Reviewer's report

Title: A pragmatic approach to selecting and developing behaviour change interventions for trial evaluation: the example of very brief interventions for physical activity in primary care

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Reviewer: Geert Rutten

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Title: A pragmatic approach to selecting and developing behaviour change interventions for trial evaluation: the example of very brief interventions for physical activity in primary care.

The paper presents an interesting topic and a thorough description of what the authors call a ‘pragmatic method to select, develop and optimise promising very brief interventions (VBIs) for physical activity’ to be delivered in primary care during preventative health checks. Although pragmatic, the clear description of the multi method approach suggests a rather complex and time consuming process that leads to the selection and further development or adjustment/improvement of existing VBIs. As such, the method does not strongly deviate from already existing systematic approaches of intervention development such as for instance Intervention Mapping (in this case only step 3, 4 and 6 of the IM approach). The main difference is that the method proposed in this paper omits the analysis of the problem, which is mostly also a complex and time consuming step.

Overall, the paper is well written and provides a clear overview of the method the authors have applied. However, some points of consideration remained. I hope my suggestions can be of any help for the authors.

Major compulsory revisions

METHODS

Line 217
The authors present the design as an adapted cluster randomised feasibility trial, which suggests an effectiveness study. Cluster randomisation would mean that practices would have been randomly assigned to a certain intervention, in this case one of the VBIs. However, in line 364 to 366, it appears that randomisation took place on patient level. As a consequence, I have my doubts about whether this design is actually a cluster randomized design.
Lines 234 to 240 Participants paragraph
Is it true that the current level of physical activity was not an inclusion criterion? This may have serious consequences for the opinion of participants about the VBIs. Could the authors explain why they decided to ignore that criterion (if they did).

RESULTS

Lines 361-363
It appears that in the end two practices and four practitioners remained in the feasibility study. Since all VBIs were delivered in both practices, the practitioners were probably trained to deliver at least two VBIs. Moreover, all four VBIs were delivered to patients in both practices. Both factors could have been a source of contamination because practitioners may have used principles of one VBI while delivering another one, and patients opinions about the VBI they received may have been influenced by information of other patients receiving another VBI in the same practice. Could the authors explain how they have dealt with this possible threat.

Lines 389 to 391 Mean values…in VBI4 (Pedometer)
With scores ranging from 3.0 to 3.5 out of 5, participants' engagement doesn't seem to be very high. This might have some consequences for the effectiveness of the VBIs. Did the authors identify further reasons for this limited engagement and did they adjust the VBIs accordingly? If not it might be a topic for the discussion.

Lines 404 to 409 Practitioners reported that…increasing their PA
This paragraph exactly seems to touch on a sensitive point of the approach that is presented in this paper. The authors have chosen for a pragmatic approach in which they omitted a problem analysis. A problem analysis is a time consuming step that precedes the choice for or development of an intervention and enables the choice of BCTs most suitable to influence the determinants underlying the problem. So by omitting this step the authors really shortened their approach and made it more pragmatic, but it may have reduced the appropriateness of the VBIs (also consider the limited engagement of the participants). Could the authors elaborate in this in the discussion?

Lines 419 to 438 First, the qualitative…Motivational and Pedometer VBIs.
In particular the Motivational VBI seems to come with an extensive pile of paperwork, since the Action planning and the PA diary were incorporated in the VBI. I wonder if, in its final format, the Motivational VBI can still defined as a VBI? Another question is, taking into consideration that participants' engagement is already limited, what are the chances that they are actually going to make action plans and use the diary? Are there any further adjustments planned, to monitor this for instance?
Lines 453 to 454 The amended…range of techniques
It seems that this VBI requires quite some explanation to participants. Is it still possible to deliver this VBI in 5 minutes?

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

**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.