Reviewer's report

Title: A 5As Communication Intervention to Promote Physical Activity in Underserved Populations

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Reviewer: Elaine Hargreaves

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General Comments
This work represents a very interesting theoretically based intervention designed to improve the communication and consulting skills of primary care professionals to encourage physical activity related behavior change. The aims and hypotheses are clearly stated and the methodology developed to examine those aims is appropriate and, in the main, described in sufficient detail. Improvements to the manuscript could be made by considering my comments below.

Minor Essential Revisions
1. Introduction/Conceptual Framework: Within the introduction the authors suggested that the 5A guidelines “may” promote physical activity and that patient centered communication “may” promote behavior change. I felt that a discussion of the theoretical basis for why these techniques could promote physical activity behavior change would have been of benefit here. The theoretical rationale for the study is not discussed until the methods section. This means that terms, e.g., autonomy support, perceived competence are stated in the research aims before they have been introduced. I suggest that the conceptual framework for the study is incorporated into the introduction rather than the methods.

2. The purpose and the aims of the research would be better placed in the introduction compared with the methods. I would also suggest removing the references to the scales that will be used to measure the variables stated in the hypotheses. These scales are not introduced until later in the methods and the information is repeated later in the statistical analysis section (p.18) anyway.

3. Study design: The authors mention that when the intervention is fully implemented it included a referral to a community exercise program. Since the intervention has not yet been described, I was not clear on why the intervention could only be delivered in part and not fully? Similarly, the measures to be used have not been described yet but are referred to here, e.g., electronic health records tools. I suggest that this section should focus more concisely on simply the design of the study rather than introduce components of the intervention and how the outcomes are to be measured. The evaluation and measures are covered again in section 2.14.

4. Procedure for randomization: For readers outside of North America, it would be good if the authors explained briefly what the main roles of a nurse practitioner and physician assistant are in relation to behavior change
1. Patient participant recruitment: As I understand it, the baseline data collection aimed to assess clinicians’ use of the 5A’s and PPC in relation to physical activity counseling prior to the intervention. In H1, the authors have proposed that clinicians will increase their use of the 5A’s for all visits in which the topic of physical activity is raised. When patient participants were recruited did that mean that physical activity behaviour change was deliberately discussed by the clinicians? Or do patients continue to be recruited until there is enough baseline data on those visits that did include a discussion of activity?

2. Secondary analyses (p.18): Since the clinician feasibility data is to be analyzed qualitatively and not by the modeling approach, this should be discussed elsewhere. Indeed it is discussed again on p.20 under process evaluation however, the process of how this data will be analyzed has not been described, only a description of the data collected is provided. How this feasibility data will be analyzed should be explained.

5. Page 19: Should this be Figure 4 rather than Figure 2?

6. Discussion: It is not entirely clear to me why the developments that occurred during the project period that influenced its implementation are being discussed here. If the project was altered as a result of these developments why are they simply not discussed within the methods as the procedures adopted for the study?

7. Writing: Throughout the manuscript the authors switch from past to present to future tense. The writing style should be made consistent throughout the manuscript. In places the abbreviation for a measurement scale is used prior to the full name of the scale being given, e.g., PAEI (p.17).

Discretionary Revisions

1. Study design: The authors may want to explain more fully why the perception of the clinicians regarding whether the intervention addressed pertinent barriers was more important than the perceptions of the patients themselves.

2. Study setting: Are the number of clinicians referred to the total numbers from both health centers together or each health center?

3. The authors have measured autonomy support and perceived competence from SDT but not relatedness, yet they state on p.12 that their intervention was designed to enhance relatedness between clinicians and their patients. The authors may want to mention why they chose not to measure relatedness as an outcome measure.

Level of interest: An article of outstanding merit and interest 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