Reviewer's report

Title: Physical activity and the prevention, reduction, and treatment of alcohol and/or substance use across the lifespan (The PHASE review): protocol for a systematic review.

Version: 0 Date: 30 Apr 2017

Reviewer: Natalie Strobel

Reviewer's report:

This review will be interesting to see what evidence is available and whether PA has an effect on the alcohol and/or substance use. A major concern is the huge scope of the review. The review will cover PA in all its forms for prevention, reduction and treatment of alcohol and/or substance use. It will include a large number of quantitative research designs and qualitative data for synthesis. I am concerned that the protocol does not sufficiently cover the complexities of this review. Wouldn't this review benefit from being a number of specific reviews both, qualitative and quantitative, that could then be synthesised into a final paper?

The paper would also benefit from clearly defined aims and objectives. Aims and objectives are not clearly provided upfront and are mentioned throughout the protocol making it difficult to read and determine whether the methods match the objectives of the review. For instance there are no mention of qualitative aims until line 444 and there are no aims for economic analysis even though it is described as an important part of the paper.

1. I was unsure reading the paper why both alcohol and drug use are being addressed in the same review. Most of the justification provided is for either drugs or alcohol. Some of the justification is in the discussion (lines 575-587). The introduction would be better if this was made clearer in the introduction.
2. It is not clear whether this is a protocol for three different papers or one paper with three different sections. This needs to be made clearer both in the abstract and the methods section.
3. The review frequently mentions alcohol and substance use. Are you looking at both or one or the other? Should it be alcohol and/or substance use?
4. You have mentioned that this is a mixed-methods review. It is not clearly written in your objectives section what the aim for the quantitative or qualitative reviews are other than to describe and evaluate. More succinct aims would strengthen the justification for a mixed-methods review eg barriers and facilitators of individuals participating in PA for the prevention, reduction and treatment of drug and/or alcohol use. In addition economics
is mentioned quite a bit but is not part of the objectives. This should be an objective as well.

5. In the types of studies section you have mentioned a number of quantitative study designs. What designs will be used in your meta-analysis? How will local service evaluations be incorporated into the review? This hasn't been discussed.

6. For the interventions section (line 274) what about multidisciplinary programs eg a program for diabetes that includes PA, nutrition and pharmaceutical advice that may implicitly reduce alcohol use will these programs be included? They have PA but how will you assess whether PA was the result of reduced intake of alcohol if nutrition advice was also provided.

7. Line 2277-278 - I don't understand what this line means in regards to the intervention. Clarification is needed - This could be through either prevention, reduction or treatment as a standalone or adjunct treatment.

8. Outcomes section: The primary outcomes for prevention, harm reduction and treatment includes variable that would seem to be secondary outcomes based on the primary aim of preventing/reducing/stopping alcohol and drug use. For example mental health and wellbeing, biomedical outcomes, service users' experience and perceived utility (I'm not sure how you would measure this or what it is) of PA, physical levels/fitness should be secondary outcomes. Then some of the primary outcomes are repeated in the secondary outcomes. This section needs to be much clearer.

9. Line 317 'We will select an appropriate representative measure for each domain where possible.' - What does this mean?

10. Why are you searching MEDLINE ovid and pubmed? This seems excessive.

11. It is not clear whether two review authors will be reviewing full texts (line 397-399). This needs to be clarified. If two review authors aren't reviewing full text articles this needs to justified as it is completed to reduce individual screening bias. How will you account for this bias?

12. Will you be using the ROBINS-I for all non-RCT studies including ecological cross-sectional studies? This needs to be made clearer.

13. Are you planning on doing a meta-analysis for all research designs? The protocol implies that you will be. Further information needs to be provided for all the research designs and how you will be completing the meta-analysis using these designs.

14. What qualitative method will you be using eg thematic analysis, content analysis?

15. Section narrative synthesis (analysis 3): What is the aim of the narrative synthesis? What will this achieve?

16. Line 464: Would the economic evaluation also be an analysis Eg (analysis 4)?

17. Measures of intervention - what happens when there is more than one intervention group? How will you deal with this?

18. Advisory groups - this reads that it will happen but the protocol is being published now. For instance the 'The service user group will offer input into what outcomes we should be
searching for'. Have they already? If they haven't this needs to be revised as will as other parts in the section e.g methods and scope for the academic group. This section needs to reflect what has been done and what will be done.

Minor issues:

Line 219-221: this would be better placed in the population section - The broad scope of the proposed work covers inclusion of patients, service users, and those who may be neither, so the term 'people' or 'individuals' is used to represent the broad range of participants who may be included in studies forming part of the review.

Line 223-225 - this would be better placed in the intervention section - The scope of this review is to include research on alcohol and substance use in its broadest sense. We plan to include data on alcohol and substance use which may not be considered a 'disorder' which reflects levels and prevalence of use, as well as including research on AUD and SUD as classified in the DSM-V[43].

Line 77: Revise sentence: 'We aim to assess how what we know can be translated into policy and practice with the input of key stakeholders throughout.'

Line 109 - 113: The Cochrane Drug and Alcohol Group has published 11 and 30 reviews of pharmacological interventions for alcohol and substance use, respectively, whilst psychosocial interventions (e.g. brief interventions and motivational interviewing) are less well reported, with six and eight published reviews, respectively. Preventive interventions only have five reviews for alcohol use, and three reviews for substance use.

The two sentences above need to be referenced.

Line 127-128: In 2001 (with updates in 2005 and 2008), AT (with co-researchers), reviewed and reported the effects of exercise on smoking from eight randomised controlled trials (RCTs) as part of a Cochrane Review. Needs referencing.
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