

Household Water Insecurity Is Positively Associated With Household Food Insecurity in Low- and Middle-Income Countries

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Objectives: Although water insecurity and food insecurity may be related via various pathways, this relationship has received little attention. Knowing where and among whom water and food insecurities coexist is critical for developing nutrition interventions and policies that are not undermined by concurrent problems with water. The objective of this study, therefore, was to investigate the relationship between water and food insecurities in low- and middle-income countries (LMICs).

Methods: In 2020, Gallup World Poll administered the Individual Water Insecurity Experiences Scale (IWISE, score range 0–36) and the Food Insecurity Experiences Scale (FIES, score range 0–8) to measure water and food insecurities in nationally representative samples from 25 LMICs in four global regions (n = 31,755). As a preliminary analysis, we estimated the odds of food insecurity (FIES score \geq 4) in relation to water insecurity (IWISE score \geq 12) for each country and region

separately using multivariable logistic regression models adjusted for key covariates including income, urbanicity, and gender.

Results: The prevalence of water insecurity in the full pooled sample was 18.3%, ranging from 14.8% across the Asian countries to 34.4% across the sub-Saharan Africa countries. Of those who were water insecure in the full pooled sample, 68.9% experienced concurrent food insecurity. Adjusting for covariates, the odds of food insecurity in sub-Saharan Africa were 2.70-fold higher (95% CI: 2.39, 3.06) among those with water insecurity. The magnitude of this association was similar in the pooled samples for North Africa (OR: 3.05, 95% CI: 2.30, 4.04), Asia (OR: 3.17, 95% CI: 2.15, 4.67), and Latin America (OR: 2.52, 95% CI: 1.87, 3.40).

Conclusions: In most of the LMICs in our sample, water insecurity was positively associated with food insecurity independently of socioeconomic covariates. Unpacking how and why food and water insecurity relate and how their relationships differ across contexts could help identify if and where interventions to reduce water insecurity are needed concurrently with measures to improve food security and nutrition.

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