Reviewer's report

Title: Online, paper or mixed? A randomised trial and economic evaluation of the effect of response mode on response rate, response bias, and item non-response in a survey of doctors

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Reviewer: Oyvind Bjertnaes

Reviewer's report:

I find the study interesting. The design and statistical analysis are good and the paper is also well written.

- Major Compulsory Revisions

Discussion:

- The Discussion needs a more in-depth approach. Main findings for the four outcome measures should be compared to existent literature and discussed.

- The discussion should include more information about study limitations. The main limitation is response rates. The last paragraph states: "but for large national surveys of doctors…the mixed mode seems to be the preferred option". Is this a valid statement when only 20.7% responded? This should be discussed and reflected on. Even though other criteria are acceptable, can surveys with 20% response rate (or 13% for the online group) be trusted? I would also like elaborations related to why the study ended up with more than 80% non-respondents (for instance by reference to the second paragraph of the Background section). Also, might the low response rates affect main findings?

- There were no assessments regarding non-response bias on substantial variables. Was there any difference on main survey variables for the three groups? Could any of the variables be compared to external data sources as a form of validity testing?

- What is the external validity of this study? (other populations, countries). How did this study advantage the knowledge in survey methodology in general, or within the health services research field? What are possible implications of the findings? Any recommendations for research or the practice field?

- Minor Essential Revisions

Introduction:

- The authors write that there are relatively few published studies on the use of the internet for conducting questionnaire surveys. Then they refer to two meta-analyses with a large number of studies included. Other sources also confirm that a range of internet surveys have been published (see for instance http://www.websm.org/, and the special theme in Public Opinion Quarterly in 2008), so I think the statement about few published studies should me
rephrased.
- One of the referenced reviews show that two study features (population type and follow-up reminders) contributes to the variation of response rate differences between mail and web surveys (Shih & Fan 2008). Medical doctors seem to prefer traditional mail. Could this be used as basis for a hypothesis about response rate in the present study? And based on existing literature, what about hypothesis relating to the other outcomes?
- I think the authors could motivate the study aim a little bit more, for instance by arguing why multiple outcome measures are important and why these outcomes were chosen (with reference to existing literature and research gaps).

Methods:
- The description of the three groups shows that all groups actually were mixed, with a different combination of mail and online. Why were these combinations chosen? The following report could be relevant to read and cite regarding the grouping question: Millar MM, O’Neill AC, Dillman DA. Are mode preferences real? SESRC 2009, technical report 09-003, Washington State University, USA.
- The title seems inaccurate since all groups actually were mixed.
- What is AMPCo? Why did they conduct data collection? What did the survey letter say about who was responsible for the survey?

Results:
- The response rates in the three groups should be more clearly presented.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

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.