Reviewer's report

Title: Joint association of physical activity and overweight with subsequent psychotropic medication: a register-linked follow-up study among employees

Version: 1
Date: 14 July 2015
Reviewer: Marie-Eve Mathieu

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This paper presents a combined approach to highlight how baseline body weight status and physical activity level are associated to the incidence of psychotropic medication. A workplace sample of over 6,000 responders was followed over 7 years and is revealed that both reduced adiposity and high activity status at baseline do contribute to lower prescription of psychotropic medication, with an advantage for the active lifestyle. The current work conducted in non-clinical settings contributes to the understanding of primary prevention for mental health beyond the impact of factors independently.

- Major Compulsory Revisions

1. Main document – introduction and discussion: The mechanisms underlying the use of psychotic medication, excess body weight and inactivity should be presented. The discussion on why the physical activity level ends up being more important and body weight is currently too limited and could use this mechanistic approach (e.g. Reference 6, among others, might be discussed in greater details).

2. The follow-up period is substantial with 7.8 years and the approach is based on the incidence of psychotropic used. While this represents interesting information, complementary information such as the number of different medication used (apart from the two subcategories), duration of treatment and doses are not presented. A partial profile is present in the 1st paragraph of the result section (descriptive), but not linked to the 6 subgroups. More details would strengthen the understanding of the disease state and help distinguish for example an acute condition of impaired mental health to chronic and more serious conditions.

3. The use of only baseline profile of independent variables (i.e. body weight status and physical activity level) is problematic. Changes in anthropometric profile as well as lifestyle habits are expected over a 7-year period but not accounted for in current analysis.

4. The use of MET hours as physical activity units is a strength compared to approaches using only total time or time in moderate-to-vigorous physical activity. In fact, low intensity activities are interesting for mental health. A reference could strengthen the methods and/or discussion section on this aspect.
- Minor Essential Revisions

1. Please specify in the abstract and main document how the questionnaire was administered.

2. Abstract: The sentence « No gender interaction was found » might be removed from the method section.

3. Abstract: Please define HR.

4. Main document – psychotropic medication and covariates: Please indicate the source of the information regarding the first medication purchase or death as well as the variables used as covariates.


6. Main document – Results: The fact that only baseline anthropometric and PA profiles are used should be present in the result section.

7. Main document – Discussion: The follow-up period presented is shorter in the discussion (6 vs. 7.8 years). A comparison of the medication use in the current study with a reference population is needed. In the 2nd paragraph, the authors mention that the diagnosis underlying the prescription was not known. The presentation of which common conditions and treatment protocols used in Finland leading to the medication investigated here would strengthen the paper. The 7th paragraph highlights the fact that not all prescriptions are used or that medication is not always used by patients. Given the importance of this statement for the current study, references and specific numbers should be presented.

Abstract: Add « level » to physical activity (1st sentence).

Main document: some numbers are not separated from the units (ex. 25kg/m2).

Table 1: use 2 instead of 2 for BMI units; A capital should be used at the beginning of each line (ex. in the weight/activity groups subgroups presentation); present n(%) at the top of the table; are gender differences tested?

Table 2: Capitalize 1st letter of each line;

Tables: The grey/white background brings more confusion to distinguish the various subgroups.

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

**Quality of written English:** Needs some language corrections before being published

**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