Reviewer’s report

Title: Personal Ultraviolet Radiation Exposure in a Cohort of Chinese Mother and Child Pairs: The Chinese Families and Children Study

Version: 0 Date: 02 Nov 2018

Reviewer: M. Khazova

Reviewer’s report:

The manuscript presents research in very important area of personal exposures to solar UV radiation and is well written; however, it should not be published without amendments.

Manuscript reported very limited analysis of collected data. It is not clear if 3 days of data collection were weekday, weekends or a mixture of both; during school term or school break. No school or paid employment hours are given; not clear if this information was taken into account in the analysis: it limits available time to spend outdoors and analysis should include information if people had UV exposure at the time when they could. Grobner et al 2015 showed that ~ 85% of sun exposure of adolescent boys was acquired outside school days. Authors very rightly stated importance of "associated work and/or school responsibilities in determining personal UVR exposures" (lines 317-318) but didn't present any analysis of collected data to support this statement.

It is likely that there is significant difference in ambient erythema effective irradiance between early April and end of May - early June; therefore, logic of averaging of April-June doses is unclear, especially taking into account that there was no data collection in rural areas in April. Furthermore, as presented data showed, April temperatures were too low to facilitate significant area of exposed skin. Analysis should reflect it; data on ambient UV for the collection period also would be useful; as well as explanation of statement in lines 208-209: If the data were not comparable how they were used?

Variations in received doses and exposure times are very significant for the same cohort group and the distribution should be given in more details, with some indication of reasons. Difference (if there was any) in sun exposure of working and non-working mothers is not reported.

Correlation between reported times and dosimetry is poor for children, it is obvious problem with proposed study protocol but no explanation is given why and how it would be rectified in a large-scale study.

Authors stressed an important distinction between exposure of the skin and available dose for the person (lines 319-325) but didn't report analysis of collected data to take this distinction into account. In a way, presented data and drawn conclusions may be misleading as the findings are given for available doses but not for an exposure of the skin.
Editorial comments

1 MED of 210 J/m² seems to be on a lower side for Chinese population; authors, in fact, mention variations in skin pigmentation across China. To use SED as a universal reference may be better.

Line 21. Underexposure to UVR doesn't inhibit Vitamin D production; it results in limited opportunity for VitD synthesis.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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Please indicate the quality of language in the manuscript:

Acceptable

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