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The Limits of Language: New Directions for Measurement of the Buffering Effects of Social Support on Acculturative Stress

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Existing acculturation measures for Hispanic/Latinx populations have limited capacity to capture the dimensions of acculturation that impact health outcomes. This article explores a new approach that emphasizes acculturative processes relevant to health and well-being. Using data from the U.S. Hispanic/Latinx population (N = 219), we identified and tested four scales measuring family cohesion and pride (a = .97), family cultural conflict (a = .89), cultural retention (a = .87), and neighborhood belonging (a = .81). We argue that these scales capture buffers of acculturative stress related to social support. We conducted quantitative association analyses to evaluate how these scales performed and how they related to traditional measures of acculturation. The findings indicate that traditional measures of acculturation (based on language and cultural affinity) do not fully capture the acculturative processes related to health outcomes. Based on these results, we encourage health communication scholars to explore new directions for measuring acculturation. This study offers one such direction, a first step in disentangling acculturative processes that buffer against the negative health outcomes linked to acculturation.

Keywords: acculturation, acculturative stress, social support, Hispanic/Latinx, immigrants, measurement

Acculturation—an individual's process of adapting to a new culture—plays a critical role in the health outcomes of Hispanic/Latinx[1] immigrants to the United States. Immigrants often arrive in the United States

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[1]Though the paper refers to this population as "Hispanic/Latinx," all scale and survey questions use the term, "Hispanic/Latino." This was done in accordance with the stated preferences of participants in an earlier stage of the study; our participants generally held negatives views of the term "Latinx" and research indicates that this dislike is not unique (Pew Research Center, 2024). Researchers adopting our suggested acculturation measures should adapt the ethnicity terms to reflect the preferences of their participants.

in good health; however, over time, this good health equilibrates or even degrades until immigrants' overall health is worse than nonimmigrants (Anderson et al., 2016; Bilal, Chan, & Somerset, 2020). Past work has suggested that it is the acquisition of U.S. cultural values that contributes to this increase in negative mental and physical health outcomes among immigrants (Alegría, Sribney, Woo, Torres, & Guarnaccia, 2007; Bethel & Schenker, 2005) though the causal links between acculturation and deteriorating health are neither simple nor fully understood (Abraído-Lanza, Echeverría, & Flórez, 2016; Angel & Angel, 2014; Lara, Gamboa, Kahramanian, Morales, & Hayes Bautista, 2005; Viruell-Fuentes & Schulz, 2009). Acculturation is important to consider when designing health interventions for immigrant populations (Elder, Ayala, Parra-Medina, & Talavera, 2009; Tan & Cho, 2019). However, existing acculturation measures for Hispanic/Latinx populations have limited ability to capture health-related dimensions of acculturation (Wallace, Pomery, Latimer, Martinez, & Salovey, 2010). In this article, we suggest a new approach to measuring acculturation that highlights acculturative processes relevant to health and well-being.

Measuring acculturation in Hispanic/Latinx populations is complex. The existing measures vary and often conflict in their conceptualizations (Thomson & Hoffman-Goetz, 2009; Wallace et al., 2010). Determining how to measure acculturation validly requires ongoing work. As Roth, Musci, and Eaton (2020) observe, "Despite its importance, acculturation has been measured insufficiently and inconsistently" (p. 2). In this study, we explore the limitations of existing acculturation measures for Hispanic/Latinx populations and identify acculturation concepts that help buffer the negative health effects associated with acculturation. Through a literature survey of existing acculturation measures, we identify four concepts that we argue solve some challenges in measuring acculturation. These concepts emphasize acculturative processes involving social support and its role in buffering negative health outcomes associated with acculturation. This study presents an empirical exploration of these scales, examining how they perform and how they relate to traditional acculturation measures and relevant moderating variables.

Literature Review

Acculturation is "the process by which individuals adopt the attitudes, values, customs, beliefs, and behaviors of another culture" (Abraído-Lanza, Armbrister, Flórez, & Aguirre, 2006, p. 1342) through immigration (Telzer, Yuen, Gonzales, & Fuligni, 2016). For most of the 20th century, the prevailing understanding was that acculturation moved along a spectrum, where, upon relocation, individuals discarded facets of their culture of origin as they embraced aspects of a new culture[2] (Gordon, 1964; Park, 1928). This unidimensional model remains dominant among existing acculturation measures—for example, seven of the 10 Hispanic/Latinx acculturation scales reviewed by Thomson and Hoffman-Goetz (2009) were

[2] Gordon and his mentor, Park, imagined acculturation specifically as a process taking place in the United States and believed that immigrants were obligated to adopt White American culture and discard all elements of their origin cultures. This unquestioned belief in the supremacy of White American culture remains embedded in modern acculturation research. As Abraído-Lanza et al. (2006) note, "implicit in much research on acculturation is the unwritten understanding that White Americans are the standard makers for 'American-ness'" thus reinforcing notions of whiteness as the standard against which all difference is judged (p. 1344).

unidimensional. One of the most prominent unidimensional acculturation measures for Hispanic/Latinx populations is the Acculturation Rating Scale for Mexican Americans (Cuéllar, Arnold, & Maldonado, 1995).

