**Reviewer’s report**

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

**Version:** 0  **Date:** 18 May 2017

**Reviewer:** Patricia Valery

**Reviewer's report:**

Overall, this is a carefully conducted cross-sectional study assessing the effect of comorbid conditions on participation in colorectal cancer screening. The data are clearly presented, data analysis is appropriate. There are, however, certain areas where greater clarity would be beneficial in this paper.

* In paragraph 2, page 10 - "Colorectal cancer risk factors, as smoking, high-risk alcohol intake or obesity, were significant negative predictors to participate in the screening programme (Table 2)". The results from Table 2 describes proportion of patients in one group vs other, and whether the difference in proportions are statistically significant. No measure of odds/risk is presented in Table 2. The correct wording should be something like this '.. there was a higher proportion of current smoking, high-risk alcohol intake or obesity in the non-participation group versus…"."

* Same paragraph: "On the other hand, a statistically significant lower participation was observed in individuals allocated in the lower comorbid groups (39.4% for healthy and 40.6% for acute disease category)." - Similarly, it should be 'there was a higher proportion of participants classified as lower comorbid groups (39.4% for healthy and 40.6% for acute disease category) in the participation group compared to those who did not participate in screening'.

* "The total crude participation rate (48%) found in this study,.." - Reword to 'The total crude participation rate in the CCSBP (48%) found in this study,…'

I am not convinced that the " this study include a broadly representative sample of population at average risk of developing colorectal cancer, in terms of age, sex, comorbidities and socioeconomic status, as well as an evaluation of several colorectal cancer risk factors as smoking, alcohol consumption and obesity".

* Firstly, what is the response rate for the cluster RCT? How representative of the population at average risk of developing colorectal cancer is the study population included in this cluster RCT? With the information described in the text the current study's population sample
appears to be representative of the RCT group. Please add a bit more information about the RCT in Methods or in the Discussion.

* Second: (Fig 1) N=835 were up to date with colorectal screening. Why were they excluded from the analysis? Shouldn't they be grouped with the 'participation' group? How they compare with those included in the study?

* Third: How similar/different are the 1734 ineligible when compared to those included in the study? Was missing information on comorbidity somehow associated any of the variables of interest?

Depending on the answers to these questions, the abovementioned statement may have to be amended or toned down.

* Combine Tables 1 and 2, this way there is no need for Table 1 with all participants

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

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.

Yes

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.

I am able to assess the statistics

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

Acceptable
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