

Revision letter

19.09.2016

Dear Editor,

We appreciate the opportunity to submit a revised version of the present manuscript to the World Journal of Gastroenterology. We have revised the manuscript according to reviewers' suggestions, which has greatly improved the manuscript. The revisions include comments of the current findings in relation to short-term effects published in an earlier paper, as well as more clear explanations regarding choice of screening modalities. This has made the manuscript more clear and comprehensible.

We conclude, as in the first version that there were no harmful psychological consequences in screening for colorectal cancer for most participants, while FS screening caused increased anxiety in a smaller, possibly anxious group.

Please, find our responses to the reviewers' comments below.

Reviewer 00058378

The paper is about the long-term psychological harm of participation in colorectal cancer (CRC) screening in Norway. In general, the paper is well written and structured. It has several limitations, which are already addressed in the discussion section.

The authors already published a paper on the short term outcome following screening for CRC with no psychological harm. Why should it have an effect on the long term? Please comment on that!

Thank you very much for raising this important point. We agree that the difference between short-term and long-term effect should receive more attention in our paper. One possible explanation for the differences between short-and long term effects in FS screening is change in

information processing over time. We have added one paragraph to the manuscript which discusses the long-term findings in relation to the short-term results.

We will incorporate this in our manuscript. Changes in manuscript: page 17, insert after first paragraph.

“We observe no effect of FIT screening participation on anxiety, short- or long term. However, for FS screening we observe increased long-term anxiety in a sub-group, but there was no short-term effect. One possible explanation is that the depth of peoples information processing depend on their emotional states¹. Most people will have a negative screening result, and people experience positive emotions and relief after FS examination^{2,3}. Positive emotion cause simple information processing, meaning that individuals think in terms of cancer or no cancer, and are relieved as they have not received a diagnosis of cancer. However, once the positive emotions disappear, individuals may process their screening experience deliberately. Individuals anxious about own health are especially likely to do so, because they are not reassured by CRC screening². For example, they may process the presence and removal of polyps. Participants with negative screening results may focus on the fact that the whole bowel has not been visualized in the sigmoidoscopy examination, and consequently they did not receive the “all clear” result they may have expected. Some individuals who had all visible polyps removed during colonoscopy may be afraid that new polyps can develop. To individuals with high anxiety levels these health threats may be perceived as very threatening.”

Reviewer 00503404

An interesting paper on the attitudes towards CRC screening that can help in designing future screening programs.

Comments; 1. authors should include in the limitations that a colonoscopy screening group was not included

Thank you for this valuable comment. We do agree that it would be very interesting to measure the psychological effects of colonoscopy screening, compared to the two screening modalities in the current study. However, flexible sigmoidoscopy and faecal immunochemical test were chosen screening modalities to be included in the pilot screening for a national screening programme in Norway, because they have proven effect on CRC mortality in randomized controlled trials, while there are no results available for RCT with screening colonoscopy. We regret that this was not clear, and not brought up in the paper.

We will address this point in the discussion:

Changes in manuscript: page 16, insert at the beginning of the page.

“It would be interesting to compare psychological effects of colonoscopy screening with changes observed in the two screening modalities in the current study. However, since this is a pilot for a national CRC screening programme in Norway, it was decided to only include modalities with proven effect on CRC mortality in randomized controlled trials. Both FS and FIT meets this requirement, while there are no results from RCT on colonoscopy screening available yet. As a consequence, no participants were invited to colonoscopy screening as a primary screening test in the BCSN pilot study.”

Reviewer 3478890

Good work! further research is still needed to find a definitive answer.

Thank you very much for this comment. We do agree that more research is needed on this important topic, and we are already planning future studies.