However, the unidimensional model was challenged by the introduction of bidimensional models of acculturation. In particular, Berry's (1997, 2003) work conceptualized acculturation as involving both adaption to a new culture and preservation of the culture of origin (Ayala, Baquero, & Klinger, 2008). In his model, an increase in affiliation with a new culture does not necessitate a decrease in affiliation with one's culture of origin (Marín & Gamba, 1996). The bidimensional model is an important framework for studying health outcomes if retaining one's culture of origin offers protection against acculturation- and immigration-related stressors. Few existing scales are based on bidimensional models of acculturation; one exception is the Bidimensional Acculturation Scale (Marín & Gamba, 1996). A third approach to conceptualizing acculturation emphasizes a multidimensional model. Scholars who developed this approach highlight the inconsistent findings for bidimensional scales and challenge both unidimensional and bidimensional models as overly simplistic and missing relevant dimensions of acculturation (McLeod, Buscemi, & Bohnert, 2016; Wallace et al., 2010). We identified three existing multidimensional scales; the most widely used is the Acculturation Rating Scale for Mexican Americans II (Bauman, 2005; Cuéllar et al., 1995). A review of existing acculturation measures shows that scholars studying Hispanic/Latinx populations continue to investigate how best to measure acculturation, with no definitive solution (Bauman, 2005; McLeod et al., 2016). We propose a new direction for acculturation measures informed by the connection between health and acculturation.

To develop this approach, we surveyed 18 measures of acculturation for Hispanic/Latinx populations (see Thomson & Hoffman-Goetz, 2009 and Wallace et al., 2010 for in-depth analyses of these scales). We identified two primary measurement challenges across the surveyed scales. First, most existing measurements do not acknowledge that theory does not support the unidimensional model, which positions acculturation as the opposite of enculturation or the retention of one's culture of origin (Jones & Mortimer, 2014). As Marín and Gamba (1996) argued:

> the most significant difficulty with most published acculturation scales for Hispanics… [is that they] consider the acculturating process as a zero-sum behavior in which individuals move from a Hispanic pole to a non-Hispanic pole, implicitly indicating that as gains are made on one cultural domain equivalent losses take place on the other cultural domain. (pp. 297–298)

Despite this theoretical conclusion, most available acculturation measures for Hispanic/Latinx populations remain unidimensional and, more problematically, are sometimes limited to single-question proxy measures (Roth, Musci, & Eaton, 2019).

Second, acculturation measures often show inconsistent instrumentalization. This inconsistency partly stems from the inclusion of items about highly specific cultural details, which limits a scale's generalizability beyond a specific subgroup, such as a single country (Alegría et al., 2007; Roth, Musci, & Eaton, 2022). Another problematic instrumentalization practice is the use of language fluency or preference as a proxy for acculturation. While this simplifies measurement, language proxies are inherently

reductionistic when used as a standalone measure of acculturation (Thomson & Hoffman-Goetz, 2009; Wallace et al., 2010).

We reviewed existing theories, measures, and empirical work to identify scales that ameliorate some of these measurement challenges, and found three acculturative processes that may buffer acculturative stress: the centrality of family, the value placed on cultural retention, and the sense of belonging one has in one's neighborhood. These processes deserve scholarly attention because they may capture buffers of acculturative stress related to perceived social support, which has been linked to positive health outcomes (Gottlieb & Bergen, 2010). Based on these three themes, we defined four concepts and identified four corresponding scales for family cohesion and pride, family cultural conflict, cultural retention, and neighborhood belonging (Alegría, 2009; Hazuda, Stern, & Haffner, 1988).

This approach addresses the first measurement challenge—that most scales are based on the unidimensional model of acculturation—in that we focused on multiple acculturation-related processes rather than operationalizing acculturation as a single process, which is the inverse of enculturation. Furthermore, the scales we selected address the instrumentalization challenges because they are concepts relevant across Hispanic/Latinx populations and because they are worded without terms unique to specific countries or subgroups. Additionally, this approach excludes language proxy measures. Table 1 defines each concept, elaborates on its relevance to acculturation, and explains how it buffers acculturative stress, thus contributing to better health outcomes in Hispanic/Latinx immigrant populations.

Table 1. Proposed Acculturative Stress Buffers: Operational Definitions and Theoretical Relevance.

