Water Insecurity Is Differentially Associated With Food Insecurity Across Seasons: Evidence From the Galápagos

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Objectives: Unreliable access to adequate water for household use (i.e., water insecurity) undermines well-being by limiting safe food preparation, yet few nutrition studies concurrently measure experiences of suboptimal water use and objective water quality. We therefore aimed to categorize individuals based on their water environments and assess whether food insecurity and its subdomains differed across groups.

Methods: Data are from the Healthy Families Study, a cohort study on San Cristóbal Island, Ecuador. All members within 115 participating households were interviewed during the cool season (July-October 2018) and at a follow-up visit during the warm season (March-May 2019). We first used latent class analysis to identify households with common water characteristics (e.g., water source, water treatment methods, experiences with water inadequacy). Classifications were then included in multivariable models of food insecurity in the prior 3 months (measured using the Latin American and Caribbean Food Security Scale), stratified by season.

Results: A two-class solution best fit the data (60.5% in class 1 for the cool season, 91.4% for the warm season). Across seasons, a lower proportion of individuals in class 1 than class 2 reported water issues. In the cool season, fewer households in class 2 had detectable *E. coli* in their primary water source compared to those in class 1, but this was reversed in the warm season. Adjusting for sociodemographic characteristics, being in class 2 relative to class 1 was associated with 1) higher odds of being food secure in the cool season (OR: 3.64, 95% CI: 1.48, 8.93) but lower odds in the warm season (OR: 0.09, 95% CI: 0.02, 0.55); 2) greater experiences with poor diet quality during the warm (B = 2.15, 95% CI: 0.35, 3.95) but not the cool season; and 3) fewer experiences of suboptimal food access during the cool season (B = −1.44, 95% CI: −2.78, −0.10) but more during the warm season (B = 1.36, 95% CI: 0.03, 2.69).

Conclusions: Access to safe water can create an enabling environment for good nutrition, although the relative importance of water availability and quality may vary across seasons.