Reviewer's report

Title: A novel school-based intervention to improve nutrition knowledge in children: Cluster Randomised Controlled Trial

Version: 5 Date: 1 May 2009

Reviewer: Vera Verbestel

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DISCRITIONAIRY REVISIONS

Comment 1 (Methods - Development of the intervention):
It is described that the intervention comprises a card game and a package of classroom activities to teach the “Healthy Eating” curriculum using these cards. Further on in the article, it is indicated that the control group used the existing “Healthy Eating” curriculum. It is described of what the existing curriculum consists, however, it is for the reader not clear to what extent the existing curriculum differs from the adapted one used in the intervention region. It would be more clear if the reader is provided with more information about the classroom activities: do the classroom activities only include that the cards are used in the classroom? Or did teachers receive a guide with an explanation about the possibilities to use the cards in the classroom?

Comment 2 (Methods - Delivery of the intervention):
In the previous section, the intervention is described (see comment 1). However, in the rest of the article, the intervention is only directed to playing with the cards (irrespective of the classroom activities) and thus no more information (e.g. acceptability) is provided about the second part of the intervention.

Comment 3 (Methods - Delivery of the intervention):
The protocol for delivering the intervention is in my opinion described too briefly. As a reader I miss more concrete information: were teachers instructed about the use of the cards/curriculum? Were teachers asked to teach the children the possibilities of playing with the cards?

Comment 4 (Methods – Recruitment and randomization of schools):
Can the authors explain the relevance for the research question of matching the schools for deprivation which is rated as the percentage of children receiving free school meals?

Comment 5 (Methods – Development of the nutrition knowledge questionnaire):
The nutrition knowledge questionnaire has been developed by adapting questionnaires from different resources. Has this newly developed nutrition knowledge questionnaire been validated and has the reliability of this questionnaire been tested?
Comment 6 (Methods – Development of the nutrition knowledge questionnaire):
Can the authors explain the relevance of adding one item about the recommended number of fruit and vegetables to the total nutrition knowledge score? Is this information not yet integrated in the sub scale about balance of good health plate? And what are the arguments for only adding the question about the recommendation of fruit and vegetables and not for other important nutrition components?

Comment 7 (Methods – Secondary outcomes):
“In order to assess the acceptability of the intervention to children and teachers, children were asked by questionnaire how often they played the game, who they played it with, how much they enjoyed it, and whether it helped them choose healthier foods. Further free text comments were invited. Teachers were asked for feedback on how useful they found the card game and curriculum as a resource.”

- In this section of the article, it is not clear how the teachers provided their feedback (e.g. through a structured interview). Later on in the article it becomes clear that informal feedback has been retrieved from the teachers (see last sentence in the results section). However, it would be good to clarify the procedure used to receive the feedback from teachers in the method section (e.g. were teachers free to provide feedback or were they asked to answer a limited set of questions, ....)

- Can the authors also add information about how many teachers were asked to provide feedback and how many teachers effectively provided their feedback? It is only included that 3 teachers provided written feedback but the rest of the information is missing at the moment.

Comment 8 (Methods – Secondary outcomes):
“In order to assess self efficacy to make healthy food choices and how much importance children placed on diet, children were asked a further four questions, which were scored on a pictorial scale ranging from ‘very important’ to ‘not important at all’ or ‘a great deal’ to ‘nothing at all’. Free text comments were also invited.”

- Is a validated self-efficacy scale used to measure children's perceived confidence to make decisions about healthy eating?

- In order for the unknown reader to know how self efficacy has been assessed in the questionnaire, it would also be useful to integrate one of the items as an example.

- Further on in the article, the results about self efficacy and attitudes towards healthy eating are described. It is, however, not illustrated how the attitudes of children towards healthy eating have been assessed in the questionnaire.

- In this section it is not clear whether self efficacy has only been assessed in the intervention region or both in the intervention and control region. In addition, it is
not clear whether the questions were provided to the children both at baseline and follow up.

MINOR ESSENTIAL REVISIONS

Comment 9 (Methods – Data entry and Statistics):
Not all the statistical analyses are described in this section. In the results section it became clear that a chi-square test has been used to compare self-efficacy measures between the intervention and control region.

MAJOR COMPULSORY REVISIONS

Comment 10 (Methods – Data entry and Statistics):
Due to the fact that a cluster sampling method has been used, it is advisable to use multilevel analyses. This way, statistical analyses treat the groups of the sample as a random sample from a population of groups and therefore accounting for their initial inequality.

Comment 11 (Discussion):
The discussion section is not adequately structured and lacks a solid basis (both with own results as with previous research).

- Only the primary outcome (total nutrition knowledge) is discussed and the results related to the sub scales of this measure are not included.
- The results related to the secondary outcomes are not (thoroughly) discussed.
- The conclusion formulated in the abstract is not sufficiently elaborated in the discussion.
- The second paragraph in the discussion is quite extended and mainly focusing on changes in health related behaviors and it is for the reader not clear what is indented by this paragraph.
- Evidence and/or arguments for the relationship between increasing knowledge and dietary behavior is missing and it is not adequately stated which role nutrition knowledge plays in the adoption of a healthy diet (cfr. models of behavioral change indicate that only changing knowledge is not sufficient to change the related behavior).

Level of interest: An article of limited interest

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