Reviewer's report

Title: Systematic Review of School-Based Interventions to Prevent Smoking for Girls

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Reviewer: Alessandro Coppo

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General comments

The paper presents the results of a review on school-based interventions to prevent smoking in girls. The goal is of interest as some trials have documented a different effect of the programs according to the gender. It should also be considered that a recent Cochrane review (Thomas, 2013) have produced insight on this topic in a sub-group analysis emphasizing the characteristics of effective interventions for girls and highlighting the short-term effect of the interventions. Therefore this study should start from this point and produce more information on what characteristics could be defined more promising than others in order to prevent smoking among girls. Furthermore the review presents relevant methodological weaknesses. In particular, as the review found above all interventions for both girls and boys, it should have not only reported the effect on girls, but also calculated the comparison of the effects between girls and boys.

Minor Essential Revisions

Methods

1) The preliminary results of the search (Methods, second paragraph) could be moved from this section to the result section.

2) For a clear reading the search strategy (now in appendix) should be described in this section.

3) The initial goal was very broad based. Could it be described why the authors decided to concentrate on school intervention?

4) The initial search has as year limit 1992. Is there a motivation to choose this year?

Major Compulsory Revisions

Methods

1) It should be specified more clearly in the inclusion criteria what definition of smoking behavior is included as smokers in literature are defined in different ways (daily, weekly, monthly, ever, smokeless tobacco user, smoker).

2) In sub-section “Data extraction and quality assessment”, first paragraph, the last sentence sounds not clear. In which way the interventions were combined?
Also the following para-graph on the definition of control group needs to be rephrased.

3) In sub-section “Data synthesis and analysis”. The first paragraph doesn’t enable to understand how it was performed the pooled analysis.

4) In sub-section “Data synthesis and analysis”, third paragraph, the sentence describes how studies with more interventions arms were treated. It is important to include all the intervention arms not excluding those with minor effects. Refer to Cochrane Handbook for Systematic Reviews of Interventions.

5) The following sentence explicating how it was calculated the effective sample size should be described with more details.

Results

1) This section should start with the description of the selection according to the study flow diagram. This figure should be described in the text, and in particular the characteristics of the excluded studies.

2) In my knowledge there are studies considering the effect of smoking interventions on girls that are not included in the review (see for example Vigna-Taglianti F, Vadrucci S, Faggiano F, Burkhart G, Siliquini R, Galanti MR; Eu-Dap Study Group. Is universal prevention against youths’ substance misuse really universal? Gender-specific effects in the EU-Dap school-based prevention trial. J Epidemiol Community Health. 2009 Sep;63(9):722-8). I think it is only an example among others.

3) First paragraph. Among included studies four don’t report data by gender. But this characteristic was previously indicated as a criteria for exclusion.

4) In the text authors decided to describe in detail some included studies instead of others. Please, explain this choice.

5) Among the four studies on girl-specific interventions, described at the end of “Pooled Analysis”, 3 on 4 adopt outcomes like intentions toward future use or attitudes, that are only indirect proxy of smoking behavior. Are these characteristics motivation for exclusion as expressed in methods section?

6) Tables are not easy to understand. It is not clear if RRs refer only to girls and why some studies don’t report RRs (did they report outcomes in a different way? If yes, in my opinion they should be reported and where possible the RR should be calculated).

7) The figure 3 should report for each study number of participants in intervention and control groups on total numbers.

Discussion

1) In the discussion is said “there are signal that interventions that include mass-media component or community component may be more effective”. This statement is based on 4 studies. 3 of them don’t report data on smoking behavior but on intentions or cessation. This affirmation should be balanced by these limitations.
2) In the discussion are cited the differences from the Cochrane review. I think that with these elements the paper appears poorly different from Thomas 2013. Could you explicit more deeply why these elements give to the paper an advance in the research?

3) The choice to concentrate the study on school based interventions only in a second stage of the search could be cited as a source of bias (the search strategy for identify school based interventions could be defined from the beginning in a more specific way).

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests