Reviewer’s report

Title: Nocturnal finger skin temperature in menstrual cycle tracking: Ambulatory pilot study using a wearable Oura ring

Version: 0 Date: 20 Feb 2019

Reviewer: Reviewer 2

Reviewer's report:

PEER REVIEWER ASSESSMENTS:

OBJECTIVE - Full research articles: is there a clear objective that addresses a testable research question(s) (brief or other article types: is there a clear objective)?

Yes - there is a clear objective

DESIGN - Is the current approach (including controls and analysis protocols) appropriate for the objective?

No - there are major issues

EXECUTION - Are the experiments and analyses performed with technical rigor to allow confidence in the results?

No - there are major issues

Statistics - Is the use of statistics in the manuscript appropriate?

Yes - appropriate statistical analyses have been used in the study

INTERPRETATION - Is the current interpretation/discussion of the results reasonable and not overstated?

No - there are major issues
OVERALL MANUSCRIPT POTENTIAL - Is the current version of this work technically sound? If not, can revisions be made to make the work technically sound?

Maybe - with major revisions

PEER REVIEWER COMMENTS:

GENERAL COMMENTS: The information provided is novel and could be interesting for the researchers and stimulate further investigation.

Nevertheless, there could be severe methodological biases, which prevent to draw a firm conclusion about the main questions of the study.

In particular, authors should highlight how they managed the sample size of the study, since the number of enrolled women is extremely low. In addition, it is not clear if the authors excluded possible confounding factors (such as extremely low/high BMI, age and other variables) that may have influenced the main outcomes of the study.

Authors did not declare whether the study followed the "The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement" (PMID: 18064739), available through the Enhancing the QUAlity and Transparency Of health Research (EQUATOR) network.

Finally, many references are really too old: there are even two references [28] and [29] of articles published in 1990.

REQUESTED REVISIONS:

I hereby list the most important points to address:

- Authors appropriately stated that skin temperature patterns could be influenced by several elements. Did they normalize this parameter for all the other variables that are known to influence the main outcomes of the study?

- Did authors perform any sample size before to start the enrollment? The number of enrolled women (n=23) is extremely low to draw firm conclusions. In addition, authors had 3 drop-outs and 6 women with incomplete data, so the number of final analyzed women (14) is even lower!

- Did authors exclude patients affected by significant comorbidities? If not, this may represent a significant bias.
- Did enrolled women get any reward/payment to enter/continue the study? It would be mandatory to declare about this point.

- Did the study conform the "The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement" (PMID: 18064739), available through the Enhancing the QUAlity and Transparency Of health Research (EQUATOR) network? It would be mandatory to design this type of study following the abovementioned international standards.

- The age of enrolled women seems extremely variable (21-49): these extreme ages may have severely influenced reported outcomes.

- The BMI of enrolled women seems extremely variable (20.3-37.2): these extreme BMIs may have severely influenced reported outcomes.

- Most of the references are too old: 2001 [8], 2002 [9], 1996 [10], 1996 [11], 2001 [12], 2005 [13], 1998 [20], 1994 [22], 1997 [28], 1990 [29], 1990 [30]. This is completely not acceptable: I recommend to avoid references published more than 5 years ago.

Note: This reviewer report can be downloaded - see attached pdf file.

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

No

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

No

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 am able to assess the statistics
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Acceptable

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