

# Nutrition Label Use and Its Association With Dietary Quality Among Latinos: The Roles of Poverty and Acculturation

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## ABSTRACT

**Objective:** To investigate how acculturation and poverty are independently and jointly associated with the use of the Nutrition Facts panel (nutrition label) and to examine the extent to which nutrition label use moderates the association of poverty and acculturation on dietary quality among Latinos.

**Design:** Cross-sectional analysis of the 2007/2008 and 2009/2010 waves of the National Health and Nutrition Examination Survey.

**Participants:** A total of 3,696 adults (aged >19 years) self-identified as Latino/Hispanic with food label use data from the most recent Consumer Behavior Phone Follow-Up Modules.

**Main Outcome Measure(s):** Nutrition label use and dietary quality.

**Analysis:** Logistic regression.

**Results:** Acculturation moderated the association of income on the likelihood of using nutrition labels, such that lower-income English-speaking Latinos were half as likely as higher-income English-speakers to use nutrition labels ( $P = .01$ , odds ratio [OR] = 0.44, 95% confidence interval [CI], 0.24–0.81); however, Spanish speakers were equally likely to use nutrition labels across income levels ( $P = .99$ ; OR = 1.00; 95% CI, 0.77–1.31). Nutrition label use moderated the association of acculturation on diet. Among English-speaking Latinos, those who read nutrition labels had less than half the risk for poor diet ( $P = .001$ ; OR = 0.43; 95% CI, 0.26–0.69); however, label use was not significantly associated with the diet quality of Spanish speakers ( $P = .07$ ; OR = 0.82; 95% CI, 0.67–1.02). Nutrition label use decreased the risk for poor dietary quality regardless of poverty status.

**Conclusions and Implications:** Overall, results demonstrated a positive association between the use of the Nutrition Facts panel for Latinos and dietary quality. An important nutrition education strategy among bicultural Latinos at risk for a poor diet as a result of acculturation may include label reading comprehension. This approach may also address the low rates of label use. The study provides evidence of segmented assimilation in which low-income, bicultural Latinos follow an underclass pattern of acculturation demonstrated by a lower likelihood of reading nutrition labels and higher-income, bicultural Latinos follow the more successful selective pattern.

**Key Words:** dietary intake, Healthy Eating Index, Nutrition Facts panel, poverty, segmented assimilation (*J Nutr Educ Behav.* 2018; 50:876–887.)

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## INTRODUCTION

The Nutrition Facts panel (here this term is used interchangeably with

*nutrition label*) is a population-level nutrition communication device that provides consumers at the point of purchase with information needed to

comply with the Dietary Guidelines for Americans.<sup>1,2</sup> A growing body of evidence suggests that nutrition label use is positively associated with dietary quality;<sup>3–9</sup> however, there are important demographic differences in use. In general, research showed that individuals with lower incomes tend to use labels less frequently than those with higher incomes,<sup>7,10</sup> a pattern mirrored by years of education.<sup>3,4,6,7</sup> Some research also found differences by race and ethnicity, such that Latinos and African Americans were less likely to use food labels compared with non-Latino whites.<sup>7,11,12</sup> In general, these findings are troubling because they suggest that labels are

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underused by populations that may be in greatest need of nutrition information.

The current study examined nutrition label use frequency among US Latinos, who are the largest ethnic minority group in the country, with a population of 56.6 million.<sup>13</sup> Latinos have a higher prevalence of being overweight and obese than other ethnic groups<sup>14</sup> and also higher mortality owing to diet-related disease such as diabetes.<sup>15</sup> Latinos may be especially at risk for poor diet and obesity, and therefore in greater need of nutrition guidance, for economic and cultural reasons.<sup>16,17</sup> Latinos have lower incomes and double the rates of food insecurity of non-Latino whites.<sup>18</sup> In addition, studies suggest that as Latinos become more acculturated to mainstream US culture, their diets become less healthful<sup>19</sup> and that they are more likely to have obesity and diet-related illnesses.<sup>20,21</sup> This phenomenon, referred to as the dietary acculturation paradox, is puzzling because the negative shift in diet quality occurs despite gains in income and education that would otherwise suggest a protective effect of acculturation.<sup>18,22</sup> For example, Guendelman and Abrams<sup>23</sup> showed that second-generation (US-born) Mexican American women had a higher risk of poor dietary quality compared with those who were first-generation (foreign-born), with the second generation diet being similar to white non-Latina women. This finding is particularly interesting considering that first-generation Mexican American women are at a higher risk for falling below the poverty line than either second-generation Mexican American or white non-Latina women. Specifically, studies showed that increasing acculturation is associated with decreasing consumption of ethnic foods and increasing consumption of fats and sugars and other unhealthful nutrients.<sup>20,24-27</sup> Ayala and colleagues<sup>28</sup> performed a systematic review of the relationship between dietary intake and acculturation across a variety of measures of acculturation. They found consistent relationships across various acculturation measures: less acculturated individuals consumed more fruit, rice, and beans and less sugar and sugar-sweetened beverages.

