Reviewer’s report

Title: Impact of comorbid conditions on participation in an organised colorectal cancer screening programme: a cross-sectional study

Version: 0 Date: 23 May 2017

Reviewer: Gwenn Menvielle

Reviewer's report:

The manuscript investigates the association between comorbid conditions and colorectal cancer screening using data from a large Spanish survey. This is a relevant research question, but I have several major remarks.

Major comments

The main investigated variable is the clinical group that characterizes the comorbid conditions of each participant. We lack information on this variable. How was this variable built? Who reported the comorbid conditions each participant suffered from? What was the list of comorbid conditions used to create this variable? Exhaustivity is impossible for comorbid conditions, however the list used directly impact the healthy group (people who do not suffer from any comorbid conditions from the list). This issue should be discussed, with the impact on the results and the limits. This issue is important for the discussion of the results (page 12, line 28-32). It is difficult to compare results between studies, because it strongly depends on the list of comorbid conditions used in each study.

The survey is conducted among 10 primary care centers of Barcelona. Possible selection issue due to the restriction to these 10 centers should be discussed.

Adjustment variables: In the methods section, the authors do not mention any missing values for the adjustment variables. However in the results section, they mention that there were quite a lot of missings for several variables and have therefore adapted their statistical analyses. This should be already mentioned in the methods section, as well as the statistical approach used to deal with this issue. In addition, the three statistical models (table 3) are not performed on the same sample so we don't know if the differences between the models come from differences in the sample analyzed or differences in the adjustment variables. Models 1 and 2 should be performed on the same sample. In addition, the authors should perform all analyses on the smallest sample (the one of model 3), and report in the text the results.

The discussion is very difficult to follow and the main messages are not clear to the reader. It would strongly benefit from a more structured presentation. As the studied variables (comorbid
conditions) is by itself complex (as I discussed above), the discussion should really be very clear and the authors should propose a more structured discussion.

Page 12 line 41-43: the authors discuss the effects of comorbid conditions, but refer to healthier lifestyles. These are not comorbid conditions, are they?

The discussion of the medical reason not to be invited to screening (page 14 line 1, page 15 line 8) is not clear to me. Are the exclusion criteria for participation in colorectal cancer screening not defined by official guidelines? It is so in other countries. If so, what are the authors referring to?

Minor comment

Page 5 line 37: replace de by the

Page 10 line 45-47: when you run multivariate analysis, it is adjusted for several risk factors. So it cannot be unadjusted.

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.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

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