Reviewer's report

Title: Lessons learned from recruiting socioeconomically disadvantaged smokers into a pilot randomised controlled trial to explore the role of Exercise Assisted Reduction then Stop (EARS) smoking.

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Reviewer: Emily Stockings

Reviewer's report:

This is a useful, and insightful report of community-based approaches to increase recruitment to a physical activity-based smoking reduction intervention among disadvantaged smokers. The study findings are relevant to researchers who are attempting to engage disadvantaged individuals (among whom smoking rates are high, quit rates are low and burden of disease from smoking is disproportionately high) to harm-reduction interventions.

Overall I feel the manuscript could be improved with the addition of further detail, particularly in the methods section.

Compulsory major revisions:

1. Abstract: The abstract summarises the results of the trial well, but important details are lacking in the methods section. Briefly summarise the data collection procedures and analyses conducted (such as comparison using chi-squares and t-tests to determine any differences in characteristics on the basis of recruitment method).

2. Introduction: The current structure of the introduction does not develop a strong rationale for why disadvantaged smokers should be targeted for smoking reduction trials (this may be obvious to familiar readers, but not a wider audience). I suggest moving paragraph 2 to the start of this section, and including some information on the disproportionate burden of disease from smoking among disadvantaged populations. This would also solve the issue of defining what 'disadvantaged' means in this context earlier in the piece.

3. Methods: While acknowledging that the protocol and primary outcomes of the study have been published, a brief overview of the study design, including randomisation, purpose of, and length of the intervention, follow-up time points and primary outcomes is needed to help contextualise the reader in order to better understand the recruitment procedures. This is particularly important for the interpretation of Table 8, which summarises participant characteristics at the "end of the study" - it is unclear when this is.

4. Methods: For those unfamiliar with the categories of socioeconomic status, a brief definition of how this is determined and what the classes refer to (A, C2-E, etc) is required.
5: Methods: It is becoming widely known that smokers with a mental disorder smoke at higher rates, are more nicotine dependent and less likely to quit than smokers without such disorders. Given the importance of this topic, the authors should briefly explain how mental health problems were determined and categorised in this study. Mention is made to the EQ-5D in the footnotes of Table 2, but this is not defined in the methods section.

6: Methods: On page 9, section ii) need to include satisfaction of SSS - as this is presented in Table 2.

7: Methods: How was readiness to use physical activity to control smoking behaviour measured?

8. Methods: Which model of smokerlyzer was used to collect carbon monoxide? What threshold was used to determine cessation?

9. Figure 1: This figure is detailed and very useful, but including % for each box (where the denominator is available) may aid interpretation.

10. All tables: Abbreviations/acronyms need to be defined in footnotes (e.g. MVPA, FTND, SD, etc)

Discretionary revisions

11. Results: It would be interesting to see if costs could be associated to the recruitment staff time to determine cost per recruited participant, in addition to time.

12. Discussion: On page 17, paragraph 1, the authors comment on the difficulty in recruiting single parents to smoking reduction trials and refer to the recent NICE guidelines. A brief summary of recommendations identified in these guidelines would add depth to the discussion here.

13. Discussion: On page 20, when discussing limitations of the trial, consider also highlighting that persons with 'serious mental illness' were excluded. Smoking reduction trials may be particularly relevant to this group who smoke at the highest rates and are less likely to quit (e.g. smokers with schizophrenia). There have been examples where such smokers can be successfully recruited to trials, e.g. work conducted by J.J Prochaska and colleagues.

14. Overall, it is interesting to note that very few of the recruited smokers had previously cut down to quit (13.5%). Given this, some comment on the strict inclusion/exclusion criteria of this trial could be included in the limitations section (i.e. excluded those already quit but whom may relapse, excluded those using NRT). Would a more liberal approach (where both cutting down, quitting, and relapse prevention) be better suited to this broad disadvantaged group?

Level of interest: An article whose findings are important to those with closely related research interests
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