Reviewer's report

Title: Practical considerations for sensitivity analysis after multiple imputation applied to epidemiological studies with incomplete data.

Version: 3 Date: 26 March 2012

Reviewer: Michel Chavance

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The authors appropriately modified their manuscript which can now be published in BMC Methodology.

However, I strongly suggest a last change, which I should have recommended earlier. On page 2, lines 9-11, they state

"However, if the missingness mechanism depends on the outcome, given the covariates, a complete-case analysis will be systematically biased, even under the MAR assumption". It would be more correct to write

"However, if the missingness mechanism depends on the outcome, given the covariates, a complete-case analysis can be biased, even under the MAR assumption"

If the missingness process only depends on the outcome, the situation is identical to a case control design which is known to provide unbiased estimates of the odds ratios. If this process depends, independently on the outcome and on some covariates, the complete case analysis will also provides unbiased estimates. In the example studied by Vach and Blettner and referenced by the authors, the four probabilities of complete observations in the four strata defined by the outcome and the exposure were 0.10, 0.20, 0.30 and 0.50, when identical marginal probabilities of complete observations would imply probabilities of .073, 0.187, 0.247, 0.633 with an observation process depending independently on the outcome and the exposure.

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