

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

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| <b>TITLE (PROVISIONAL)</b> | The Brain Games study: Protocol for a randomised controlled trial of computerised cognitive training for preventing mental illness in adolescents with high-risk personality styles |
| <b>AUTHORS</b>             | Mewton, Louise; Hodge, Antoinette; Gates, Nicola; Visontay, Rachel; Teesson, Maree  |

### VERSION 1 – REVIEW

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| <b>REVIEWER</b>        | Dr. Claire M Kelly<br>Mental Health First Aid Australia<br>Deakin University Australia |
| <b>REVIEW RETURNED</b> | 30-May-2017  |

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| <b>GENERAL COMMENTS</b> | <p>Overall I think this is a great project. Interventions which are cheap, carry few risks and are easy and cheap to distribute are very important, and I wish the researchers well.</p> <p>I do have a couple of concerns.</p> <p>I've not been able to find any published data on using the SDQ for young people aged 18+. Although instructions are provided for scoring it for those over 18, given that there does not appear to be any validation for the scale for young adults (unless, I would like to know why this measure was chosen. It's a rich, multi-dimensional tool with multiple scores in different areas so I can see the appeal. However, the main argument at this point for using it seems to be that a similar pilot study (which appears to have been on 15 adolescents) did the same, and I think a better argument needs to be put forward. While I acknowledge that the main outcome will be the difference between pre-, post- and follow-up assessments, these changes may not be very meaningful without evidence the scale is valid for young adults. Is there scope for using the MINI and the MINI-KID as in the eligibility interviews? I'm less familiar with these but the indication that the authors intend to use the lifetime version does suggest that there are other options.</p> <p>I'm concerned about the sample size. An hour a day of tasks, five days a week for five weeks seems to be a lot, and I'm concerned that 30% attrition is not a realistic estimate. This is a really intensive intervention.</p> <p>Some questions worth exploring:</p> <ol style="list-style-type: none"><li>1. Is Lumosity able to provide data on engagement? How many people currently use the site for an hour a day 5 times a week? What is the natural attrition on their existing programs?</li><li>2. Is there budget to allow for even 50% attrition?</li></ol> |
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|  | <p>3. Is there scope to find out how much time the eligible participants currently spend playing games? If this is a major change for them (rather than a switch from one game to another) this is a risk for the project. If they are currently playing a different game and this would be a relatively simple change that is one thing, but fitting in a full hour of a new activity every day for five weeks could be a big challenge for some.</p> <p>4. Can the authors define attrition/completion? Will a participant have to complete all 25 hours in order to be considered a completer? Given the ITT analysis, any participation could contribute to the final analysis, I know, but I'm wondering about the definition as it was operationalised when calculating the power estimates.</p> <p>The plain language statement needs to state that they will be contacted if they miss sessions. A text after one missed session and a phone call after 2 may be experienced as intrusive by some, but particularly if there is no warning about it. The plain language statement also needs some clarity under the heading "Do I have to take part". It needs to clearly state that participation is voluntary before going into the additional detail which is already there.</p> <p>I wish the authors the very best with this project. Self-guided interventions are going to continue to be very important going forward. Given the natural engagement with these sorts of activities, and the current lack of evidence, research of this sort is certainly needed.</p> |
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| <b>REVIEWER</b>        | Evanthia Sakellari<br>Technological Educational Institute of Athens, Greece |
| <b>REVIEW RETURNED</b> | 11-Jun-2017   |

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| <b>GENERAL COMMENTS</b> | <p>The paper is concerned with a research protocol which is about an interesting study in the field of prevention of mental illness. There are some issues that authors need to address before possible publication:</p> <ul style="list-style-type: none"> <li>- The authors need to reconsider their goals, especially in regards to examine their intervention in reducing psychopathology (maybe this is to overambitious). It is understandable what they are looking for, however, it is suggested that they revise it.</li> <li>- In the study design, the authors state only one measurement (SDQ), however, later in the paper, more tools are described. In this way, it is not clear for the reader what they would like to measure. It is suggested that they check it and revise it accordingly.</li> <li>- The author state that the SDQ is measurement for psychopathology, however, the authors who have developed it state that it is a brief behavioral screening questionnaire.</li> <li>- In the participants and recruitment part, the authors describe the inclusion criteria, but it is not clear for the reader how they will assess the first inclusion criterion.</li> <li>- The online informed consent needs more explanation. It is also suggested that the authors describe all the ethical issues in one section of their paper.</li> <li>- The WHODAS 2.0 will be used to collect data, however, this is a tool for adults and is not developed to be used online. It is advised that the authors support their decision for the reader.</li> </ul> |
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| <b>REVIEWER</b>        | Lisbeth Homlong<br>The Norwegian Board of Health Supervision/<br>Kurbadet Family Practice<br>Norway |
| <b>REVIEW RETURNED</b> | 22-Jun-2017   |

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| <b>GENERAL COMMENTS</b> | <p>I find the protocol manuscript very well written, the English Language is fluent. The planned study is thoroughly described in the protocol and the study plan seems to be well structured and organized. The Project is interesting and uses modern Technology to gain knowledge on an important Field. The theories behind the idea of using computerized cognitive training in enhancing executive functions to prevent mental illness, are based on recent research on brain Development in Young people. As stated in the introduction, Mental Health problems in Young People are common world wide and constitute a major burden of disease in adolescence and Young adulthood. The Project is thus highly relevant. I have no major concerns about the study protocol. I have some minor concerns, though, on attrition. You plan to recruit 200 persons. You need a sample size of n=140. I would expect about 50% attrition in a Project like this, I would therefore suggest that you try to recruit at least 280 persons in order to account for potential attrition. I also have some concerns on the recruitment procedure and if the recruited persons will be representative. I miss some reflections on that in the study protocol, in the section describing potential weaknesses of the study. You may have gotten a more representative Group of study subjects if you chose to recruit persons in a high School or college population.</p> <p>I also miss some reflections on the practical use of the online training program if the results show a significant effect on preventing mental illness in high risk individuals. Where and how can such a program be implemented? In Schools? In the School health services? In youth Health clinics? Other?</p> |
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### VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Dr. Claire M Kelly

Institution and Country: Mental Health First Aid Australia, Deakin University, Australia

Competing Interests: None declared

Overall I think this is a great project. Interventions which are cheap, carry few risks and are easy and cheap to distribute are very important, and I wish the researchers well.

I do have a couple of concerns.

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## VERSION 2 – REVIEW

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| <b>REVIEWER</b>        | Dr. Evanthia Sakellari<br>Assistant Professor, Department of Public Health and Community Health, Athens University of Applied Sciences, Greece |
| <b>REVIEW RETURNED</b> | 22-Jul-2017  |

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| <b>GENERAL COMMENTS</b> | The authors have addressed all my comments. This is a very important study with implications in practice. I wish to them all the best. |
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| <b>REVIEWER</b>        | Lisbeth Homlong<br>The Norwegian Board of Health Supervision/Kurbadet Family Practice, Norway |
| <b>REVIEW RETURNED</b> | 01-Aug-2017   |

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| <b>GENERAL COMMENTS</b> | I am satisfied With your replies to my previous comments, in my first review. I have no further comments or questions. I recommend publication. |
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