

Which promotional approaches are effective in change handwashing behavior in low and middle-income countries?

Results from a mixed-methods systematic review

Hans Van Remoortel¹, Emmy De Buck¹, **Axel Vande Veegeaete**¹, Alfred Musekiwa², Thashlin Govender³, Selvan Naidoo², Vittoria Lutje⁴, Philippe Vandekerckhove^{1,5,6}, Hans-Joachim Mosler⁷ and Taryn Young²

1 Centre for Evidence-Based Practice, Belgian Red Cross, Mechelen, Belgium, **2** Centre for Evidence-Based Health Care, Stellenbosch University, Cape Town, South Africa, **3** Division of Community Health, Stellenbosch University, Cape Town, South Africa, **4** Cochrane Infectious Disease Group, Liverpool School of Tropical Medicine, Liverpool, United Kingdom, **5** Department of Public Health and Primary Care, Catholic University of Leuven, Leuven, Belgium, **6** Faculty of Medicine, University of Gent, **7** Department of Environmental Social Sciences, Swiss Federal Institute of Aquatic Science and Technology (Eawag), Dübendorf, Switzerland

Introduction & objectives

The impact of Water, Sanitation and Hygiene (WASH) interventions on the burden of disease (e.g. diarrhea) falls over time. The last two decades, more research is conducted on approaches to promote WASH behavior. Via a 3ie-funded mixed-methods systematic review, we aimed to explore which promotional approaches are effective to change handwashing and sanitation behavior (EFFECTIVENESS) and which implementing factors affect the success or failure of such an intervention (IMPLEMENTATION). In this poster, we highlight the results of the EFFECTIVE promotional approaches on handwashing behavior.



Methods

1. Formulating research (PICO) question
2. Developing search strategies in 12 databases and grey literature (24 websites)
3. Title and abstract screening
4. Full text assessment (based on pre-defined inclusion/exclusion criteria)
5. Data extraction
6. Quality appraisal (Risk of bias assessment)
7. Data analysis, data synthesis and developing evidence conclusions

POPULATION (P)

- People from low- and middle-income countries
- Target level: individual, household, community or school

INTERVENTION (I)

- WASH intervention: handwashing and/or sanitation latrines
- Promotional approach: community-based, marketing, education or theory-based

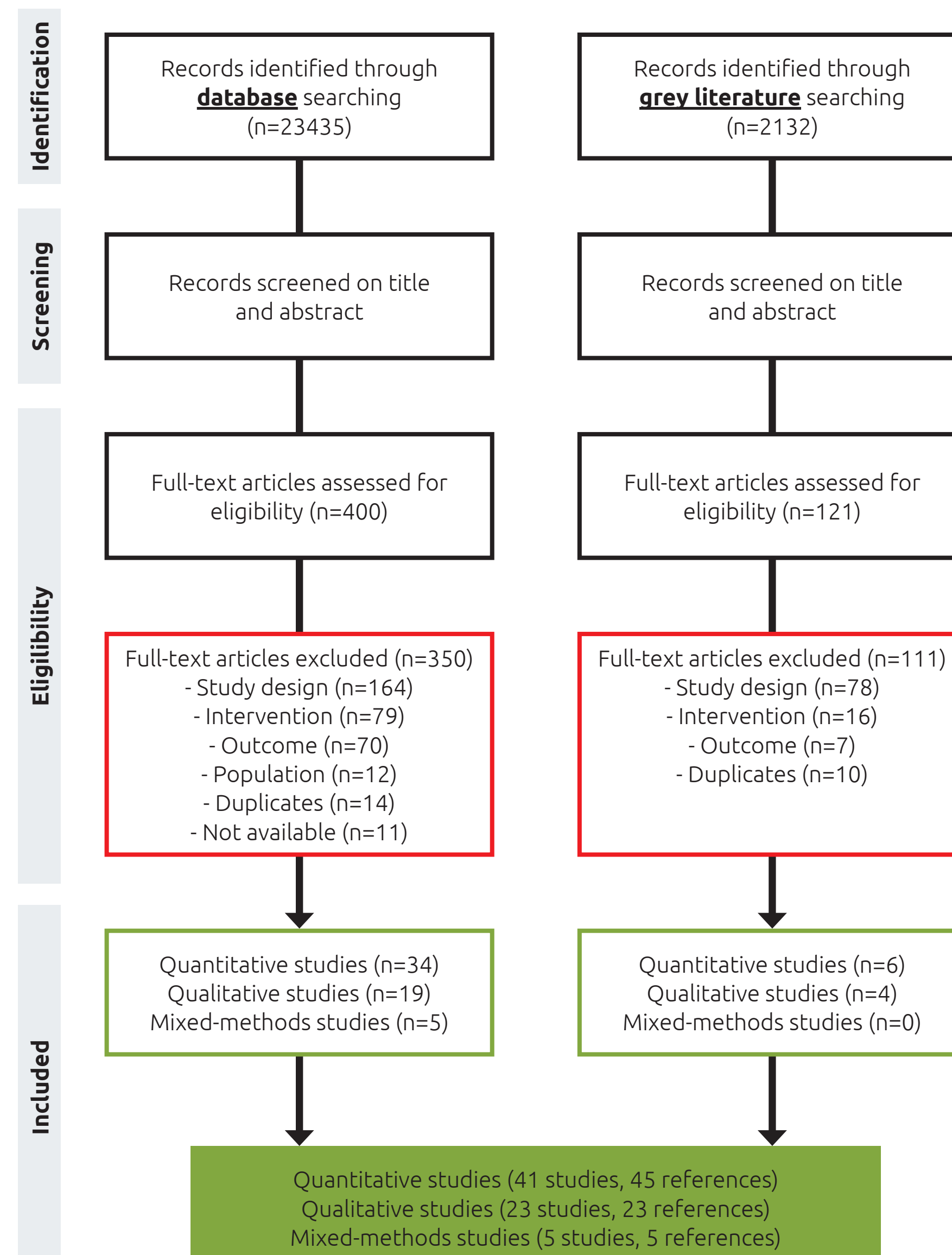
COMPARISON (C)

