

Water, Sanitation and Hygiene (WASH) & Maternal and Newborn Health: Recent Publications

1 A systematic review showed evidence of association between sanitation and maternal mortality and between water and maternal mortality.

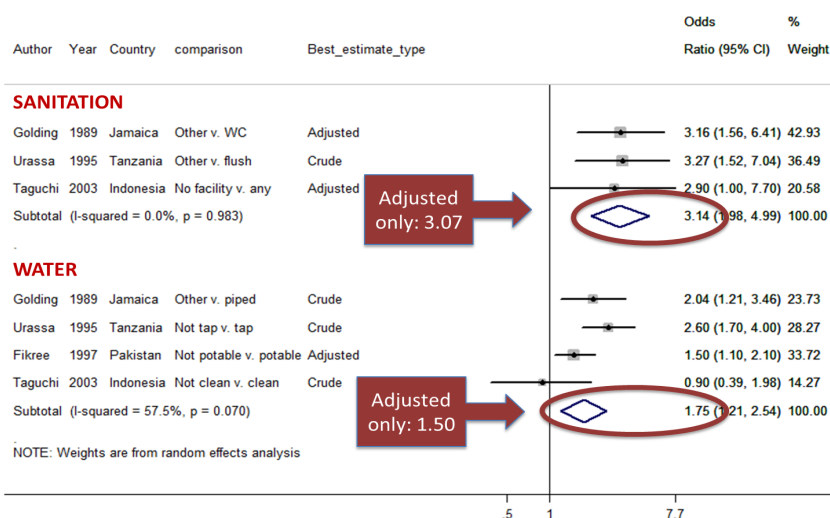
Both associations are of substantial magnitude. While there was a limited number of primary studies, there are plausible pathways through which such associations may operate.

Findings - Sanitation

Four of five ecological studies that considered sanitation found that poor sanitation was associated with higher maternal mortality. Meta-analysis of adjusted estimates in individual-level studies indicated that women in households with poor sanitation had 3.07 (95% CI 1.72-5.49) higher odds of maternal mortality.



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Findings - Water

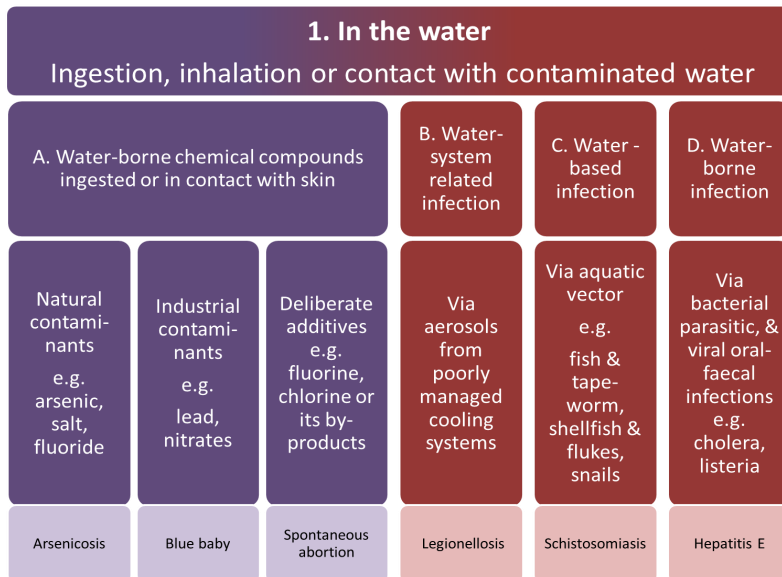
Four of six ecological studies assessing water environment found that poor water environment was associated with higher maternal mortality. The only individual-level study looking at the adjusted effect of water showed a significant association with maternal mortality OR=1.50, 95% CI:1.10-2.10).

Reference: Benova L, Cumming O, Campbell OM. Systematic review and meta-analysis: association between water and sanitation environment and maternal mortality. *Trop Med Int Health*. 2014.

