Author's response to reviews

Title: Cannabis use and depression: A longitudinal study of a national cohort of Swedish conscripts

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Author's response to reviews: see over
Dear Dr. Arendt

Thank you for considering our manuscript for publication, and for valuable comments by reviewers. We have now revised according to suggestions, and hope we have adequately addressed the concerns raised. Below you find point by point response to the reviewers. We hope that with these revisions, the paper could be accepted for publication in BMC Psychiatry.

Yours sincerely,

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MAJOR COMPULSORY REVISIONS

1. As the authors now more clearly acknowledge in the limitations, cannabis use was only assessed at time of conscription. After this point in time, no information about cannabis use is available. I believe these data can be used to predict future affective outcomes among late adolescent cannabis users. This nuance should however be made more clear throughout the manuscript. Readers might now believe that the results pertain to cannabis use in general (for instance, discussion line 4/5: “We showed that the increased risk observed among frequent consumers of cannabis was reduced after controlling for confounders”).
R/ We have clarified that cannabis use was measured only once and in early adulthood (by age 18 to 20), and we have rewritten the text in several sections, including page 13 (results, first paragraph), page 14 (discussion, first paragraph) and page 16 (conclusions, first paragraph).

2. I still feel that the description of the methods does not allow the readers to judge the quality of the methodology of this study, and thus the validity of the results.

2a) For instance, some confounders remain insufficiently described: which standardized tests were used to measure IQ? What about the validity of the measures Disturbed behavior and Poor social adjustment? How many items were these variables based on, and what were the response options?

R/ We have expanded the information on the tests used to measure IQ as well as expanded the information on the variables “Disturbed behavior and Poor social adjustment” in page 10. Validity of the measures Disturbed behavior and Poor social adjustment has been assessed in previous studies (BMJ 1988 volume 297 176; Addiction 2000 95[10] 1573; Acta Psychiatr Scand 1985 71[1] 9; Acta Psychiatr Scand Suppl 1980 282 1). We preferred not to add this information in the manuscript, in order not to expand the word count.

2b) Given that the importance of measuring confounding is emphasized throughout the manuscript, it would be interesting to also present the contribution of the confounders (results) in predicting the affective outcomes:
R/ We have added a table presenting the contribution of the potential confounders in predicting depression, table 4.

2c) In addition, if confounders were chosen to adjust for subclinical manifestations of depression at baseline, this should be made clear to the reader (response 2 to reviewer 2):

R/ We cannot assess subclinical manifestations of depression in this study based on register data. We have now more clearly explained that our study only focuses on severe depression. We have added this into limitation and we have added some text into conclusions for future research on mild forms of depression (subclinical manifestations).

2e) Furthermore, the information in the final part of the statistics might be more elaborately explained to the reader:

R/ We have added more information on the Statistical analyses, page 12.

MINOR ESSENTIAL REVISIONS

3. As emphasized by the authors, adjusting of confounders seems very important in this line of research. However, it is still not clear from the introduction which confounders might explain the inconsistency of previous studies’ findings, and which should be adjusted for.

R/ We have added more information in the introduction. Second and third paragraph, page 3.
4a) The discussion is very short, and is mainly a repetition of the results.

**R/ We have extended the discussion part, page 14.**

4b) What is the conclusion of this study?

**R/ We have clarified the conclusions, page 16.**

4c) Which questions for future research arise from the results of this study?

Thank you for pointing this out, we have added a paragraph on this, after the conclusions, page 16.

**DISCRETIONARY REVISIONS**

5. The final sentence of paragraph 1 suggests that the link from depression to cannabis use is the focus of this study, and not the reverse (which is focused on in this study).

**R/ Thank you for pointing this out, we have rewritten the text on the first paragraph of the introduction.**

6. Third paragraph: I believe the authors intend to say that variation in adjustment for potential confounders might explain the inconsistent findings in previous research. This is however not clear from this paragraph.

**R/ Thank you for pointing this out, we have rewritten the text in the third paragraph of the introduction.**

7. Why not include newly added outcome Mania similarly as the other affective outcomes? (At the end of the introduction, at the end of “Outcomes and follow-up” ).
R/ Since this was not the main outcome under consideration, and the number of cases was too small to draw conclusions, we preferred not expand further on this issue.