Reviewer’s report

Title: Accuracy of Visual Inspection with Acetic Acid as a Cervical Cancer Test Validated using Latent Class Analysis

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Reviewer: Marc Aerts

Reviewer’s report:

General

Latent class analysis (LCA) is a quite popular statistical approach to assess diagnostic test accuracy when a gold standard assessment of disease is not available, but results of multiple tests are (see e.g. Walter and Irwig 1988). This paper is a nice illustration of this use of LCA. Here it is shown how the accuracy of an alternative cervical (pre) cancer test –visual inspection with acetic acid (VIA) can be quantitatively assessed through LCA, using also a Pap smear, colposcopy with biopsy and a HPV DNA test. The study confirms the accuracy and benefits of VIA as an alternative screening test for cervical cancer.

The paper is well-written. Some readers might not be familiar enough with some aspects of a LCA, or quantities such as residual scores etc, and might need to consult statistical literature on LCA to fully capture the discussion in the results section. But the paper includes sufficient references to statistical literature in case the reader needs some more details on LCA.

Although the authors mention in their conclusion that “LCA also has its limitations however as a “diamond” standard is ultimately required to verify the LCA truth”, and although the authors discuss the conditional dependence issue, they could mention the restrictions or limitations of LCA somewhat more elaborate, mentioning some of the concerns raised in statistical literature, and with references to some recent work in that direction, such as


This paper of Pepe and Janes also include some further references, which might be interesting to also mention in the paper (such as alternative approaches when a gold standard does not exist).

What next?: Accept after discretionary revisions

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 declare that I have no competing interests