Reviewer's report

Title: Fake facts and alternative truths in medical research

Version: 0 Date: 13 Nov 2017

Reviewer: Harald Schmidt

Reviewer's report:

Fake facts and alternative truths in medical research argues that researchers frequently have undisclosed "polarized conflicts of interest" that lead to biased reports. This undesirable situation should be overcome through three measures: editors should "a) make researchers state their "polarised conflict of interest" when submitting manuscripts, b) make reviewers explicitly assess polarisation, and c) apply external experts to assess polarisation when reviewers (and/or editors) are too ingrained in the research to be able to make the assessment."

This is a timely paper, and the case of breast cancer screening is a particularly fitting one, in principle. If the aim is to convince not only those already believing, but also those needing persuasion, it would be helpful to address the following points:

1. "Overdiagnosis to Mortality Reduction Ratio (OMRR) in publicly funded mammography screening programs of women aged 50-69 years old"

   → the significance of this ratio needs to be explained—while, as noted, I find it in principle eminently useful, I doubt the brief introduction can makes sense to anyone who is not yet familiar with the basic concept of overdiagnosis/detection/treatment.

2. "as assessed by experts in polarised research (1: Very negative to screening, 2: Negative to screening, 3: Neutral to screening, 4: Positive to screening, 5: Very positive to screening)."

   → A reference should be provided here how/where these scores were obtained—rather critical, given the author's point of departure is that experts can't be trusted.

I am pretty familiar with Marmot Review, USPSTF, and Cochrane/Gotsche, and can broadly follow the ranking here, but as described the analysis lacks robustness.

3. Related, something needs to be said about the (unfacted, objective, measurable) fact, that the Marmot Review, USPSTF, and Cochrane/Gotsche are not single authored papers, but
done by large groups. Is the assertion here indeed that, in the case of Marmot and USPSTF, the chairmen strong-armed all committee members into accepting their views? If so, that should be stated explicitly. On Gotsche: a major part of what explains the skepticism is that many studies others include in meta reviews are excluded on methodological grounds—eg no double blinding, etc. This—as all Cochrane reviews gives chapter and verse on this, using GRADE and other frameworks. It's obviously interesting that there is a thin line between being methodologically rigid irrespective of where the results lead, on the one hand, and, on the other, starting from a position where one picks methods so they best support findings that gel with ones predetermined worldview. But the framing here is too broad brush, and it seems the author suggest the only things that drive disparate findings are "self-interest… intellectual laziness… mental shortcuts, or hyper-partisanism, financial conflicts". In terms of substance, that seems rather too quick. And, to restate, in terms of methods it is necessary to address the point that at least 3 major reviews included here are the result of committee work, and not single author publications, so more need to be said about how the ranking was determined.

4. Directly related: "An adapted version of these questions was sent to the corresponding authors of the identified publications."

→ By whom? The author? If so, should state so, as well as when and how this was fielded, what the response rate was, who responded (and on behalf of whom, if relevant), etc Both for review purposes and for the benefit of readers, it would be helpful to add a table with responses to the 2 questions stated in footnote [ii]

5. By a) making researchers state their "polarised conflict of interest" when submitting manuscripts, b) making reviewers explicitly assess polarisation, and c) apply external experts to assess polarisation when reviewers (and/or editors) are too ingrained in the research to be able to make the assessment.

→ These recommendations are concrete in one sense, but also lack considerable detail on how exactly this would be done. Both in terms of the fact that many guidelines etc are established by committees, as noted above under (3) and, that aside, practically,

6. On a more minor point, the following statement seemed like a needless and likely counterproductive overgeneralization: "While philosophers of science and sociologists long have acknowledged the value of disinterestedness in science[11], scientists and researchers in medicine have not."
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.

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.

Not relevant to this manuscript

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?
If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal