Reviewer’s report

Title: Road Traffic Noise and Registry Based Use of Sleep Medication

Version: 0 Date: 15 Jun 2017

Reviewer: Daniela Fecht

Reviewer's report:

This paper is a cross-sectional study looking at potential associations between night-time road-traffic noise and use of sleep medication in Oslo, Norway. The study is very well designed and methods sound. The authors had information on window opening and closing habits as well as bedroom facing road; aspects which are often major limitations in this type of studies. The use of a DAG to identify confounders is also commendable.

Overall, I only have minor comments, as listed below.

My main concern is with the outcome under study. Why do the authors focus on registry based use of sleep medication? It is not clear why the authors used a proxy to account for sleep disturbance, annoyance, etc. Did they not have such information available? Using prescription sleep medication seems to me to be more associated with severe pre-existing health conditions, e.g. people suffering from pain use sleep medication but also people suffering mental health conditions. Use of over-the-counter sleep medication seems to me more indicative of annoyance related sleep problems. Is there any data on this? Could the authors please provide a better rational for why they focus on sleep medication use and expand on the limitations on this? Some aspects have been mentioned in the discussion but I think these needs more explanations and though in order to make this a meaningful outcome.

A few minor issues:

Can you please provide a bit more information on why you considered some covariates, e.g. physical activity? How is this related to road-traffic noise? Also, why do you adjust for rail-way noise? Have you considered a sensitivity analysis which excludes all people exposed to rail-way noise?

The authors have information on sleeping with windows open or closed as well as bedroom facing road. Where does this information come from? This is not quite clear? How was sleeping with window open defined? On average over year, on average in summer/winter? Could you please provide a bit more information on this?
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