**Author's response to reviews**

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

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**Author's response to reviews:** see over
Dear Reviewers and Editorial Staff:

Thank you for the opportunity to revise and resubmit our manuscript “Study Protocol: A 5As Communication Intervention to Promote Physical Activity in Underserved Populations.”

The comments we received were extremely helpful in guiding our revisions. Each critique is copied and pasted below along with a description of our responses and actions taken to address each item. As requested from the Editorial Office, all revisions and new text are highlighted in the manuscript.

Reviewer 1:

1. The main concern is that it is not clear from the title that this is a protocol paper. This must be corrected. Once the authors settle with the idea that they are writing a protocol paper then they must go through the manuscript and exclude everything that they have found so far such as the number of doctors recruited and number of visits etc. The tense then also must be corrected – this will be a plan of action and therefore in the future tense. We apologize for not being clearer. We have corrected the verb tense to clarify that this is a description of a protocol of an intervention. To decide on verb tense, we inquired with the BMC Editorial Staff and examined other published papers in BMC Health Services Research. As per the Editorial Office’s suggestion, we use the present tense up until section 2.15 (Data management, p. 15), and then future tense thereafter, for accuracy and consistency with the way other protocol papers have been written for this journal.

2. The discussion section which tells us of amendments should be deleted and those amendments become part of the protocol. The discussion should instead include how this approach will take the literature forward. We have modified the discussion accordingly. On further review of this section, the material presented in the amendments was redundant and had already been woven in to the protocol, thus we deleted this portion completely. The discussion now has two new paragraphs describing how this approach will take the literature forward.

3. However, I am concerned that perhaps the results of this study have already been presented in this reference [Carroll JK, Antognoli E, Flocke SA. Evaluation of physical activity counseling in primary care using direct observation of the 5A’s. Ann Fam Med 2011; 9: 416-422.] and I expect that the editor would need re-assurance on that point since the protocol paper should always precede the outcome paper. If this is a pilot study on which the current protocol is built then more should be made of that in the manuscript. We apologize for not being clearer. The above reference refers to a completely separate study. The project, population, design, coding tool etc. described in the aforementioned reference are all totally distinct from the current project. No outcomes from the present study have been published yet.

If however I am mistaken and this is not intended to be a protocol paper, then the purpose of the paper must be made clear in the title and the abstract. Perhaps it is intended to be an extended description of the intervention? If this is the case then abstract needs to reflect this.
We have revised the abstract extensively, and the title (which now has the phrase ‘Study Protocol’ included), to be more explicit about the purpose of the paper. If it has another purpose then the abstract needs to supply details of the related results and not just state that they will be discussed. The purpose of the paper needs to be made clear at the end of the introduction. We have added a sentence in the Introduction (p. 4, third paragraph, first sentence) stating the purpose of the paper as follows: “The purpose of this paper is to describe a study protocol of a clinician training intervention to improve physical activity counseling in underserved primary care settings using the 5As.”

Reviewer 2:

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. We agree and have incorporated the conceptual framework into the introduction rather than the methods (p. 5).

2. The purpose and the aims of the research would be better placed in the introduction compared with the methods. We agree and have incorporated the purpose and aims into the introduction rather than the method (p. 4-5). 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. We have deleted the references to the scales.

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. We agree and have rewritten this section to be more concise, removing description of the components and how they will be measured since, as the reviewer points out, this information is covered in section 2.14 anyway.

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 counseling. We have added the following description of a nurse practitioner and physician assistant as they relate to health behavior counseling (p. 8): “In the US, both nurse practitioners and physician assistants have graduate-level education and are licensed and certified to treat a variety of physical and mental health conditions and provide health behavior counseling.”
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? We have revised this sentence under patient participant recruitment to clarify this point as follows: “As part of the informed consent process, patients are told that they are not obliged to deliberately discuss physical activity.... Patients are recruited until there is adequate baseline information about physical activity discussions.” (section 2.9, p. 9)

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. We appreciate this feedback and have revised this provided additional details about the qualitative analysis plans (p. 19).

5. Page 19: Should this be Figure 4 rather than Figure 2? We have 4 total data displays in this paper (2 tables and 2 figures). Thus we labeled them Table 1, Table 2, Figure 1, and Figure 2. Though Figure 2 is the fourth data display, it is the second figure. The journal instructions ask us to distinguish tables from figures, we have not revised our numbering.

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? We agree and given Reviewer 1’s concern about the discussion section as well, we have re-written the discussion section.

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). We agree and given Reviewer 1’s comments, we have revised the tense throughout the manuscript as previously described. We have checked and corrected places where abbreviations are introduced without a full description of the scale (such as the PAEI on 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. We have added a phrase stating that given clinician barriers to counseling, we chose to study clinician perspectives on barriers as an aim (p. 7). We are collecting data on the patient’s perceptions of addressing barriers to counsel as well however; items are included in the Physical Activity Exit Interview or PAEI (p.15).
2. Study setting: Are the number of clinicians referred to the total numbers from both health centers together or each health center? We have clarified this point to state that the number of clinicians are from both health centers (p. 7, last sentence).

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. By relatedness, we meant the clinicians having a greater understanding of the patient’s personal and social context for exercise, which we will analyze in the transcripts of the audio-recorded visits and via patient report from items from the PAEI. We have re-worded this sentence to clarify this point (p. 12).

My co-authors and I greatly appreciate the time and effort devoted by the editorial staff and reviewers and the opportunity to improve the quality of the manuscript. We believe this paper is a much stronger product as a result.

Thank you for your consideration of this revised manuscript. We look forward to receiving your feedback.

Sincerely,

The authors