Reviewer's report

Title: Response rates in postal surveys of healthcare professionals between 1996 and 2005: An observational study

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Reviewer: Oyvind a Bjertnaes

Reviewer's report:

- Major Compulsory Revisions

1. Background:
   a. The authors have chosen an important research topic. I think the parts about estimating response rate and frequency of assessment of potential for non-response bias are important contributions. However, in my opinion the study does not include sufficient data to answer all the research questions raised. The part about factors associated with higher response rates lacks several of the most important predictors for response rate (i.e. monetary incentives, recorded delivery, importance of survey topic), while the part about changes over time compared to 1986-1995 lack credibility since there are several substantial differences between the current study and the study by Cummings et al. (2001). The current study provides adequate data to answer two of the research questions (estimate of response rate in the period, frequency of non-response analysis), and in my opinion these issues should be the primary research questions in the study.

   b. The background is short and not very informative. It does not give an adequate review or description of relevant research for each of the four research topics, and it lacks important references. For instance, the highly relevant article by Asch et al. (1997) was not mentioned at all (“Response rates to mail surveys published in medical journals”, J Clin Epidemiol). The authors should shortly describe relevant research, at least for primary research questions, and connect their own study to this knowledge base.

2. Methods:
   a. Sample size: it looks like the sample size calculation was constructed to give a basis for testing against the response rate in the study by Cummings et al. Therefore, I’m surprised about all the differences between the current study and the study by Cummings et al. (i.e. search strategy, inclusion- and exclusion criteria, data abstraction, sample size). These differences directly affect comparability. For instance, how can the two studies be comparable when one of the studies only included physicians and the other included physicians, nurses, and allied health professionals? According to Asch et al. (1997) physicians have significantly lower response rate than other groups, and the current study also found (insignificant) differences i.e. between doctors (59%) and nurses (50%).

3. Discussion:
a. Are response rates declining: I find this paragraph problematic. As mentioned above there are several important differences between the two studies. For instance, the study by Cummings et al. only included physicians (response rate 61%), while the current study included physicians, nurses, and allied health professionals. The current study found an average response rate of 57%, but Table 1 shows that the response rate for doctors was 59%, clearly not significantly different from Cummings et al. However, my main point is that the two studies are not comparable because of all the differences mentioned in point 2a. I also find it strange to present results for one of the main research questions in the Discussion.

b. Factors that influence response rates: the current study does not really bring anything new regarding factors to increase response rates. In my opinion, this part of the study is weak since it lacks some of the most important predictors. Current research about reminders concerns how many reminders (not reminders vs. no reminders), and as the authors point out it is difficult to interpret the two other factors identified (larger studies, US studies). I believe this research issue should be of secondary interest, and the weakness related to the lack of relevant predictors should be more explicit. If the authors maintain this issue as a primary research question, the literature should be better reviewed in the Background. It should be clear why the authors chose country, size, publication type etc. and not other well documented initiatives (i.e. monetary incentives, recorded delivery, importance of survey topic), and the consequences of this choice.

c. Strengths and weakness: I would consider integrating these points into the other paragraphs. As mentioned, I think the main weaknesses relates to the multivariate analysis (lack of several important predictors), and the comparison with the prior 10-year period (several substantial differences between studies).

4. Conclusions:

a. In my opinion, this study has not shown that response rates appear to be declining, see point 4a.

- Minor Essential Revisions

5. Results:

a. I'm unsure about the value of Figure 1. Predictions are based on an inadequate regression model lacking several of the most important predictors for response rate. In addition, the confidence intervals are so wide that they hardly give any meaning, and they all overlap (does this imply no significant differences in predicted response rate between the groups?).

b. Table 2 includes a lot of information from different types of analysis. I wonder if it would be easier for the reader if this table was split into at least two tables; i) descriptives; ii) univariate/multivariate analysis (maybe even a third table to allow for more information about the multilevel model). P-values should be included.

c. Table 2: what was the ICC in the multilevel model?

d. Page 8. What do you mean by “After allowing for these associations, most of
the remaining unexplained variation in response rates (84%) was between studies and could not be ascribed to sampling variation within studies”? A clearer and more “educational” description of the results from the multilevel analysis would be helpful.

e. I believe it would be very useful to include a figure showing the response rate for each year in the period 1996-2005. Regardless of statistical uncertainty, this would give valuable information for the question of changes over time in the period.

- Discretionary Revisions

6. Conclusions:

a. I am not sure what is meant by the final statement to journal editors: “…and make no attempt to understand the implications of this”.

**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.