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2 A conceptual framework identified 77 potential chemical, biological and behavioural mechanisms linking WASH to maternal and newborn health.

This paper used the Bradley classification and gender and life-course lenses to list risk factors potentially linked to maternal and perinatal health. A systematic scoping review was conducted for all identified chemical and biological WASH risk factors.

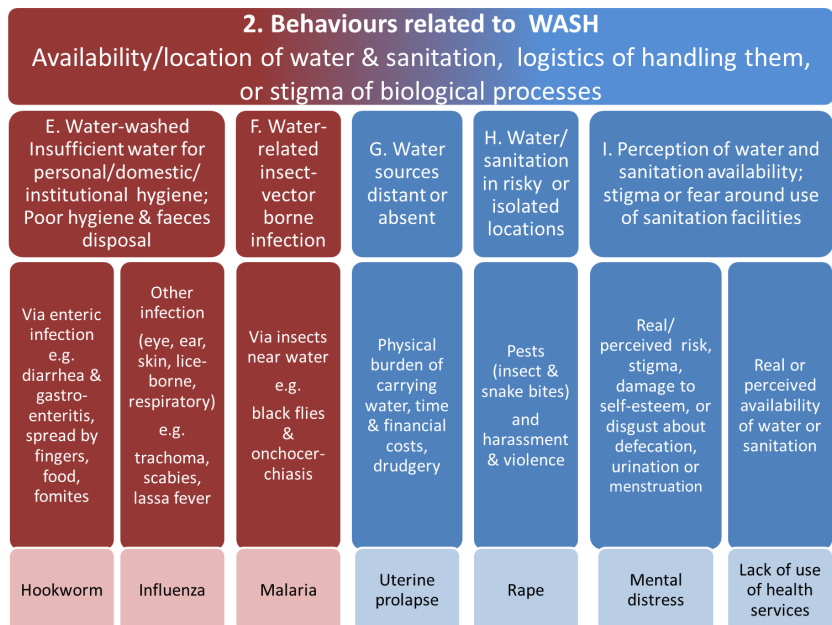


Detailed findings

WASH affects the risk of adverse maternal and perinatal health outcomes; these exposures are multiple and overlapping, and may be distant from the immediate health outcome. The evidence strongly suggests that poor WASH influences maternal and reproductive health outcomes to the extent that it should be considered in global and national strategies.

Recommendations

New systematic reviews are required to more rigorously assess the quality of existing evidence and primary research is required to investigate the magnitude of effects of particular WASH exposures on specific maternal and perinatal outcomes.



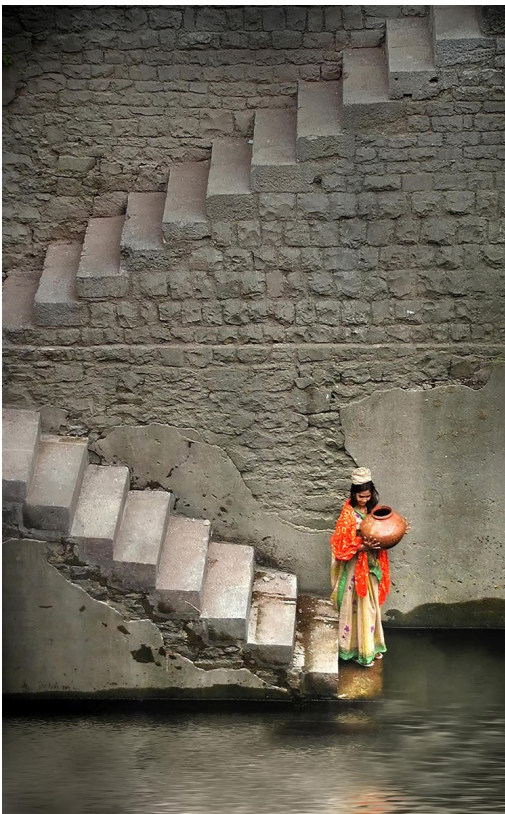
Reference: Getting the basics right – the role of water, sanitation and hygiene in maternal and reproductive health: a conceptual framework. Campbell OM., Benova L, Gon G., Afsana K., Cumming O. Trop Med Int Health. 2014.



