Reviewer's report

**Title:** Sociodemographic and health-related predictors of self-reported mammogram, foecal occult blood test and prostate specific antigen test use in a large Australian cohort study

**Version:** 1  **Date:** 24 December 2012

**Reviewer:** Wee LE Liang En Ian

**Reviewer's report:**

Overall an excellent paper with a clear goal, that of encouraging dual screenings for cancer.

Major compulsory revisions

1. Title: Admittedly the data used is from a cohort study but as it is cross-sectional in nature (derived at baseline), the use of the word "cohort" in the study title may be a bit misleading.

2. Methods: Study sample- The participation rate of 18% is a bit concerning, with the possibility of introducing bias. The authors do try to justify this to the reader by mentioning that the sample is reasonably representative of the NSW population; however, it would be more convincing if additional data was provided to substantiate this claim.

3. Methods: Analyses section- The authors analysed their data by: for men, receiving FOBT only, receiving PSA screening only, receiving both, receiving none at all. Similarly, for females, receiving FOBT only, receiving mammograms only, receiving both, receiving none at all. While an interesting take on the subject (instead of analysing factors for non-participation in FOBT, and factors for non-participation in PSA screening only, etc.), I think the authors need more justification of why they chose to lump these screening modalities together in analysis, as well as also a discussion of the pros and cons of this approach. This can be done in the Discussion or elsewhere. The authors do make a point that they wanted to put across the message that "many people are being screened for one cancer when they should be screened for two."

However, the issue remains that FOBT and PSA screening are still quite different tests (eg. one a mail-in test, one a blood test) and FOBT and mammogram even more different still (mail-in test vs. imaging tests). One could also conceivably imagine very different risk perceptions of these cancers, and very different logistical and access issues (eg. mammograms being much more logistically difficult to arrange compared to FOBT). My concerns are that:

a) The authors need to show more justification for their choice of analysis, i.e that currently in the Australian healthcare setting, there is a potential for promoting
screening for two different cancers simultaneously, either at point-of-care or otherwise.

b) As the participation rates for FOBT and PSA (23.1% vs 62.3%) and FOBT and mammography (17.7% vs. 68.2%) are very different, my concern is that by lumping the two modalities together into a "both screenings" option, this pre-supposes that those who have had one type of screening are more likely to have attended another screening program, which may not necessarily be the case. See Park et al (Park, M.J., Park, E.C., Choi, K.S., Jun, J.K., Lee, H.Y., 2011. Sociodemographic gradients in breast and cervical cancer screening in Korea: the Korean National Cancer Screening Survey (KNCSS) 2005–2009. BMC Cancer 11, 257) who did a similar analysis (lumping mammograms and pap smears together), and justified their approach by stating that, "(we) adopted this approach because women who have had one type of screening are known to be more likely to attend another screening program." It would be good if the authors could use their data to demonstrate that this is indeed the case before proceeding to lump two very different screening modalities together in their analysis.

c) I wonder whether it would be simpler and much more straightforward to just present factors associated with going for FOBT; factors associated with going for PSA; and should the authors make their point that screening for FOBT and PSA can be lumped together, then factors associated with going for both cancer screenings, compared to none/one. There is a difference between factors associated with going for FOBT, and factors associated with choosing to go for FOBT only instead of going for both FOBT and PSA, which is what the authors currently present in their paper. Perhaps that difference should be made clearer. Similarly for mammograms and FOBT.

4. Discussion: 4th paragraph, "Interestingly, living in regional and remote areas was not a barrier to cancer screening in our study. Indeed, people in regional and remote areas were more likely to be screened for bowel and breast cancer than those living in a major city". The authors posit that for bowel cancer, people living in regional areas were more likely to be screened for bowel cancer (via FOBT). As colonoscopy and sigmoidoscopy were not assessed in this study, I wonder whether the higher use of FOBT in regional areas was due to the unavailability of alternatives such as colonoscopy and sigmoidoscopy (which would not have been evident in the study) given limited facilities, and not so much due to higher overall screening per se?

5. Discussion: 3rd last paragraph. PSA screening is controversial and I am glad that the authors addressed this issue; however, it is an important issue and I would suggest that the controversy of this screening be highlighted at an earlier point, rather than late in the Discussion. It does negate some of the author's emphasis on pushing for simultaneous screening for two diseases.

Minor essential revisions
Abstract:
1. Methods section- NSW as New South Wales (acronyms not encouraged as first use of term)

Results:
2. Multinomial logit models- para 2- it would be useful to know what the mean household income in Australia is, this would aid us in interpreting the significance of a household income <$9000 or <$5000.

Discussion:
3. 3rd last para- "the benefits of cancer early detection." Suggest rephrasing to "the benefits of early detection of cancer."

Discretionary revisions

Introduction:
1. First para- It would be good if the authors included some detail on cancer mortality and morbidity in the study population so that the reader would get a better understanding of the local scope of the problem.

2. First para- Because the thrust of the article is on socioeconomic predictors of screening, it may also be useful to include information from the literature as to whether there are currently particular socioeconomic strata of society not receiving regular screening- i.e what is the scale of the current problem and what is already known? The authors state that the, " relationship between sociodemographic and health characteristic.... is sparse" but do not cite a source. It might be helpful to shed more light on this.

Figure 2:
1. It appears that educational status plays a role in access to FOBT amongst women- this trend is not seen for men or for other screening modalities. Is there a reason for this and might the authors speculate on this in the discussion?

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

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests.