Peer Review Report

Review Report on Investigating the association between the co-occurrence of behavioral health risk factors and sick days in general hospital patients

Original Article, Int J Public Health

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EVALUATION

Q 1   Please summarize the main findings of the study.

The study aims to assess co-occurrence of four behavioral health risk factors (BHRFs), including tobacco smoking, alcohol at-risk drinking, physical inactivity and unhealthy diet and their association with sick days. The authors used data of 256 patients (18¬-64-year-old) admitted to internal medicine, general and trauma surgery, and otorhinolaryngology wards of a tertiary care hospital in Germany during 10 weeks in 2020-21.

The study might reaffirm the higher burden of comorbidity among patients. It showed that co-occurring BHRFs is associated with the number of sick days admitted in hospital. Also it showed that low vegetable and fruit intake is a good indicator of unhealthy diet regardless of being overweight or obese and or suffering from low physical activity.

Q 2   Please highlight the limitations and strengths.

Relatively a low number of participants and unmentioned causes of admissions.

Q 3   Please provide your detailed review report to the authors. The editors prefer to receive your review structured in major and minor comments. Please consider in your review the methods (statistical methods valid and correctly applied (e.g. sample size, choice of test), is the study replicable based on the method description?), results, data interpretation and references. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

Major comments:

Assessing the correlation of co-occurrence of different BHRFs and the number of sick days, may need addressing the causes for the sick days. Did they increase the number of non-communicable diseases (NCDs), including vascular events?

Page 6: The paragraph on unhealthy diets is rather long and difficult to follow. I recommend to put whole data into a table instead of the main text. The table can also be expanded to include all the data of BHRFs (pages 5 to 7) and keep the text the least possible. Likewise, for presence of NCDs, in lines 146-153.

To me a mean number of 28 sick days (SD 55.9) within 6 months is quite a lot! I would like to know whether such a high number is a normal average in Germany or not. Wasn't it because of COVID-19? Please comment on this number.

Line 140, it is not clear whether sick days less than 3 days were considered for analysis or not.

The first sentence of the discussion may indicate that this study has shown a causal relationship between BHRFs and sick days, which was not the aim and outcome of the study, I suppose. Please revise.

Lines 234-5, the authors concluded that limiting assessment to vegetable and fruit intake if time is critical could identify 87% of participants with unhealthy diets. Would the authors please add a paragraph to the Results and Discussion on sensitivity and specificity of their proposed measures like this?

The last sentences of the Discussion need more clarification and expanding: "BHRF sum score and sick days were unassociated if the other 2 indicators of unhealthy diet were used. However, given the small subgroup of patients who did report any sick days (n=145), it seems likely that effects with similar incidence rate ratios for

all 3 BHRFs (1.27–1.49) may have reached statistical significance in a larger subgroup of patients with sick days prior to hospitalization." This part may better suit the results, or if the authors may put it into context.

Minor comments:
Lines 28 and 33, there is a repetition of overweight as an indicator of unhealthy diet. Please revise this.
There is a loose connection between the first two sentences of the third paragraph of introduction. Please make a connection or revise it.
Line 48, there is a loose connection between the co-occurrence of different BHRFs and correlation with the number of sick days. Did they increase the number of vascular events? Could the reason for the sick days be catching COVID-19?
Lines 52 and 53: I think "using 3 indicators of unhealthy diet, namely a) overweight, b) insufficient vegetable and fruit intake, and c) a combined measure of unhealthy intake of fat, fiber, salt and sugar" is redundant here, because it is explored in the Methods.
Lines 187–191, the proportion of participants are rather confusing, especially in lines 190–191. Could the authors please also add the proportions next to each category (ie, overweight [x%], insufficient vegetable and fruit intake [x%], or the combined measure of fat, fiber, salt and sugar intake [x%]). Likewise, for lines 227 and 228.
Line 203, What is the message of "None of the covariates showed a significant association with reporting any sick days or with the number of sick days"? Could you please discuss it in short?
Line 220, Please add a reference to IPAQ-Short.

PLEASE COMMENT

Q 4   **Is the title appropriate, concise, attractive?**

I would recommend revising the title to a more informative one, in line with main findings.

Q 5   **Are the keywords appropriate?**

Yes

Q 6   **Is the English language of sufficient quality?**

Acceptable quality

Q 7   **Is the quality of the figures and tables satisfactory?**

Yes.

Q 8   **Does the reference list cover the relevant literature adequately and in an unbiased manner?)**

No answer given.

QUALITY ASSESSMENT

Q 9   **Originality**

Q 10   **Rigor**

Q 11   **Significance to the field**

Q 12   **Interest to a general audience**

Q 13 Quality of the writing

Q 14 Overall scientific quality of the study

REVISION LEVEL

Q 15 Please make a recommendation based on your comments:

Major revisions.