Reviewer’s report

Title: Personal factors influence use of cervical cancer screening services: epidemiological survey and linked administrative data address the limitations of previous research

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Reviewer: Emily Banks

Reviewer’s report:

This paper describes a comparison of women who do and do not attend for cervical cancer screening from a cohort study. Although the findings are in keeping with those published to date, screening attendance is ascertained through record linkage, so it is a nice independent verification of what is generally known. The paper is generally well written and relates to a relatively large sample size, with a good response rate, although this is not necessary for generalisable internal comparisons. My suggestions for revision are given in point form below.

1. MAJOR COMPULSORY REVISIONS

1.1. Please tone down some of the claims regarding previous approaches and what this paper contributes. It is not appropriate to describe previous approaches as “flawed” and to say that your paper addresses (all) previous methodological limitations, and is “unique” and “optimal”. All epidemiological approaches have strengths and weaknesses; I suggest saying that this research addresses some of the methodological limitations of previous approaches and represents a useful approach, for the following reasons…. 

1.2. Remove the multiple imputation of missing values from the main results. Although it seems to be accepted methodology to impute missing values in the main results in certain parts of the social sciences and, I think, psychology, it is not generally accepted practice in epidemiology. None of the other papers published in this area have, to my knowledge, used this in their main results. It is occasionally done as a sensitivity analysis where missing values are a problem, but not for the main results. This illustrates a general issue with this paper, in that it does not seem to be modelled on previous epidemiological papers (see my comments on the tables, below).

I suggest restricting the data to those individuals with non-missing values on variables considered important and introducing a “missing” category for other less important covariates. Alternatively, you could restrict the data to only those with non-missing data. A sensitivity analysis using imputed values could be introduced separate from the main results.

1.3. Consider removing the adjustment for use of Medicare services from the
main analysis. As the authors have noted, cervical cancer screening generally takes place at a primary care consultation, so it seems strange to adjust for use of primary care services. Although only one of these services is likely to be the one where the screening took place, use of primary health care services is causally related to cervical cancer screening and there is a risk of over-adjustment in adjusting for use of Medicare services.

In addition, there is also a risk of answering a different question from the one outlined in the aims (“verify the characteristics thought to be associated with cervical cancer screening”), i.e. the authors are essentially saying “given a particular level of primary health care service use, which factors are associated with cervical cancer screening?”. It is, however, an important finding that the main predictor of cervical cancer screening uptake in this population was overall health services use. It would also be reasonable to explore how much of any association between a given characteristic and cervical cancer screening was explained by use of Medicare services, by showing the findings without and then with such an adjustment. This has sort of been done for the PAR.

A potential approach would be to examine the association between overall health services use and cervical screening uptake but not to adjust for it in the main analyses. A subsequent analysis could explore the effect on the other OR of adjusting for it.

1.4. Model the tables for the paper on established epidemiological conventions (e.g. Moser et al [1]). Tables should include:
- the “n” for each level of the variable
- intuitive values for the proportion each of these represents (e.g. %)
- numbers and OR for all categories, including the reference group
- enough information so that the tables stand alone, including indicating what has been adjusted for.

In addition:
- it is usual to present the odds ratio adjusted only for age, then a multivariable model; the totally crude OR is difficult to interpret and can be reconstructed from the “n” if the reader really wants to know it.
- it is unclear what the item called “missingness” refers to
- it seems strange to have two separate covariates for “did not finish high school” and “tertiary educated”. These would usually be included in a single educational variable, with multiple levels.

2. DISCRETIONARY REVISIONS

2.1. The paper could benefit from a more extensive literature review, as there appeared to be a number of relevant papers missing.
2.2. Although it is customary to weight samples when estimating and attempting to generalise from prevalences, it is not usually done for internal comparisons in cohort and cross-sectional epidemiological studies.

2.3. The authors may want to consider toning down their policy recommendations. The authors state that “programs should expressly target women who are not working, reliant on social welfare, currently smoke, do not have children, have poorer physical functioning, high levels of anxiety, a history of sexual abuse and low overall levels of health service use.” Obviously, the policy agencies need to maximise screening overall, with limited resources, so they may not be in a position to expressly target these groups. Also, we don’t know what would actually happen if we did target these groups.

2.4. The authors state that cervical cancer screening is usually done by a woman’s GP. While screening is usually done in general practice, it is often done by a practice nurse; it would be helpful if this was clarified.

References

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 I have no competing interests