Reviewer’s report

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

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Reviewer: Kathryn Lee

Reviewer's report:

Over-indebtedness is a neglected health risk experienced by millions of Europeans. This manuscript reports on over-indebtedness and its association with sleep problems and sleep medication use in a cross-sectional sample of German participants representing a single household from a 2017 survey administered within 70 debt advice centres in one region of Germany. The response rate was 50% with 699 participants, yet there are only 538 with data in tables. The survey data were then linked to Germany's national health surveys that included data on sleep problems. After controlling for many socioeconomic factors, over-indebtedness still accounted for risk of difficulty with sleep onset and maintenance as well as sleep medication use. Significance was set at p < .05 yet 95% CI were used and very little is reported by p values. Women and single adults were at higher risk. Some of the dichotomization of sociodemographic variables needs clearer rationale or should be kept in the original categories. For example, marital status was dichotomized as married or cohabitating, but also included living apart (i.e., sleeping separately), and the concept of sleeping with someone having an effect on one’s sleep was not considered. The unemployed category included full time students whereas the employed category included part-time and full time; hours of employment, shiftwork, and working at more than one job was not assessed and could be major confounding factors in the risk of poor sleep.

The way in which categorical sleep variables were dichotomized is also somewhat troubling. Insomnia (either sleep onset latency or sleep maintenance) is clinically operationalized as 3 or more nights per week, yet Table 2 and text indicate that "no" was score of 1 and "yes" included all remaining scores of 2-4. Taking a sleep medication is not independent of the two types of insomnia (initiation and maintenance) under investigation. It is interesting that taking a sleep medication did not necessarily reduce the risk of poor sleep, but this was not adequately addressed in the analyses. Given potential interactions between being female, single, having children, and low SES, many interaction terms should be tested in the multivariate models. I do have some specific comments that authors should consider that may improve the manuscript:

Abstract: the sample in the abstract is 699 whereas the sample in the tables is 538.
Introduction is long and some redundancy could be edited, as 96 references are cited in this section alone. The aim is very clearly stated. Sleep problems had a time frame of the past 4 weeks, with four response options (1 indicates none and 4 indicates 3 or more nights per week). It is not clear why the 2-4 response options were combined.

Results include many statistical numbers that disrupt the flow of each sentence. To help readers, these numbers could be removed, as they are already in the tables; I would also suggest three subheadings in the results: sleep onset, maintenance, and medication.

Discussion is also long and has only one subheading, which is really where the discussion begins, as the initial part of this section also includes detailed statistical results. Rather than repeating these, authors could help readers interpret all the OR's (i.e., what an aOR of 1.45 or 3.94 means in terms of comparison to the reference group).

The discussion includes a great deal about stress, yet perceived stress was not measured in this study but assumed present in the over-indebted group.

Minor comments:

1) Sometimes "gender" is used and other times it is "sex" - to be consistent, most recommend the term "sex" unless you actually have gender-identified data.

2) Tables indicate a sample of 538 rather than 699.

3) Table 3 should include a footnote or some notation to indicate which 95% CI's are significant.

4) Limitations are adequately addressed, however there are also limitations due to self-report for sleep measures, not including a measure of shiftwork or having more than 1 job, and caregiving or parenting children in the home. Finally a comment about generalizability of the findings needs to be made.
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?
If not, please explain in your comments to the authors.

No

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I recommend additional statistical review

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