- No intervention or handwashing/sanitation programs with other promotional approaches

OUTCOME (O)

- Primary outcomes: behavior change (intention – use – habit)
- Secondary outcomes: behavioral factors (knowledge – skills – attitude – norms – self-regulation), morbidity, mortality

Results – flow chart mixed methods review



Results – effect on handwashing behaviour

For this analysis, we only report raw (binary) data that (i) were present >1 time in the same study design (experimental or quasi-experimental) and that compared a promotion program (intervention) versus no promotion program (control).

- **Handwashing with soap.** A significant effect of using a promotional approach on handwashing with soap could not be demonstrated (RR 1.01, 95% CI [0.99, 1.04]). Only one study, with an educational approach, was included in this meta-analysis.
- **Handwashing after toilet use.** Since there was too much heterogeneity it was not possible to pool the outcomes across and even within the promotional approaches. Therefore we are not able to make any conclusions for this outcome. For the marketing approach only one study was included and no significant effect could be demonstrated (RR 1.03, 95% CI [0.94, 1.12]).
- **Handwashing before cooking (Figure 1).** A significant increase in handwashing before cooking could be shown for the education approach (RR 1.27, 95% CI [1.13, 1.43]) and theory-based approach (RR 39.85, 95% CI [9.98, 159.12]), but not for the marketing approach (RR 1.12, 95% CI [0.98, 1.29]) and community-based approach (RR 1.02, 95% CI [0.48, 2.15]).
- **Handwashing after cleaning a child's anus.** When looking to the individual promotional approaches, a significant increase in handwashing could be shown for the marketing approach (RR 1.79, 95% CI [1.21, 2.64]), but not for the community-based approach (RR 1.34, 95% CI [0.98, 1.82]). For the other approaches and "overall promotional approach" there was too much heterogeneity to be able to make conclusions.
- **Handwashing before eating (Figure 2).** When looking to the individual promotional approaches a statistically significant increase in handwashing before eating was shown when using an education approach (RR 1.23, 95% CI [1.04, 1.45]), a community-based approach (RR 1.12, 95% CI [1.02, 1.22]) or a theory-based approach (RR 53.60, 95% CI [10.73, 267.73]).
- **Handwashing before feeding a child.** A statistically significant effect on handwashing before feeding a child was shown when using a theory-based approach (RR 3.73, 95% CI [1.99, 6.98]), but not when using a community-based approach (RR 1.08, 95% CI [0.84, 1.39]).