Country case study: Afghanistan

3 The effect of unimproved household water and toilet facilities on pregnancy-related mortality in Afghanistan was estimated.

After adjusting for confounders, women in households with unimproved water access had 1.91 higher odds of pregnancy-related mortality (95%CI 1.11-3.30) compared to households with improved water access. An association was found between unimproved toilet facilities and pregnancy-related mortality (OR=2.25; 95%CI 0.71-7.19), but it was not statistically significant.



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Methods

The data source was a population-based cross-sectional study, the Afghan Mortality Survey 2010. Descriptive, univariate and multivariate logistic regression analyses were carried out, comparing 69 pregnancy-related deaths (cases) and 15,386 surviving women (non-cases) who had a live birth or stillbirth between 2007 and 2010.



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Conclusions

Unimproved household water access was an important risk factor for pregnancy-related mortality in Afghanistan. However, it was not possible to discern whether unimproved water source is a marker of unhygienic environments or of socio-economic position. There was weak evidence of an association between unimproved toilet facilities and pregnancy-related mortality; this association requires confirmation from larger studies.

Reference: The contribution of unimproved water and toilet facilities to pregnancy-related mortality in Afghanistan: analysis of the Afghan Mortality Survey. Gon G, Monzon-Llamas L, Benova L, Willey B, Campbell OM. Trop Med Int Health. 2014.

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Country case study: Tanzania

4 Existing data sources were used to assess the environment surrounding births in Tanzania. Less than one third of all births in Tanzania took place in a water and sanitation safe (WATSAN-safe) environment.

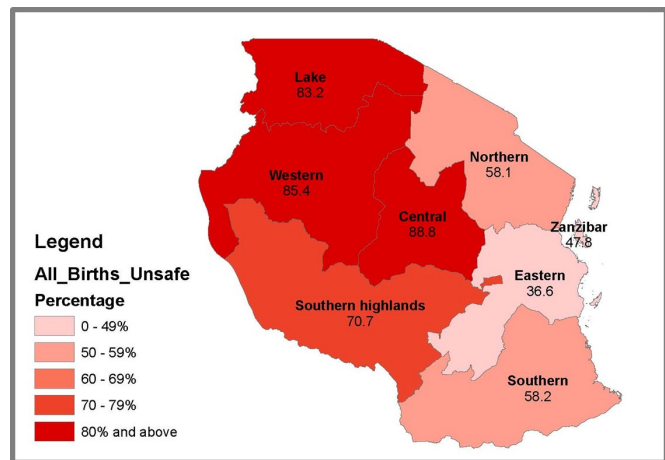
Existing data sources can be useful in national monitoring and prioritisation of interventions to improve poor water, sanitation and hygiene environments during childbirth.



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Methods

The 2010 Tanzania Demographic and Health Survey was used to characterise the delivery location of births. Births occurring in domestic environments were characterised as WATSAN-safe if the home fulfilled international definitions of improved water and improved sanitation access. The 2006 Service Provision Assessment survey was used to characterise the WATSAN environment of delivery facilities. Estimates from both surveys were combined to obtain the proportion of all births occurring in WATSAN-safe environments.



Proportions of all births in five years preceding 2010 DHS that were WATSAN-safe

Results

Only 1.5% of home births occurred in WATSAN-safe environments. Among health facilities, 24% of facility delivery rooms were WATSAN-safe. Large wealth-based inequalities existed in the proportion of births occurring in domestic environments based on wealth quintile and geographical zone.

Reference: Where there is no toilet: Water and sanitation environments of domestic and facility births in Tanzania. Benova L, Cumming O, Gordon BA, Magoma M, Campbell OM. PLoS One. 2014

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