

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Effects of a multi-component workplace intervention programme with environmental changes on physical activity among Japanese white-collar employees: a protocol for a cluster randomized controlled trial
AUTHORS	Watanabe, Kazuhiro; Kawakami, Norito

VERSION 1 – REVIEW

REVIEWER	Neville Owen Baker Heart and Diabetes Institute, Melbourne Australia
REVIEW RETURNED	20-Jun-2017

GENERAL COMMENTS	<p>This paper provides a comprehensive and informative account of the rationale and methods for a multi-component workplace physical activity intervention. It is well written and the material in it is logically organised and presented. There are some elements that could be improved:</p> <ol style="list-style-type: none"> 1. The use of the GPAQ instrument to determine physical activity outcomes is a fixed element of the protocol, but there would be some disagreement on the part of physical activity researchers about the appropriateness of using this instrument for the purposes described, because it has been developed and validated as a tool for population surveillance, rather than as a tool designed to assess the outcomes of interventions. The authors need to provide stronger detail and justification for the use of this instrument, in the section of the manuscript that deals with it on pages 14 and 15, identifying which elements of it will be used particularly to assess the outcomes of their intervention. Further references to published studies on the instrument itself and consideration of the limitations of this instrument – particularly its tendency to overestimate physical activity participation. This is mentioned briefly as a limitation in the article summary, but should be addressed more fully in the main manuscript itself. 2. In the Abstract, the program is described as having '13 contents'. A better word in this context, and in the relevant sections of the main body of the text, would be 'elements' for perhaps 'components'. 3. On page 7, line 16/17, it would be helpful to provide references to the supporting literature that relates to enhancing self-regulation for physical activity
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REVIEWER	Katja Siefken Course Coordinator, Lecturer University of South Australia Australia
REVIEW RETURNED	20-Jul-2017

GENERAL COMMENTS	<p>This study protocol constitutes a valuable contribution to our knowledge about PA promotion in workplaces and it adds to the limited research RCTs with workplace interventions. I believe the research can and should be conducted pending minor revisions.</p> <p>I suggest reconsidering PA data collection methods, as self-report PA data collection relies on participants' recall ability. When using an award system, and self-monitored PA data is self-entered into an online system, credibility about data entry is questionable. Data can either be entered by a research assistant (reduce social desirability bias) or by objective data measurement methods. Another option is to use self-report activity diaries if objective measurement is not an option.</p> <p>On the positive side, this study protocol is well structured and findings will add to the new knowledge using workplaces in Japan to promote PA and mental wellbeing.</p> <p>Your study protocols indicates mental health training. Mental health could be incorporated as an outcome.</p> <p>The reviewer also provided a marked copy with additional comments. Please contact the publisher for full details.</p>
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VERSION 1 – AUTHOR RESPONSE

Reply to reviewer: #1

Thank you for your valuable suggestions for our manuscript. We have revised the manuscript in accordance with your suggestions. Revisions are shown in highlighted text in the revised manuscript. Please see these changes and reread the manuscript.

Comment 1

The use of the GPAQ instrument to determine physical activity outcomes is a fixed element of the protocol, but there would be some disagreement on the part of physical activity researchers about the appropriateness of using this instrument for the purposes described, because it has been developed and validated as a tool for population surveillance, rather than as a tool designed to assess the outcomes of interventions. The authors need to provide stronger detail and justification for the use of this instrument, in the section of the manuscript that deals with it on pages 14 and 15, identifying which elements of it will be used particularly to assess the outcomes of their intervention. Further references to published studies on the instrument itself and consideration of the limitations of this instrument – particularly its tendency to overestimate physical activity participation. This is mentioned briefly as a limitation in the article summary, but should be addressed more fully in the main manuscript itself.

Reply

Thank you for your comment. As you said, it should be one the most critical limitation in the study to use the self-reported questionnaire to assess the amount of physical activity. Because the study protocol has been already fixed, we revised methods and limitation to discuss the possible bias in the study.

After revision (page 14)

This scale is widely used and has demonstrated reliability and convergent validity among 9 countries, including Japan⁵⁰. The GPAQ can assess three domain specific physical activities in moderate-to-vigorous intensity per week in fewer items than previous questionnaires (the International Physical Activity Questionnaire, IPAQ)^{51,52}: occupational; transportation; and leisure-time, and sitting time in a day. Although the GPAQ were developed as a tool for population surveillance across the world at first, it has also been used for assessment of the outcomes of intervention studies^{53,54}. In this study, we adopted the GPAQ because of its easiness and low cost to answer, while its criterion validity with pedometers and accelerometers was poor-fair⁵⁰. There will be certain limitation for overestimation of physical activity when compared with pedometers and accelerometers^{50,55}.

After revision (page 20)

All measurements are self-reported; therefore, there will likely be measurement errors and information bias. Especially, the assessment of the amount of physical activity can be over-estimated. This bias can also be applicable for conducting the specific element among the intervention programme (No. 6, individual competition).

Comment 2

In the Abstract, the program is described as having '13 contents'. A better word in this context, and in the relevant sections of the main body of the text, would be 'elements' for perhaps 'components'.

Reply

Thank you for your comment. We revised the wording into "elements" according to you.

Comment 3

On page 7, line 16/17, it would be helpful to provide references to the supporting literature that relates to enhancing self-regulation for physical activity.

Reply

Thank you for your comment. We cited some papers that relates to self-regulation for physical activity as the determinant of physical activity.

After revision (page 7)

We will also examine the effects of the programme on enhancing self-regulation for physical activity as a psychological determinant for physical activity⁴⁰⁻⁴², and improving psychological distress and subjective health status as secondary health outcomes.

Reply to reviewer: #2

Thank you for your valuable suggestions for our manuscript. We have revised the manuscript in accordance with your suggestions. Revisions are shown in highlighted text in the revised manuscript. Please see these changes and reread the manuscript.

Comments on the attached file

Reply

Thank you for your comments. We replied to your comments in the attached file.

Main Comments

I suggest reconsidering PA data collection methods, as self-report PA data collection relies on participants' recall ability. When using an award system, and self-monitored PA data is self-entered into an online system, credibility about data entry is questionable. Data can either be entered by a research assistant (reduce social desirability bias) or by objective data measurement methods. Another option is to use self-report activity diaries if objective measurement is not an option.

Reply

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After revision (page 20)

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VERSION 2 – REVIEW

REVIEWER	Neville Owen Baker Heart and Diabetes Institute Australia
REVIEW RETURNED	06-Aug-2017
GENERAL COMMENTS	These revision are satisfactory