Figure 1

Handwashing before cooking

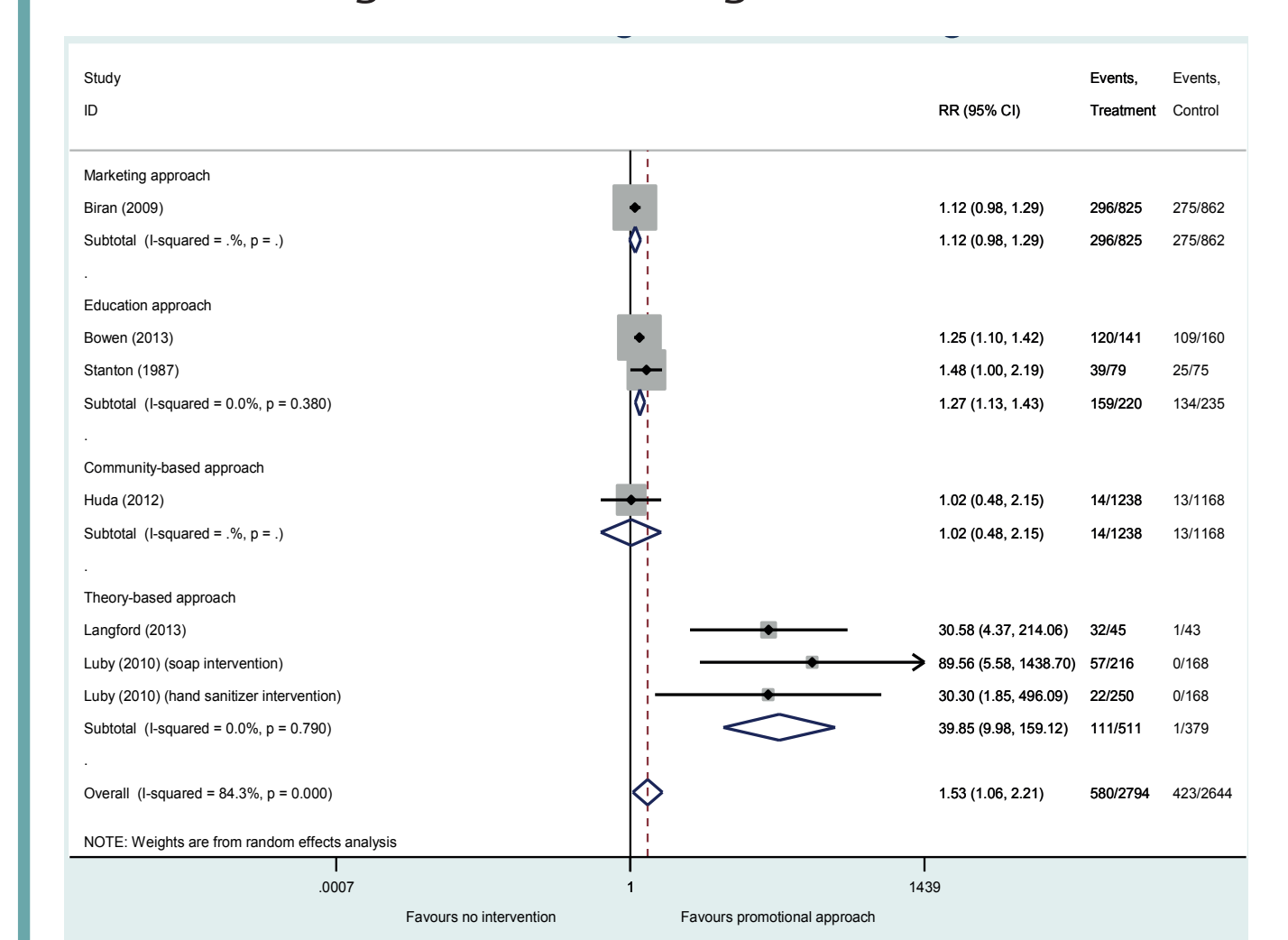
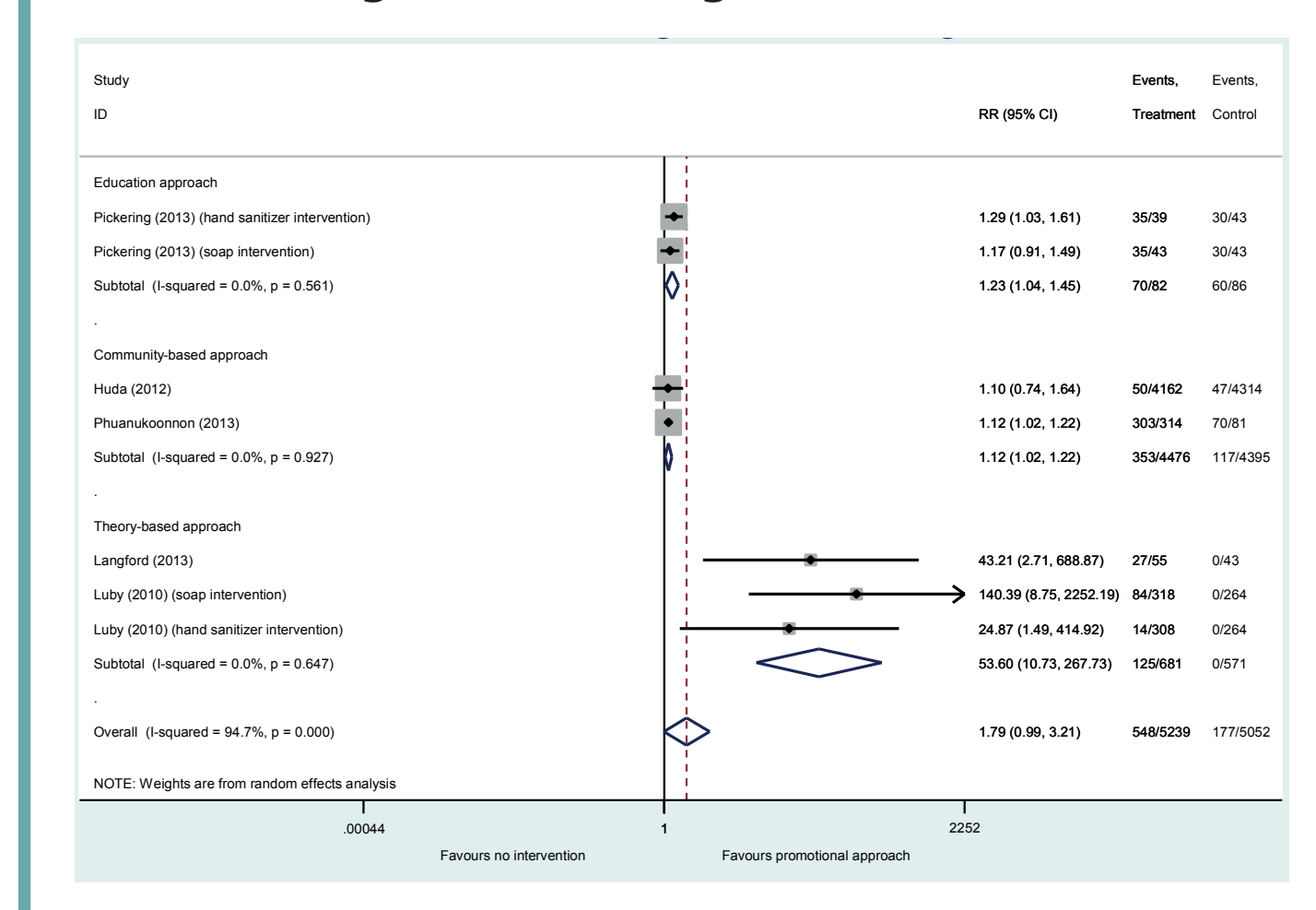


Figure 2

Handwashing before eating



Conclusions

- A high degree of statistical and methodological heterogeneity makes it difficult to formulate overall conclusions about the effect of using any promotional approach versus no promotional approach. When focusing on the statistically significant results of (a subset of) the binary data, it was shown that:
 - a community-based approach resulted in increased handwashing before eating;
 - a marketing approach resulted in increased handwashing after cleaning a child's anus;
 - an education approach resulted in increased handwashing before cooking and before eating, improved handwashing skills (using soap, rubbing hands) and increased safe faeces disposal;
 - a theory-based approach resulted in increased handwashing before cooking, before eating and before feeding a child.
- Standardization in the outcome assessment (methodology, timing, type of data, etc) is urgently needed in order to pool data across studies and to make stronger evidence-based conclusions and recommendations.
- The results will be discussed with a large group of stakeholders to formulate recommendations (December 2016).
- The entire mixed-methods review will be published in the Campbell Library in April 2017.



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