Reviewer's report

Title: Night work duration and body mass index among registered nurses from eighteen public hospitals in Rio de Janeiro, Brazil

Version: 2 Date: 20 August 2014

Reviewer: Beata Peplonska

Reviewer's report:

The manuscript reports results of a cross-sectional study among 2372 nurses (predominantly women) from 18 hospitals in Brazil. The aim of the study was to examine association between night shift work duration and BMI, by gender. The topic is of importance for public health. Since the epidemiological evidence on this issue is relatively limited and inconsistent, the results from this study would contribute to epidemiological knowledge about links between night shift work and BMI.

The major problem with the study is that the main outcome and main covariate – current BMI, and BMI at age 20 yrs may have been biased. This is because current BMI was calculated based on the self reported data on weight and height. No anthropometric measurements have been performed. As reported, by authors, also BMI at age 20yrs was reported – this measure could be biased in particular, due to poor recall – participants may not know what their BMI was in the past.

Major Essential Revisions

1. Abstract-
   Methods – covariates should be listed, since various models are applied these should be described
   Results – second sentence may be omitted, is not relevant, instead description of comparison of the results from various models may be extended

2. Background
   3rd paragraph – last sentence- citation 6 – the statement needs to be rephrased, since this is part of the true – van Drangelen et all found strong evidence for crude association, which become insufficient was when confounders have been controlled for

3. Methods – study population -last sentence – “Participants loss…..” is not clear, should be clarified

4. Term “covariables” is used through the text of the manuscript – sounds awkward – I suggest to replace it with term covariates.

5. Methods - professional work hours is used as one of the covariates in the models – this includes hours worked at night – may introduce overadjustment

6. Methods – unit for alcohol consumption is not clear – what does “dose” mean?
7. Covariates – categories, units should be better described
8. Statistical methods – 2nd sentence needs to be clarified – chi² used for categorical and ANOVA used for categorical
9. Statistical methods - Justification for considering some of the characteristics as mediators should be provided, based on the data from literature
10. Statistical methods – formal test for effect modification by gender should be applied to assess whether differences of the associations by sex are meaningful statistically
11. Results – there is no need to report to 2 decimal points up to 1 suffices
12. Results – the percentage of males working between 1 and 9 years is misspelled – should be 38.9 instead of 39.8
13. Discussion – 8th paragraph, starting with “Since we consider…..”
The authors state that day workers were “subdivided by previous experience in shift work.” Neither methods nor results sections shows that. As I understand, total (current and former night shift workers) was categorized according to their night shift work duration.
14. Discussion - 8th paragraph, 3rd sentence starting with “This procedure differs from the norm…..” Using word “norm” in the context of the sentence is disputable, and inappropriate. Sentence needs to be rewritten.

Table 1,2 values for categories by night shift duration are provided, while according to methods description “p” is determined from analysis where night shift work duration is on continuous scale. Should be consistent or if different, for clarity, explanation for how ‘p’ was determined should be provided under the table.

Figure - units should be provided

**Level of interest:** An article of importance in its field

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests