

### Household Water Insecurity Is Common and Associated With Higher Odds of Hunger and Lower Dietary Diversity Across Sub-Saharan Africa and Asia

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**Objectives:** Household water insecurity may exacerbate poor nutrition (e.g., via limited water to produce or prepare preferred foods) and health, but comparable quantification of water access and use has only recently become possible. We therefore aimed to assess the prevalence of household water insecurity and estimate its association with dietary diversity, hunger, and illness.

**Methods:** The International Food Policy Research Institute is conducting panel phone surveys among a random subsample of men and women in ongoing studies to understand the impacts of the COVID-19 pandemic. Surveys last 20–30 minutes and include information about respondent and household characteristics; experiences with household water insecurity [using the Household Water Insecurity Experiences Scale-4 (HWISE-4), range: 0–12], hunger, and illness in the prior 2 weeks; and 24-hour dietary recall (range: 0–10 food groups).

We assessed the relationship between water insecurity and dietary diversity, hunger, and illness using random coefficient models (which account for variation by site and adjust for measured confounders) among sites with available baseline data: Senegal (interviews conducted June 2020, n = 501), Nepal (July 2020, n = 759), Ghana (September 2020, n = 543), Nigeria (September 2020, n = 501), Kenya (October 2020, n = 547), and Niger (October 2020, n = 364). Additional data from other sites and timepoints are forthcoming.

**Results:** The prevalence of water insecurity (HWISE-4 scores > 3) ranged from 8.9% of sampled households in Nepal to 47.4% in Ghana. In bivariate analyses for each site, household water insecurity did not differ by respondent sex but was consistently lower among households that had an on-premises compared to off-premises water source [e.g., mean, 2.3 vs. 3.7,  $p < 0.001$  in Senegal]. In adjusted models across all sites, greater water insecurity was associated with lower dietary diversity (B:  $-0.08$ ; 95% CI:  $-0.10, -0.05$ ), and higher odds of experiencing hunger (OR: 1.10; 95% CI: 1.08, 1.14) and having an ill household member (OR: 1.04; 95% CI: 1.01, 1.07).

**Conclusions:** Water insecurity is experienced by many households and may be an important determinant of nutritional and physical well-being.

**Funding Sources:** The Bureau for Resilience and Food Security at the United States Agency for International Development.