Reviewer’s report

Title: The Implications of the Feminization of the Primary Care Physician Workforce on Service Supply: a Systematic Review

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Reviewer: William Weeks

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Review of Implications of the feminization of the primary care workforce on service supply: a systematic review

This is a well written article on an important topic. The authors understand that
1. Feminization of medicine (particularly primary care) is real
2. Female physicians have been reported to work differently than their male counterparts and
3. When considering workforce issues and, in particular, physician supply, it is important to consider the feminization issue.

They begin this exploration by conducting a literature review using multiple sources of data from 1991-2013, wherein they identify 30 articles that meet their review criteria. The authors then assess 11 aspects of the issue in five categories (years of practice, hours of work, intensity of work, scope of work, and practice characteristics).

The authors conclude, essentially, that most of the studies are not that informative for the purposes of estimating workforce supply given feminization because a number of important aspects in that use are not covered in the published research (such as differences in ages of retirement, impact of childbearing years on overall productivity (i.e., do women return to work after having kids), distribution of house-work, etc.)

So it is a well written and important piece of work.
1. It does address an important and timely issue.
2. It is not well reasoned because of the limitations in the search strategy used.
3. I worry a bit about balance, as it does seem to select which articles to focus on in the discussion, instead of simply summarizing.
4. The standard of writing is acceptable.

Specific issues – major compulsory revisions
My issues have to do with the details of the literature search and the results they present.

1. It is a bit unclear which particular articles are included in the study. For
instance, citation 25 (Differences in income between male and female primary care physicians. J Am Med Womens Assoc 2002, 57:180–184.) is cited in the ‘hours of work’ section (Results from North America are similar, with female PCPs working between four and 14.5 fewer patient-care hours per week [8, 20–25]), but the study is not listed in the supplemental table nor on the summary Table 2.

2. Citation 50, (The influence of race and gender on family physicians’ annual incomes. J Am BOARD Fam Med 2006, 19:548–556) is included in the supplement and Table, but three other similar studies from the same authors that examined pediatricians, general internists, and ob-gyns beg the question of what the authors considered to be ‘primary care.’ So my question is why, if the one was included, and general internists and pediatricians (and, in some circles) OB-GYNs are considered primary care physicians, why did the paper examining family practitioners meet the criteria but the other three did not? The definition of ‘primary care’ is not made available to readers.

3. Another publication (How do race and sex affect the earnings of primary care physicians? Health Affairs 2009;28(2):557-566.) might provide more information on the topic.

4. A more thorough search strategy would have named the different types of providers considered to be primary care; it also would have included the terms ‘gender’ and ‘sex’. And, because people who examine gender based difference in work hours and productivity are also pretty interested in annual incomes, including physician income in the search would have been a wise move.

5. In citation 50, there are some descriptors of differences in the patient population, and practice characteristics. But these boxes are not checked for that study in Figure 2.

6. In the methods, the authors state that they use a measure of bias, but they don’t report on the outcomes of the use of that measure – they should do so in the ‘methodological issues’ section (unless the comment that none of the studies would have met the Cochrane criteria is the use of the bias instrument, in which case it would have been helpful to know why (and, I believe the Cochrane bias has to do with trials (particularly RCTs) and it’s not clear to me that one could randomize gender, so it might not be the best tool.)

7. While the breadth that the authors seek (across many countries) is admirable, their own acknowledgement that different systems might have different incentives and different countries have different trends in work patterns and different rates of feminization makes the combination of countries challenging. Better would be to limit to a particular country, for the purposes the authors have.

8. In some important places, I don’t think that they have adequate support for their statements. For instance, the discussion on page 16 about childbearing makes several declarations, but also state that these issues were not the primary focus and were seldom explicitly investigated. I don’t think that, based on such information, I’d make the declaration that “once family circumstances were accounted for, the gender of the physician had no significant effect on hours worked.” Without stating pretty explicitly where that statement came from and
whether it was generalizable (to all countries examined, to all studies.) Similarly, it doesn’t seem right to focus on the non-work hours commitments in the general discussion when only one study in Canada evaluated that aspect of work balance. Perhaps that would work better in the ‘future research’ section.

To make the paper better, I’d suggest that the authors do the following:
1. Re-do the literature search after defining primary care (or limiting to a particular primary care specialty), including the suggested mesh terms, and limiting the analysis to a single country of work.
2. Get at least two reviewers to determine whether a particular study addresses the particular aspects of interest.
3. Use the data to actually estimate or forecast how increases in feminization might impact the workforce (since that is the focus of the effort). The theoretical framework is fine, but suggest, given an average of x% fewer hours, y% less work annually, but z% greater productivity what might that mean?
4. Use the limitations (ie. Retirement differences, concept of a ‘window’ of relatively lower productivity, and, I’d suggest, the income differences) to suggest what additional work should be done and how that work might impact their model.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I am an author in several of the cited manuscripts.