Reviewer's report

Title: Age, mode of conception, health service use and pregnancy health: A prospective, cohort study of Australian women

Version: 1 Date: 22 August 2012

Reviewer: K Joseph

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The authors carried out a study to investigate the relationship between maternal age and mode of delivery on self-rated physical and mental health, use of health services and health behaviours during pregnancy after adjustment for socioeconomic and psychosocial factors. They recruited nulliparous women at 28 weeks gestation and later from infertility treatment centres and obstetric hospitals in 3 age strata, namely, 20-30, 31-36 and >=37 years. The final study included 592 women of whom 297 conceived following ART and 295 conceived spontaneously and the 3 age groups were well represented. The study showed that maternal age and mode of conception were not associated with self-reported health in pregnancy and hospitalization.

Major Compulsory Revisions

1. In all the models in Tables 2 to 4, maternal age was modeled as a continuous variable. This assumes a linear relationship between the outcome and maternal age. In fact it is theoretically possible that the relationship is U shaped. The authors should first model maternal age using indicator variables. It would be preferable to present the results of modeling with indicator variables unless the results show that the linearity assumption is appropriate.

2. Modeling ‘self rated general health’ and ‘feeling unsupported’ as continuous variable is also questionable.

3. The issue of adjusting for variables in the causal pathway is particularly important in this study. We know for instance that the higher rate of twin pregnancy in the ART group was due to ART. Should the effects of maternal age and ART that occur through the pathway of (higher risk for) twin pregnancy be adjusted away? Similarly, it is not entirely evident if one should or should not adjust for the Physical Component Summary when modeling hospital admissions or feeling unsupported when modeling the Mental Component Summary. The authors should consider these issues carefully. It may be helpful to have 4 models i.e., an additional one that adjusts for all determinants in the current model 3 except those potentially in the causal pathway.

4. There were differences noted between age groups in terms of pregnancy complications such as preeclampsia and placenta previa and between modes of conception groups in terms of gestational diabetes, etc. Although the authors state that the mean gestational age of the entire study population was 31.6 week
(SD 2.5), they do not provide the mean gestational age for each of the contrasted categories. Did the compared groups differ in terms of gestational age and if so should this have been accounted for in the analysis?

Minor Essential Revisions

1. The Introduction may benefit from being shorted with a focus on studies examining issues most similar to what the authors studied i.e., self rated health, not physician diagnosed outcomes. Similarly extraneous details in the Method section can be deleted (e.g., all data were entered into password protected computer files). The Discussion section could benefit from reorganization. Typically the first paragraph of the Discussion section should provide an overview of the study findings, the next couple of paragraphs situate the findings with regard to the main objectives against the literature, one paragraph talks about the study’s strengths, another about the study’s limitations and the final paragraph summarizes the study.

2. Tables 2 to 4 may benefit from judicious editing. For instance, the standardized differences could be labeled ‘Mean difference’ i.e., if the standardized coefficient for maternal age is 0.011 in the second model (Table 2), this represents the mean difference in the Physical Component Summary Score for unit increase in maternal age. Steps 1, 2 and 3 could be labeled models 1, 2 and 3, etc.

3. It would be preferable to use a consistent scheme for creating all indicators variables (e.g., Yes=1 and No=0). Currently Yes=1 for some indicators such as ‘Twin pregnancy’ and Yes=0 for others such as ‘English spoken at home’.

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:

I declare that I have no competing interests