

7. Page 15: The evaluation is an important step. I assume that this paper is reporting the evaluation plans rather than the evaluation itself. These plans should include an indication of how the key variables will be assessed. What will be the measure of “taking treatment in an optimal manner”? How will the proposed mediators be measured? Will participants be randomised and how will contamination effects between intervention and control groups be avoided?

Thank you for asking me to review this paper. I look forward to reading the revision in due course.

**Level of interest**: An article whose findings are important to those with closely related research interests
Quality of written English: Needs some language corrections before being published

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.