Acculturation and Food Insecurity Among Puerto Ricans Living in Boston

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ABSTRACT

Objective: To examine the associations among acculturation, food environment, and food insecurity among Puerto Ricans in Boston.

Methods: The researchers used data from the second wave of the Boston Puerto Rican Health Study. The sample included 719 Puerto Rican adults in Boston. The researchers used logistic regression to examine the associations between psychological and language acculturation and food insecurity.

Results: Individuals with medium psychological acculturation were more likely to be food insecure than were those with low or high psychological acculturation ($P = .01$). The association between language acculturation and food insecurity differed by distance of residence from primary shopping location ($P = .02$).

Conclusions and Implications: This study extends the understanding of acculturation and food insecurity by investigating the impact of psychological and language acculturation. The findings highlight biculturalism, indicated by medium psychological acculturation, as a risk factor for food insecurity. People with low language acculturation who live far from food shopping locations had the highest prevalence of food insecurity.

Key Words: acculturation, food insecurity, Latino, Puerto Ricans (*J Nutr Educ Behav.* 2018;50:829−835.)

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INTRODUCTION

Food insecurity is defined as "a household-level economic and social condition of limited or uncertain access to adequate food."[1] Food insecurity is prevalent among Latinos.[2] The prevalence of food insecurity has been reported to be highest among Puerto Ricans (25.4%) relative to other Hispanic groups such as Cubans (12.1%) or Mexican Americans (20.8%).[2] Puerto Rican individuals are particularly susceptible to adverse health and health-related outcomes resulting from food insecurity; research suggested that food insecurity is associated with poor health care access, type 2 diabetes,[3] and poor glycemic control over time.[4] Research also indicated that food insecurity is associated with subsequent cognitive decline among Puerto Ricans.[5,6]

There has been much scholarly attention to the relationship between acculturation and food insecurity among Latino/Latina populations in the US. Acculturation is defined as a "multidimensional process consisting of the confluence among heritage-cultural and receiving-cultural practices, values, and identifications."[7] Drawing data from the National Health and Nutrition Examination Survey, studies[8–10] found that food insecurity was associated with lower acculturation, as indicated by speaking only Spanish among the Latino/Latina population. However, results appeared to be more complicated for Puerto Ricans than for other Latino/Latina populations. Dhokarh and associates[11] found that among Puerto Ricans, food insecurity was positively associated with speaking only Spanish, yet negatively associated with attending Hispanic cultural events. The complexity of the results conveys important implications that acculturation should be examined in different domains in relation to food insecurity.

Although studies employed language use and attendance to cultural events as proxies for acculturation, few examined the underlying mechanisms that explain these associations. More research is needed to better understand the unique associations between acculturation and food insecurity among Puerto Ricans. In addition, to the authors' knowledge, whether the association between acculturation and food insecurity

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varies by food environment remains unexplored. Access to food sources (in the form of shopping location) and the quality of available food can be critical to food security, particularly for an aging population. Therefore, the research questions for this study were: (1) Are language acculturation and psychological acculturation associated with food insecurity among Puerto Ricans in the greater Boston area? (2) Do the associations between these acculturation domains and food insecurity depend on the distance of residence from the primary food shopping location?

METHODS

Data were drawn from the second wave of the Boston Puerto Rican Health Study.[12] The sample for this analysis included 719 self-identified Puerto Rican adults who resided in the Boston metropolitan area. Participants were surveyed through door-to-door enumeration and community approaches.[12] Participants were given the option to complete the survey in either English or Spanish. Because this study used publicly available data, which were deidentified, the Texas State University Institutional Review Board reviewed the study and decided that it was exempt from review.

Food insecurity was measured using the US Department of Agriculture 10-item, 3-stage survey with screeners.[13] Because the food insecurity scale was calculated based on measures with dichotomous choices, Kuder−Richardson Formula-20[14] was used to assess internal consistency reliability. The Kuder−Richardson Formula-20 coefficient of this scale for the study sample was 0.98, indicating high internal reliability for the study sample. Consistent with the US Department of Agriculture food security module,[13] food insecurity was defined as having a food security raw score between 3 and 10, and food secure as having a food security raw score between 0 and 2. Food insecure was coded as 1 and food secure as 0. Measures of the food environment include proximity of the home address to the primary food shopping location and the availability of nutritious food in the neighborhood. Participants were asked, *How far from your home is the place [or group of places] where your household does most of its food shopping?* Responses were recoded into a binary variable, using half a mile or 12 blocks as the cutoff for walking distance, indicating whether the primary grocery shopping location was far. A 10-item scale with the respondent's assessment of the availability of nutritious food in the neighborhood was adapted from a food environment survey using 5-point Likert scales (Cronbach $\alpha = .96$).[15] The raw score was converted into a binary variable indicating low availability (1 to <4) or high availability (4−5) because its distribution is skewed to the left.

Psychological acculturation was measured with the 10-item Psychological Acculturation Scale (PAS), which was developed to assess an individual's sense of psychological attachment to and belonging within the Anglo American or Latino culture.[16] This scale also demonstrated high interitem consistency for the study sample (Cronbach $\alpha = .95$). To address the nonlinear relationship between food insecurity and psychological acculturation and emphasize the unique characteristics of bicultural participants, the PAS score was categorized into 3 levels: low (PAS = 10), medium ($10 < \text{PAS} \leq 21$), and high ($21 < \text{PAS} \leq 43$). The minimum PAS score (10) was chosen as the first cutoff point because it was reported by almost half of the participants. The researchers chose 21 as the second cutoff point because it was closest to the median among those who did not report 10 for the PAS score.

Language acculturation was adapted from the Bidimensional Acculturation Scale for Hispanics[17]

Table 1. Characteristics of Puerto Rican Participants in Boston Metropolitan Area (n = 719)

Variables	Mean (SD) or %
Food insecure	17.4%
Language acculturation	
Low	33.1%
Medium	35.1%
High	31.9%
Psychological acculturation	
Low	45.5%
Medium	30.5%
High	24.1%
Living far from primary food shopping location	41.0%
Availability of nutritious food in neighborhood	
Low	33.9%
High	66.1%
Education	
No schooling or less than fifth grade	22.7%
Grades 5−8	26.7%
Grades 9−12	36.2%
Some college or bachelor's degree	12.9%
At least some graduate school	1.5%
Age	63.1 (7.5)
Woman	71.9%
Income	$19,200 ($45,200)
Living with spouse	25.4%