Although research showed that nutrition label use is positively associated with dietary quality among the general population,<sup>5-10,29-32</sup> relatively few studies examined this association among Latino populations specifically. Two notable exceptions focused on Latinos with diabetes. The first was an intervention targeted at Latinos with type 2 diabetes that employed community health workers to deliver culturally appropriate training on using the Nutrition Facts panel.<sup>33</sup> Just 2 lessons were enough to increase label use frequency significantly among the intervention group. Moreover, food label use significantly improved diet quality and accounted for 15% of the total effect of the intervention on hemoglobin A1C levels.<sup>33</sup> Second, in an observational study, Fitzgerald and colleagues<sup>34</sup> found that Latinas with diabetes who used food labels were more likely to consume fruits and vegetables and less likely to consume sweets, salty snacks, and sugar-sweetened soft drinks frequently. However, no studies reported whether acculturation moderated the effect of food label use on diet quality. Past research suggested that acculturation influenced the effects of communication interventions,<sup>35,36</sup> which makes it an important factor to consider when evaluating the effectiveness of nutrition labels within this population.

As noted earlier, income is associated with acculturation and is also related to both nutrition label use and diet quality in the general population.<sup>37-39</sup> Therefore, it is particularly important to consider within Latino populations. Latinos have lower average incomes and are more likely to live in poverty compared with non-Latino whites.<sup>14</sup> Sharif and colleagues<sup>40</sup> examined label use among 269 Latino adults in Southern California and found that those below the poverty line were more likely to use nutrition labels than were those at higher income levels. This suggests that poverty may affect the use of nutrition labels among Latinos differently from among other populations, where poverty more clearly has a negative effect on label use.<sup>4,41,42</sup> Such a pattern would be consistent with segmented

assimilation theory, a social scientific framework that examines how the trajectories of integration of immigrants and their descendants are influenced by a complex interplay of individual, social, and structural factors.<sup>17,43</sup> Furthermore, label use may be influenced by a combination of income and acculturation. Sharif and colleagues found no significant effects of acculturation on label use, but other work suggested the opposite: that increased acculturation (when measured by language) is associated with increased use of nutrition labels.<sup>7</sup> These findings suggest that the effect of poverty on the frequency of nutrition label use among Latinos could vary with the degree of acculturation.

In general, then, the effects of acculturation and income are important factors to consider when evaluating the effectiveness of nutrition label use among Latinos. Given that higher acculturation is a risk factor for poor diet but is positively associated with education and income,<sup>44</sup> and that income and education are related to reading nutrition labels and better diet in the general populations, their combined effects could be particularly important for understanding how to improve nutrition label use among Latinos.

Thus, the aims of this study were (1) to understand how acculturation and income are independently and jointly associated with the use of nutrition labels, as reflected by self-reported frequency of nutrition label use; and (2) to examine the extent to which acculturation and poverty moderate the associations of nutrition label use on dietary quality among Latinos. The study was guided by the following research questions, which informed the development of the specific hypotheses tested in this study.

First, the researchers hypothesized that low-income Latinos would have lower odds of using nutrition labels compared with higher-income Latinos; and that less acculturated Latinos would have lower odds of using nutrition labels compared with more acculturated Latinos. Second, it was hypothesized that poverty and acculturation would interact to affect nutrition label use, such that poverty

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