Reviewer's report

Title: Over-indebtedness and its association with sleep and sleep medication use

Version: 0 Date: 10 Jan 2019

Reviewer: Yu Sun Bin

Reviewer's report:

Thank you for this manuscript on the link between over-indebtedness and sleep problems. The authors describe a cross-sectional study in which data on indebtedness from German debt advisory centres was compared to data from a national survey. The findings provide evidence for the common-sense notion that being over-indebted affects sleep and may therefore have longer term consequences on health.

The manuscript has potential, but its reporting can be improved. Notably the Introduction and Discussion could be made more concise and the reporting of the Methods and Results should illustrate the data more clearly. I have made some suggestions as to how below.

MAJOR COMMENTS

1. Over-indebtedness is defined as insufficient income and assets to cover the cost of living over some period of time. It would be helpful to stipulate what that period is, whether there is a formal definition in the literature, how participants qualify for advice, or the definition used by the advice centres to refer participants into the study.

2. The sampling frame for the OID and the DEGS are clearly different, despite similar questionnaires and reasons for inclusion/exclusion of data. It would be helpful if the authors summarised this in a flow diagram. The key is to show that OID and DEGS samples are comparable in all ways except for over-indebtedness, making the DEGS a valid control/comparison group. Ideally, the study should only include DEGS participants from North-Rhine-Westphalia, and the OID data should include only participants 18 - 79 to be consistent with DEGS. Please comment on the representativeness of the advisory centres included in OID vs. all advisory centres. Please comment also on the information provided to participants about the survey, i.e. if framed as a health survey, then more comparable to the DEGS than if framed as a sleep survey, in which people with sleep problems are more likely to respond.
3. Line 154 on Ethical approval "Informed consent was not obtained in order to ensure anonymity" does not sound correct. It is more likely that formal consent requiring witnessed signature was not collected, however, the return of the anonymous survey indicates consent from the participants for their data to be used in the study. Please clarify.

4. The aim of Table 1 is not only to characterise the 2 samples but also to indicate demographic points of difference between them. Suggest remove "full sample" columns and instead show results of significance testing to show differences between the two samples on the demographic/health factors.

5. "Full sample columns" should also be removed from Table 2. Table 2 should be incorporated into the bottom of Table 1. What would be of greater interest than current Table 2 is to show the rates of the 3 sleep indicators by demographic/health characteristics either through including row% with sleep problem in Table 3 or as a Figure.

6. Please show the degree of overlap between the 3 related sleep indicators, either through Venn diagram or description in text.

7. In Table 3 it may be helpful to bold or italicise ORs that do not span 1.0 to draw readers' attention to important results.

8. A major confounder not considered by the authors is time. Data for OID was collected in 2017 and data for DEGS was collected between 2008-2011. If it is true that sleep problems are increasing over time (as stated in the Introduction), then OID sample may have higher rates of sleep problems regardless of indebtedness. Please Discuss.

9. Discussion should note potential for unmeasured confounding due to the different sampling and recruitment frames for the 2 samples compared in the study (in the same paragraph as unmeasured confounding for other reasons in lines 433 - 443).
MINOR COMMENTS

1. Paragraphs spanning line 81 - 113 in the Introduction could be moved to the Discussion for a more pithy and punchy rationale for the study. i.e. over-indebtedness increasing, sleep problems increasing and affect health, is there a link to suggest over-indebtedness an issue for long-term health consequences?

2. Around line 134, can the authors please characterise North Rhine-Westphalia briefly for non-German readers i.e. is the population there similar to that of Germany overall and why were the 70 advisory centres there chosen?

3. The authors should avoid the word "linked" to describe combining OID and DEGS1 data, as this implies that individual records are linked across different sources to extend the dataset for one person (e.g. linkage of hospital records to death records to determine if someone died of disease).

4. Remove mentions of the "full sample" as it is misleading because it suggests that the data is collected from one cross-sectional survey and then partitioned into two groups. Recommend referring to the OID and DEGS samples (and ns) throughout the manuscript for clarity (e.g. lines 216 - 218).

5. The authors mention sensitivity analysis (line 428) but do not explain what they did. Please attach sensitivity analysis as online supplements for full information. Similarly, the statement about multicollinearity in the same paragraph could be removed or explained more clearly.

6. In Discussion, no need to report the statistical results again (lines 275 - 277).
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
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Yes

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