Reviewer's report

Title: Association between shift work and obesity among female nurses: Korean Nurses' Survey

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Reviewer: Erin Flynn-Evans

Reviewer's report:

In the paper entitled ‘Association between shift work and obesity among female nurses: Korean Nurses' Survey,’ by Kim and colleagues, the authors examine obesity with shiftwork among nearly 10,000 Korean Nurses. The methodology used is sound and the statistical analyses are appropriate, however, the potential misclassification of shift workers, the effect of age on obesity and the lack of information on prior shift work in current non-shift workers weaken the findings.

Major Compulsory Revisions:

• Some discussion should be added to describe the psychometrics of the shift work question. In the US, women working exclusively during the day may consider themselves to work shifts (i.e. ‘the day shift.’). Is there any possibility that this question led to misclassification?

• Non-shift workers are significantly older than shift workers and they have a significantly higher BMI. This suggests that the effect of obesity with years of shiftwork could simply relate to older age. The authors should restrict the analysis to non-shift workers and show whether there is a positive correlation between age and obesity in this group. Similarly, is there an interaction between age and shiftwork?

• The tertile categories of shiftwork do not provide much depth to the analysis, because the tertile categories split by age. This is somewhat expected since the mean age is quite young and in order to have experienced at least 6.83 years (i.e. tertile 3) of professional working life one must have been in the workforce for that long. In order to better examine the effect of shift work duration on obesity, it would be very helpful to see the results of each tertile when age is restricted to >30 or a statistically meaningful age.

• A major concern with this analysis is the lack of information on potential past shiftwork in non-shift workers. The authors note that this data was not collected, but it would be helpful to have some discussion and reference to relevant manuscripts that describe the typical pattern of shift work among nurses in Korea. Is it typical that most nurses would begin their careers on night or rotating shifts?

Discretionary revisions/comment:

• The authors found that breakfast skipping was inversely related to obesity. Night shift workers may consider breakfast a meal that is eaten in the social
morning, rather than upon waking. Is it possible that shift workers reported not eating breakfast simply due to not being awake at a time when others eat breakfast?

**Level of interest:** An article of limited interest

**Quality of written English:** Acceptable

**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.