Reviewer's report

Title: Health, health behaviors, and health dissimilarities predict divorce: Results from the HUNT study

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Reviewer: Nina Rottmann

Reviewer's report:

The paper “Health, health behaviors, and health dissimilarities predict divorce: Results from the HUNT study” investigates the degree to which six health characteristics and health behaviors among husbands and wives are prospectively related to divorce, and whether spousal similarities in these factors are related to a reduced risk of divorce. Data stem from participants in the Nord-Trøndelag Health Study and are a combination of mainly questionnaire data and register data. A total of 19,827 couples were included in the present analyses. Follow up data on marital dissolution were available over 15 years. The study deals with a relevant topic. The methods seem appropriate and the results are interesting. However, I have a number of comments which are mentioned below.

Abstract:

Minor comments:

1. Methods: The paragraph on methods should be written in accordance with the journal’s manuscript guidelines, that is: “Methods, how the study was performed and statistical tests used”.

Discretionary:

2. Conclusions: The first sentence of the conclusion is almost identical to the first sentence in the background and can be omitted. It would strengthen the abstract if the authors instead could say a bit more about what their study contributes with. Do the results have any implications?

Paper:

Major comments:

3. In the last paragraph of the section on “sample and design” (p.6) the authors state that they have already investigated the associations between alcohol use and marital dissolution and between mental distress and marital dissolution in a previous study based on the same data (Torvik et al. 2013, reference 23 in the present manuscript). Their reasons for also including these variables in the present paper are “to investigate differences in a broader context, and to adjust the results of other characteristics for these important control-variables.”

The authors need to elaborate on this explanation. What is meant by “investigating differences in a broader context”? Does this refer to the fact that in
the present paper alcohol use and mental distress are also adjusted for a range of other behaviors? If alcohol use and mental distress are used as control-variables they should be referred to and presented as such throughout the manuscript.

The information on the previous study is important. In order to enhance transparency I suggest moving this information to the last part of the background section in which the purpose of the present study is presented. It has to be made clear what the present paper adds. In the discussion, the new findings should also be related to the previous paper.

4. Measures (pp.7-8): The self-report measures of subjective health, smoking, alcohol use and exercise are described, but no information is given on whether these are established measures to assess these health characteristics. If the questions are purpose-designed, how have they been developed? If these are ad-hoc questions this should be discussed in the section on limitations.

With respect to alcohol use it is not clear why drinking more than 5 times was chosen as the cutoff for women, while drinking more than 10 times was used as cutoff for men.

No precise information is given on the variables income and highest completed education. Were both categorical variables? If yes, which subcategories are there?

5. Results: The descriptive results are brief. I miss information on the basic sociodemographic characteristics of the participants (education, income, length of marriage at baseline). Participants’ age is presented in the method section (sample and design, p.6); this can be moved to the descriptive results (pp.10-11).

Minor essential comments:

Most of my minor comments are related to clarity in argumentation, readability and consistency in the use of terms, which are issues that the manuscript can improve on.

6. It is sometimes unclear what the term “similarity” refers to. By consistently using “spousal similarity” (e.g. on p.5, l.10) clarity could be enhanced.

7. Use of the term “trait” throughout the paper (e.g. p.2, l.12): A trait usually is defined as a personality characteristic or as an attribute resulting from a hereditary predisposition (see e.g. APA Dictionary of Psychology), but in this paper the term “trait” is used to cover health characteristics and health behaviors. I think the term “trait” should be replaced by a more appropriate term throughout the paper.

8. Some terms are introduced without definition or not clearly explained. Please explain these:

- Background, first paragraph: dyadic level factors – what is meant by that? Not all readers may be familiar with this.
- Background, p.3, third paragraph, what is meant by “gendered effects” (l.21)?
- Background, p.4 l.2 what is meant by “social selection”?
9. Background p.4, l.5-7: is this a statement that the authors make, or is there a literature indicating this? I suggest to rephrase this sentence and to explain the argument a bit more. The way it is put now it seems somehow counterintuitive that “similarities on risk factors for divorce are also protective”. What are they protective for?

10. The last paragraph on p.4 starts with “on the one hand”. – I cannot find the counterargument indicated by “on the other hand” – please check this.

11. p.6, l.4 “contradictory registry entries from husbands and wives”. What does that mean? Was one of them registered as being married with the other one, whereas the other one was not registered as such?

12. p.7, l.21: which “population” is meant here? – All participants in the HUNT study?

13. p.15, l.6-7. Do concordant couples in general have fewer alternatives? Or do the authors mean couples in whom both show poor health behaviors/characteristics? This is not clear.

14. p.15, l.19: Why should the results not be generalizable to newly-weds? Please explain.

15. p.16, l.6-11: This part of the conclusion is difficult to understand. It should be rewritten in order to enhance clarity.

Discretionary revisions:

16. Discussion: The discussion would benefit from an elaboration of what this paper adds to the literature and what the implications of this study are. Could the results have implications for e.g. divorce prevention or health behavior change interventions? Based on their study and findings, do the authors have suggestions for future research?

Some language correction is needed throughout the manuscript. Here are some examples:

- P.3, l.15 “could be a results of divorce” – delete the last s in results
- P.7, l.3 “On who were married to whom” – change to: on who was married to whom
- P.13, l.19 “similarities on these traits was associated with…” – change to: similarities…were associated with…”
- P.15, l.6 “since couples concordant have…” – change to: since concordant couples have…

**Level of interest:** An article whose findings are important to those with closely related research interests

**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.