**Final Outcomes of a Novel Food Insecurity Related Measurement Development Project**

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**Abstract**

The purpose of this study was to develop new self-administered measures to assess household dietary autonomy and nutrition security. Our operational definition of *Dietary Autonomy* (DA) was “A state of independence from external constraints that allows self-determination in a household to choose the characteristics of their diet.” *Nutrition Security* (NS) was operationalized similarly, but with an emphasize on self-determination to choose dietary healthfulness.

A formative phase included an expert advisory group, literature scans, and cognitive interviews with individuals experiencing food insecurity. In April 2021, we finalized a draft of the new measures to pilot in a convenience sample of individuals at risk for food insecurity from five states (CA, FL, MD, NC, and WA). The pilot survey included the DA (3 items) and NS (5 items) measures, scales for validation (locus of nutritional control scale, fruit and vegetable (FV) intake, types of meals consumed, and food security), and demographic questions. We used Classical Test Theory and Item Response Theory (IRT) approaches to assess model fit (factor analysis), internal consistency (Cronbach’s alpha), IRT indicators (discrimination and difficulty), test bias (moderation effects), and convergent validity (Spearman’s correlation coefficients).

Respondents (n=488) ranged from 18-89 years old, 67% experienced low or very low food security, 47% had a high school diploma or less, and 72% were women. Races/ethnicities included non-Hispanic White (48%), Hispanic/Latino (22%), non-Hispanic Black (17%), Asian (4%), Tribal/Indigenous groups (2%), and multi-racial/ethnic or not listed (7%). Testing showed acceptable model fit (Adjusted Goodness of Fit: DA=0.990, NS=0.979; Standardized Root Mean Square Residual: DA=0.037, NS=0.055), internal consistency (Cronbach’s alpha: DA=0.79, NS=0.78), and IRT indicators (slopes >1.0 and thresholds spread across the levels of the latent trait). Gender moderated the relationship between DA and food security, but no other indications of test bias were present. DA and NS scores were negatively associated with having an external locus of nutrition control (DA=-0.361, NS=-0.371) and food insecurity (DA=-0.656, NS=-0.558), and positively associated with FV intake (DA=0.269, NS=0.248) and scratch-cooked meal intake (DA=0.318, NS=0.331).

These findings are encouraging and support the reliability and validity of these new measures within similar low-income and food insecure samples.