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: 17 Apr 2017

Reviewer: Anna Gavine

Reviewer's report:

This is a protocol for a potentially very interesting review. The proposed review is very broad and I could see it being potentially being challenging to manage. It appropriately will include quantitative and qualitative studies, as well as economic evaluations. The background for the review highlights the need for a review in this area and gaps in the literature. The methods generally appear comprehensive and robust. The inclusion of a stakeholder group is interesting and will also hopefully help with transforming the results into feasible recommendations for practice.

I think there are a just a few minor issues that need attention:

Objectives

In the abstract it is stated as "The objectives of this mixed methods systematic review are to describe and evaluate the quantitative and qualitative research obtained by a diverse search strategy on the impact of physical activity and its potential to…". However, the objective stated on line 204 is "to assess the impact of physical activity on the prevention, reduction, and treatment of alcohol and substance use across the lifespan". This seems to suggest a focus on outcomes as measured by trials. This section does go on to state that the authors will describe and evaluate the available quantitative and qualitative research, although this phrasing makes it seem more like a scoping review. Mention is also made of an economic evaluation. Some clarification around specific research questions and what forms of data will be used to answer them would be helpful here.

Methods

* Line 239. Frequency analysis on a sub-sample of relevant literature. Some more description around this is needed. Does this mean no relevant studies were published before this date?
* Lines 267-272. It is stated that these studies will be assessed on a case-by-case basis. It is not clear against what criteria will these assessments be made (i.e. what will determine whether or not the study should be included).

* Lines 275-278. It is not described how multi-component interventions are to be handled.

* Outcomes. Will the final agreed upon outcomes be reported a-priori to enable measurement of selective outcome reporting bias?

* Suggest searching the WHO's International Clinical Trials Registry Platform and clinicaltrials.gov

* Although measures of assessment for statistical heterogeneity are described, it is not described if/how it will be addressed.

* Detail on the approach to be used for integration of the quantitative and qualitative data would be helpful (e.g. is this the approach developed by the EPPI centre)?

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**Quality of written English**
Please indicate the quality of language in the manuscript:

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