Are studies underestimating the effects of sanitation on child nutrition?

As other researchers have done, Amy Pickering and colleagues (November, 2015) focused on short-recall diarrhoea incidence as the main outcome in their randomised trial of the effects of a community-led sanitation intervention in Mali. As Pickering and colleagues noted, this indicator has well known flaws associated not only with seasonality, but also with potential reporting bias and other measurement errors. These flaws raise the possibility of crucial type II errors that justify a serious reappraisal of the long-standing practice of using this indicator as the primary means to evaluate sanitation interventions.

With good reasons, then, Pickering and colleagues chose child anthropometric indicators, particularly growth outcomes, as secondary outcomes. Before this study, however, the existing experimental literature neglected the important issue of the timing of growth faltering, which almost entirely takes place in utero and in the first 24 months of life. Since exposure to improved sanitation was quite short in all of these evaluations (lasting 6–24 months) and all these studies focused on children aged 0–59 months, the relevant statistical tests mixed together younger children for whom sanitation plausibly benefits linear growth with older children for whom sanitation plausibly offers little or no benefits. Consistent with this so-called exposure bias, Pickering and colleagues reported no effect of sanitation interventions on linear growth for the children aged from 24 months to less than 60 months (2–5 years) at enrolment, but showed an effect for those aged younger than 24 months (<2 years) at enrolment, and the largest effect for children aged younger than 12 months (<1 year) at enrolment. Moreover, since findings published in 2015 from the SHINE project showed that environmental enteropathy (also termed environmental enteric dysfunction) starts in utero through maternal infection, full exposure to improved sanitation facilities ought to, theoretically, include children whose mothers had sanitation for the full duration of their pregnancy, if not before. Collectively these findings suggest that future sanitation intervention trials should consider focusing on child growth as the primary indicator of interest; record when toilet facilities were first put in to use (to measure duration of exposure); and focus on assessing the nutritional effects on younger children (0–2 years), including exposure in utero.

I declare no competing interests.

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