Reviewer’s report

Title: The evolution of mobile apps for asthma: an updated systematic assessment of content and tools

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Reviewer: Kristin KR Riekert

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Mobile apps are increasingly being developed to target health, including chronic disease management and patients and healthcare providers are increasingly interested in using them for self-management purposes. However, as the manuscript authors rightly point out, the development and distribution of these apps are unregulated and can vary widely in the quality and efficacy of the information and self-management support they provided and may have underappreciated ethical and privacy issues. This is a well-written manuscript on an important and timely topic. The methodology and analytic plan are thoughtful and well described and the data are clearly presented.

Major Compulsory Revisions

1. One area that is underdeveloped in the manuscript, but of critical importance to both healthcare providers and patients, is the likelihood that most of the existing apps are unlikely to be effective for improved disease management. It is well established that information provision alone (particularly general disease information) does not result in improved self-management or health outcomes. Apps have the potential to be more than a source of facts. For asthma specifically, many health-promoting strategies have empirical support that could be integrated into apps, including tracking symptoms, tailored information about symptom recognition and management (particularly during an exacerbation), health and behavioral feedback, etc. As noted in the manuscript, these features are rarely included in apps and their absence may be a bigger disservice to patients and healthcare providers than other issues that received more attention in the paper. It is strongly recommended that the authors integrate and expand this point in the abstract and discussion section.

Minor Essential Revisions

2. The labels for the table columns are confusing—particularly the distinction between new 2013 and 2013. Perhaps ‘2013’ could be changed to ‘All available in 2013’ or a footnote added to clarify that ‘2013’ includes all those in 2011 minus those that were discontinued as of 2013.

3. It would be helpful to the reader to define or give examples of “data entry validation”, “functionality” and “user interface” issues. They are vague compared to the high specificity of the ethical disclosures categories also included in Table 6. These issues are common, but seem like their impact could range from
annoying to serious.

Discretionary Revisions

4. Given the pace of app development and discontinuation, it may not be possible for this paper, but it would be interesting to know how often each app is downloaded and whether that corresponds to the quality or functions offered.

5. I question the appropriateness of the heavy use of non-peer reviewed sources such as blogs (ref 32), websites (refs 23, 66) and conference proceedings (refs 49, 50, 54) as references.

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