Reviewer’s report

Title: Exploring the factors affecting the implementation of tobacco and substance use interventions within a secondary school setting: a systematic review

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Reviewer: Byron Powell

Reviewer's report:

Thank you for the opportunity to review this manuscript that reports the results of a systematic review focusing on the implementation of substance use interventions within secondary school settings. The manuscript takes on an important topic and incorporates a theory-drive approach to analyzing the data. However, the research questions are not clearly articulated and the paper is somewhat difficult to read as it includes a fair amount of jargon and lacks a clear structure. Moreover, its overall contributions to the field of implementation science are not particularly clear. I have several suggestions that I believe could potentially improve the manuscript.

1) The overall research question(s) that this study is attempting to address could be made much more clear. The authors' stated aim to "develop an understanding of the factors affecting implementation of substance use interventions in the secondary school setting" is broad. I initially read this as a study to identify determinants of implementation specific to these settings; however, the review seems to focus on both implementation strategies and determinants without being particularly clear about when the focus shifts to focus on one or the other.

2) The introduction is very underdeveloped.
   a. The authors should consider making a stronger argument for why the implementation of substance use prevention interventions in secondary school settings is unique, which would help set this systematic review apart from other more general reviews that comprehensively document determinants (Flottorp et al., 2013) or review the effectiveness of implementation strategies.
   b. It would have been helpful to have some review of the types of interventions that are being implemented in secondary school settings, the extent to which they are backed by a robust evidence base, and any studies that demonstrate that they are not often implemented well.
c. It would be helpful if the authors provided some background about what has been learned from the broader implementation literature about barriers and facilitators (if that is the focus of this review) and/or implementation strategies (to the extent to which that is also a focus).

d. More context for the use of Normalization Process Theory is needed. First, it is important to understand why the authors chose to use this theory to guide the review. What makes it an appropriate choice, and how specifically will it be used to provide structure to the data collection and analysis within this study. Were other frameworks considered, and if so, why was NPT chosen? Note that I am not suggesting it is inappropriate, but that the authors need to communicate to the reader why and how it was used. Second, more attention to actually describing NPT is needed, so that readers can understand the theory and how it is guiding the current review.

3) I was not able to access the PRISMA diagram through the submission site or through the included manuscript; however, the number of studies included seemed rather low to me given that the inclusion criteria were rather broad. I would like to see more attention given to that and some explanation of the small number of studies. Presumably the PRISMA diagram would provide the excluded studies and reasons for exclusion.

4) The beginning section of the results section and the way that papers are actually categorized was unclear. The authors reference Proctor et al.'s (2011) implementation outcomes; however, they include categories that fall outside of that taxonomy (e.g., evaluation). They also talk about "factors affecting implementation, such as provider perceptions or organizational factors, guided by the implementation outcomes work by Proctor et al." This was unclear to me, and in my view, actually made the results section rather difficult to read. The authors might consider a different a more intuitive way of organizing the results, as this seems pieced together in an incoherent way. In my view, part of this stems from the fundamental problem that there is a lack of a clear research question (or set of questions).

5) The description of the included studies is incomplete. The specific data that should be extracted depends upon the research questions; however, it is impossible for the reader to glean any information about critical components of implementation research. First, I wasn't able to understand the research questions being asked in the included studies. Second, I was not able to understand the specific interventions that were implemented (i.e., what was implemented). Third, I was not able to understand the implementation strategies that were used (if any) to implement the substance use prevention interventions (i.e., how they were implemented). Finally, it was not easy to determine the specific outcomes that were assessed without combing through the key results narrative. It would be helpful if all four of these components were presented in more detail, using existing
taxonomies of interventions, implementation strategies, and outcomes as well as standards for reporting these interventions as appropriate.

6) In terms of clarity of presentation, I might suggest that after clarifying the research questions, the authors reorganize the results section. For example, if the authors' purpose is to convey specific determinants that influenced implementation and NPT is an organizing structure, it may be helpful to go through each of the NPT toolkit steps. That would provide the opportunity (either in the introduction or results section) to provide a brief introduction to the steps, and then synthesize findings across the studies that are relevant to that particular step.

7) I would recommend a table that synthesizes results according to a theoretical framework (NPT or another framework such as CFIR, TDF, or Flottorp et al., 2013).

8) I would recommend that any data extraction forms be made available as supplementary files.

9) The discussion section is thin and does not connect the findings to the extant literature aside from doing so in a very cursory way with references to the the Greenhalgh review. I would recommend expanding the discussion and paying particular attention to what this review adds in the way of findings about barriers/facilitators and/or implementation strategies. Much like I would like to see in the introduction, it would be helpful if specific links were made to what is unique about implementing both substance use prevention interventions and in schools. In my view, there is a fair about mot literature in both areas that is not referenced in this review, which limits the readers' understanding of the broader context and value of the review.

10) Similar to the comment above, the authors mention wanting to develop a conceptual framework for implementation in schools (or perhaps implementing substance use prevention interventions in schools). Some frameworks already exist that may be relevant, including one specific to schools (Domitrovich et al., 2008) and one specific to public service sector settings (Aarons, Hurlburt, & Horwitz, 2011). It might be helpful to reference these either in this paper or moving forward with this line of research.

11) It would be helpful to give readers a sense of how these findings will be used to inform future research. Being explicit about what is new or extends our knowledge of implementation determinants, strategies, or methods, and linking these insights into implications for future research efforts may be helpful.
12) The authors might consider removing jargon to the extent possible, including referencing the numbers of the NPT toolkit throughout the manuscript. The manuscript also needs to be proofread for minor errors/typos.

References


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