Reviewer's report

Title: Harmful practices in the management of childhood diarrhea in low- and middle-income countries: a systematic review

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Reviewer: Patricia B Pavlinac

Reviewer's report:

The authors present a qualitative review of literature reporting harmful diarrhea management practices. The review is comprehensive and well-organized however at times it reads more like a report than a manuscript. While the authors demonstrate that consistently across studies non-adherence to WHO guidelines for diarrhea management is common and that measurement of this non-adherence is variable across studies, the authors don’t convince the reader of the implications and how this review is addressing gaps in the literature. Understanding why diarrhea management guidelines are not followed is important and particularly timely as there is a renewed energy in the field in response to the Global Enterics Multicenter Study (GEMS). While the authors do address this question throughout the manuscript, the take-home message and conclusions are somewhat hidden in a lot of detail about the individual studies and therefore are lost on the reader.

Major Compulsory Revisions

1) “Harmful practices” may not be the most appropriate term for the practices that the authors are describing as the evidence for harm is not as clear as the authors make it seem. For example, there is some evidence that antiemetics may have benefit for diarrhea treatment (see Das, BMC Pub Health, The effect of antiemetics on childhood diarrhea, 2013). Also, while there is evidence that treating dysentery and cholera with antibiotics has benefits, the counter argument, that treating children without dysentery and without suspected cholera is not beneficial or “harmful”, is not necessarily supported with evidence; three of the four leading causes of moderate to severe diarrhea in the GEMS study (Kotloff, Lancet, 2013) were bacterial/parasitic and potentially treatable with antibiotics, and in the context of traveler’s diarrhea, which is often caused by the pathogenic ecoli’s, Shigella, and campylobacter, antibiotic treatment can be beneficial (De Bruyn, Cochrane, 2012; Shah AJTMH 2009). While there is definite evidence that restricting fluids, breast milk and fluid intake is harmful, these other two statements are less likely to be evidence supported and this paragraph may be improved by addressing some of this nuance. This speaks to a larger concern about the blanket term “harmful practices” when in fact it seems that the authors are interested in non-adherence to management guidelines. It should also be noted that some of these “harmful practices” used to be a diarrhea management guideline (food restriction during and immediately after a
diarrhea episode was a recommendation until relatively recently). Therefore reasons for these practices could be related to lack of dissemination and training of new guidelines in health facilities as opposed to any individual-level correlates. These guidelines were updated after evidence revealed no advantage of delayed re-feeding (Gregorio, Cochrane, 2011 summarizes some of this evidence). Therefore, studies that included participants during the time when guidelines recommended delayed feeding should be interpreted slightly differently from studies reported delayed re-feeding after the new guidelines were released. In all, this may mean that “harmful practices” may not be the most appropriate term for the practices that the authors are describing. Non-adherence to guidelines or something similar might be a more accurate description.

Introduction

2) There are a few statements in the third paragraph that need referencing. For instance, “Curtailment of fluids and restriction of feeding during diarrhea…”, “The use of antibiotics and other medications is appropriate only in the treatment of cholera or dysenteric diarrhea”.

3) The introduction is also lacking a unifying sentence which describes how this review addresses a gap in the existing literature and describes the implications of the findings. For example, “highlighting the frequency and correlates of guideline non-adherence will…”

Methods

4) The number of articles identified and the high-level summary (pg. 6 lines 98-113) usually appears in the results section instead of the methods.

5) Some details from the methods can be removed or moved to a supplementary file to help make the manuscript more concise. For example, “separate templates were developed in Excel” (line 115 pg. 6)

6) The authors mention excluding articles published before 1990 three times in the methods (pg 5 lin 85, pg 5 line 92, and pg 6 line 94) which is redundant.

Results

7) Paragraph 3 (line 139-142, pg 7) seems to belong more in the methods section than in the results section.

8) As a general comment, this section would benefit from being made much more concise. For each specific practice, I would recommend limiting to one to two paragraphs of high level results (and the rest can remain in supplementary text or tables) as opposed to multiple paragraphs each broken up into specific sections as it is challenging for the flow. For example, the definition and measurement sub-heading of the fluid curtailment section could be limited to the first sentence “measurement of fluid intake varied across studies (Table 1, Column 4)” and the first two sentence of the prevalence paragraph could be removed as there is not a need to re-state the variability between studies in each paragraph. This could
be done by an first sentence that states that measurement of fluid intake, and prevalence estimates, varied widely across studies” which could then go into “the reported practice of curtailing fluids…”

9) Paragraph two of the prevalence section (lines 162-168) could also be made more concise into a single sentence like “Fluid curtailment was associated with diarrhea severity and vomiting in two studies whereas increase in fluid was associated with long illness duration and poor appetite” or similar just to make the whole paragraph more concise and with a single message. For each practice I recommend combining all the sub-headers into one to two paragraphs and also avoiding paragraphs that have one sentence (for example page 17, line 401 and line 404).

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

**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