**Author's response to reviews**

**Title:** Characteristics and Effectiveness of Diabetes Self-management Educational Programs targeted to Racial/ Ethnic Minority Groups. A systematic review, meta-analysis and meta-regression

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Editor-in-Chief
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Dear Editor,

Thank you for sending our manuscript for review. The reviewers’ comments were useful and have contributed to improving our work. We have introduced some changes to the manuscript. Please find below a detailed description of how each of the comments was addressed. In addition, we have attached a revised version of the manuscript.

I thank you in advance for considering this manuscript for publication and I look forward to hearing from you.

Yours sincerely,

Ignacio Ricci-Cabello BSc, MSc, PhD
Reviewer #1

Major Compulsory Revisions: NONE

Minor Essential Revisions: Several typographical corrections have been noted in the manuscript
The authors thank the reviewer for noting the errors in the manuscript. We have now reviewed the entire manuscript to correct all possible typographical and grammatical errors.

Discretionary Revisions
1. Paragraph - Introduction - line 6: Are the plans devised by healthcare professionals or are they developed collaboratively with the patient?? - likely makes a difference to how well they are followed
The results from our systematic review suggest that both approaches are followed, as we identified both goals-negotiated and goals-dictated interventions. We agree with the reviewer that from a theoretical point of view it would be reasonable to hypothesise a higher successful rate in goal-negotiated interventions. We explored that possibility as part of our meta-regression, without observing empirical evidence to support it.
In order to account for both types of interventions the sentence has been modified as follows:
“..., not all the patients are able to properly follow the self-management plans agreed with their healthcare professionals or advised by clinical guidelines.” (page 4, lines 81-82).

2. Paragraph - Effectiveness of intervention: It would be interesting to know if knowledge gain was measured immediately or after some time - was it simply recall
That is a valid point. Most studies measured diabetes knowledge immediately after the intervention (more detailed information is available in the Appendix table 3). In order to clarify this point the sentence has been modified as follows:
“In the majority of studies (nine out of fifteen), diabetes knowledge was only measured immediately after the intervention program was finished.” (page 11, lines 238-239).

3. Paragraph - Effectiveness of intervention: I am not sure I know what an improvement in health beliefs would be - sounds a little judgmental ... were they really assessing health beliefs and against what to say an improvement??
Two of the studies we included in our literature review assessed the interventions in terms of health beliefs. A number of scales have been so far developed and validated to measure the “Health beliefs” of individuals who have diabetes [1], some of which are based on the Health Belief Model. The underlying framework of this model is built on the individual’s evaluation of the goal and the conviction that a given action would achieve the goal. Following this framework, an improvement in the construct “Health beliefs” as measured by the scales included in the two studies of our systematic review would suggest that patients’ health beliefs have changed in a way that promote more adequate diabetes self-management behaviour [2].

4. Paragraph - intervention characteristics: Do you mean individually face to face because below you say group format which would presumably also be face to face.

We agree with the reviewer that the sentence is not completely clear. In order to clarify our point the sentence has been reworded as follows:

“Interventions delivered face to face obtained better results than those interventions supported by telecommunication. Also, those delivered individually performed better than those delivered in a group format.” (page 13, lines 285-287).
Reviewer #2

1. Thank you for the opportunity to review this well written manuscript offering a review of the effectiveness of self-management education programmes targeted at racial / ethnic minority groups. The manuscript is well presented and clear in the issues that it raises. The literature is up to date and relevant to the purpose of the review. The authors raise many interesting issues which will no doubt contribute to the literature about self-management education and the methodology used is comprehensive and appropriate for study design. The authors thank the reviewer for reviewing the manuscript and for the positive comments provided.

2. There are some minor typos on: Page 5 line 108, Page 10 line 229 and 230
Thank you for noting the typographical errors. They have now been corrected and the entire manuscript has been reviewed by two of the authors to ensure that the new version does not contain any error.

3. I would encourage the authors to expand on the methodological review of the 37 papers reviewed. Thus it would be good to explore in more depth issues such as, the need to instigate studies with longer follow up; describe the sample size and methods, discuss the need for greater heterogeneity in future research tools and explore the qualifications of the educators used within the studies. This added section would give rise to recommendations for future research within the area similar to the previous work of Hampson et al 2001 and Murphy et al 2007.

We thank the reviewer for the suggestion. We have further elaborated on our paragraph on the remaining gaps in knowledge (please see below):

“More than 90% of the studies included in this review were conducted in the US, which limits the external validity of our results. Ethnic/racial inequalities in rates of diabetes-related complication have been observed in multiple countries and ethnic minorities [3]. Therefore, the effectiveness of interventions specifically targeting minorities needs to be assessed. This review also found that there is a considerable knowledge gap regarding the long-term effects of these interventions. Only about a fourth of the studies included had a post-test assessment, the majority of occurred within six months after the intervention ended. Given that type 2 diabetes is a chronic condition, it is crucial to understand not only that self-management educational programs can produce a discrete impact, but also whether the impact is sustained in the long term. Also importantly, a quarter of the
Interventions included in this review were evaluated through quasi-experimental studies. Some of these studies did not include a randomization element in the design, whereas other did not include a control group (non-controlled before-after studies). Moreover, a significant proportion of the studies (35%) presented a high risk of bias, which included small sample sizes, relevant confounders not adequately being controlled for, and participants not blinded to the intervention. Notwithstanding the difficulties underlying the execution of this type of complex clinical trials, larger and methodologically more robust trials are very much needed to confirm the findings of the present review, and to further identify characteristics of successful programs. Finally, only a small proportion of studies included cost-effectiveness estimation, which constitutes another important area for future research.” (pages 17-18, lines 380-399).

References