Reviewer's report

Title: The effects of air pollution on vitamin D status in healthy women

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Reviewer: anuradha khadilkar

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In this paper authors have looked at the effect of air pollution on Vitamin D status of healthy women.

Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)
Nil

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
1. Please explain the term “housekeeping women”, does it mean women who were housewives?
2. What was the reference period for the FFQ? The validation should be briefly mentioned.

Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)
3. The aim of the study is “To determine whether air pollution and low ground level of ultra-violet B light (UVB; 290-315) can deteriorate the body vitamin D status in healthy women”. However, authors have not measured air pollution and have used the ground level of UVB as a measure of pollution.
4. Authors should provide a reference for the fact that the ground level of UVB may be used as a function of air pollution. It would have been more appropriate if with the UVB, air pollution had been measured, or a reference should be provided stating that the mentioned cities were polluted or otherwise.
5. In methods, women’s clothing has not been described anywhere.
6. Authors mentioned that “nutritional data precisely collected, were analyzed by nutritionists....” How were the intakes of Ca, P, Vit D etc calculated? What was the reference?
7. Was the questionnaire for sun shine exposure validated? Details need to be provided for how sun exposure was assessed. How was the reference period decided? It is usually given as hours or minutes per day or week. Also the time of the day and type of clothing (Percentage skin exposed) are vital. How was the sun exposure index calculated?
8. From table 1, authors have shown that 25 OH-D levels were significantly higher in women from Ghazvin than from Tehran. However, both levels are still very low and though there is a statistically significant difference between 11 and
15.5, this difference may not be significant clinically.

9. Table no. 3, is not very relevant and the correlation of 25 OH-D has only been shown with age. Very few of the co-relations are significant and may thus be mentioned in the text.

10. It is surprising that 25 OHD levels did not show any association with housing, time in the sun or sunscreen.

11. The sun shine exposure in women from Ghazvin was higher than for the women in Tehran, though the difference is not statistically significant. It is likely that this may also be a contributing factor to higher 25 OH-D levels.

12. Results on page 12, the authors mention that “The age and BMI of the two groups were statistically different. But their values were clinically comparable.” What does this mean?

13. In conclusions, the authors mention that the place of living as a surrogate of air pollution has a significant influence on vitamin D status. Since air pollution was not measured and the sun light exposure has not been very accurately captured, the conclusions are not well supported by the data.

**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