Reviewer's report

Title: Long working hours and pregnancy complications: women physicians survey in Japan

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Reviewer: Matteo BONZINI

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Major compulsory revision

The manuscript by Takeuchi et al titled Long working hour and pregnancy complication is focused on an interesting occupational medicine topics, regarding pregnancy safety among young physicians.

But in the present version several limitations sensibly affect the validity of their results, making the message of the paper not clear and evident.

The participation rate is very low, being responding women less then half of the contacted women (see page 6). A strong effect on results of this self selection should be discussed in details, in oprdr to increase external validity of their results. Even the fact of having only physician from private schools deserve a more specific discussion in term of selection of the study sample.

Recall bias is a well established problem in all epidemiological study when outcomes and exposure were self reported. This is much more important when exposure measurement is prone to bias (such as number of working hour) and in front of a clear adverse outcome (such as preterm delivery). Moreover physicians could know very well that long working hours could be detrimental for pregnancy development, and could involuntary recall as more “heavy” or “long” their first trimester’s job activities after experiencing pregnancy complication.

The effect of this bias could be very important, also because in the present study, pregnancy info were collected many years after delivery. The sensitivity analysis authors performed (line 209) appears insufficient to control this problem

Both outcomes of interest were self collected. Threatened abortion is very poorly defined, and could be susceptible to many misclassifications, when collected several years after delivery. This misclassification could be differential, with women working more hours (a suspected detrimental condition) that could report more easily unspecific threatened abortion. That could sensibly affect risk estimates.

As authors recognized (line 211) potentially important confounders were not taken into account such as smoking habits, alcohol consumption, physical activity, making adjusted OR still prone to distortion.

Another important risk factor is socioeconomic status. Authors reported
household income but with no details, and speaking about quintile, without explaining which distribution was used.

Moreover only first trimester exposure was collected, but modification of the job task during pregnancy could sensibly affect pregnancy outcome, an specially PTD, with could be strongly affected by occupational exposures during the last week before delivery.

The effect of working hours is far to be linear. Then the presented analysis with hours as a continuous variable (effect of a 10 hour increase) is probably not useful. I suggest to leave only ORs comparing <40h and >40h or to add alternative cut off such as median weekly hours (54) or other (60h/week). A dose response relationship could be showed presenting Ors in different quartiles (or tertile etc..) of exposure comparing women exposed to different levels (different working hours) with references (i.e. women working less than 40 hours per week)

Authors concluded their discussion as follow: “together these limitations could impact overall generalizability of the results” (line 218). The problem is that the above mentioned methodological weakness could affect not only generalizability but also validity itself of their risk estimates, being impossible to exclude important distortion and bias in their results.

Last, I recommend an English revision of the text, being the paper in several paragraphs not fluent and clear, with a structure of the sentences often unusual. This makes reader not in the best position to appreciate the message of the paper or to understand all methodological issue.

There are also some typos such as, for example:
line 71 ...review in this FILED...
line 96 ...women with multiple conceptions (....) IS more prone to....
Line 179 ...this study along with our study add to the literature that....
I also suggest to substitute the words “women workers” with “working women” and “women physicians” with simply “physician”

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:Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

no conflict of interest