Concept	Definition	Predicted relationship with acculturation	Importance to Hispanic/Latinx health outcomes
Family cohesion and pride	The value one places on the importance of family as a concept combined with the centrality of a person's family to their individual life (Mansyur, Rustveld, Nash, & Jibaja-Weiss, 2016).	Inversely related	The most distinctive marker of the Hispanic/Latinx family structure and a core tenet across Hispanic/Latinx cultures. It provides close-knit social support, which buffers against negative mental and physical health outcomes (Sabogal, Marín, & Otero-Sabogal, 1987).
Family cultural conflict	The amount of perceived conflict between family members (Lorenzo-Blanco, Unger, Baezconde-Garbanati, Ritt-Olson, & Soto, 2012).	Positively associated	Decreases social support and its buffering benefits and increases stress, which is related to various negative health outcomes (Rivera et al., 2008).
Cultural retention	The value placed on retaining elements of one's culture of origin (Guarnaccia et al., 2007).	The effect varies by model. It is either inversely (unidimensional model) or not directly (bidimensional and multidimensional models) related.	A protective factor for mental health, providing a sense confidence and self-efficacy; likewise, for physical health, it can slow the adoption of unhealthy practices in a target culture (Telzer et al., 2016).
Neighborhood belonging	A perception of belonging to the area and people near one's place of residence and a belief that one's community members share a principle of mutual care (Abraído-Lanza et al., 2016).	The effect varies by neighborhood composition. In Hispanic/Latinx neighborhoods it is inversely related.	Provides positive buffering against negative health, as real and perceived safety reduces stress (Roth et al., 2019).

Table 1 summarizes how these four concepts are related to health in ways that make them buffers of acculturative stress. Links between acculturation and health outcomes have been well documented and include dietary transition, perceived ethnic discrimination (PED), and psychological adaptation to new

physical and social environments (Anderson et al., 2016; Bethel & Schenker, 2005; Bilal et al., 2020). However, causal mechanisms are less understood. As Table 1 highlights, we focus on perceived social support as the connection between these acculturation processes and health (Padilla & Perez, 2003). Belonging to a culture, a family, and a neighborhood are all forms of social connection that can help protect an individual from acculturative stress (Gottlieb & Bergen, 2010). We argue that studying acculturation through these concepts provides an alternative to measuring acculturation through language proxies. Furthermore, this approach foregrounds health-relevant dimensions of acculturation. In the remainder of this article, we summarize empirical analyses of four scales that measure these concepts; these empirical analyses investigate how the scales perform and how they relate to traditional measures of acculturation.

Methods

Measures

We identified validated scales for each of the four concepts defined in Table 1. While we reviewed 18 instruments, we ultimately selected scales from only two surveys: the National Latino and Asian American Study (NLAAS) instrument (Alegría et al., 2004; Alegría, Jackson, Kessler, & Takeuchi, 2016) and the Acculturation and Structural Assimilation Scales (Hazuda et al., 1988). We selected these scales based on (1) how well they addressed the measurement challenges identified in the introduction, (2) their alignment with the concepts we wanted to measure, and (3) the strength of the validity evidence supporting them. We made minor wording changes and combined some items from various scales, as discussed below. We also changed the rating scale from a 4-point to a 5-point rating scale.

Here, we describe the number of items and framing for each scale (item wording is presented in Table 2 in the Results section). *Cultural retention* was measured by four items introduced by the question: "How strongly do you agree or disagree with the following regarding Hispanic/Latino culture?" *Family cohesion and pride* were measured by 10 items introduced by the question: "How strongly do you agree or disagree with the following statements about your family?" Items on both scales were rated on a 5-point agreement scale from "strongly disagree" to "strongly agree" with a "neither agree nor disagree" midpoint. *Family cultural conflict* was measured by five items introduced by the question: "How frequently have the following situations happened to you?" *Neighborhood belonging* was measured by four items introduced by the question: "How true is each of the following about your neighborhood?" Items on both scales were rated on a 5-point frequency scale from "almost never" to "almost always" with an "about half the time" midpoint.

In addition to these four scales, we included the following scales and items:

Acculturation

We included two traditional measures of acculturation based on language preference and self-reported cultural affinity. While we critiqued these approaches in the Literature Review, we included them to compare how the four scales we studied relate to the most common measures of acculturation. To measure acculturation based on language preference, we included five items that asked what language participants preferred to use with friends, family, and for three types of media: (1) movies and TV shows,

(2) books, newspapers, and magazines, and (3) radio and podcasts. Items were rated on a 5-point frequency scale ranging from "Spanish most of the time" to "English most of the time," with an equal-use midpoint. As control variables for language use, we also included two categorial questions about what language was spoken first and predominantly as a child; categorical responses included English, Spanish, "both at the same time," and "other languages."

In addition to language, we included two measures of acculturation based on self-reported cultural affinity and connection. First, two items asked about how close one feels to the ideas and people in the Latino community, rated on a 5-point scale from "not closely at all" to "very closely." These two items were combined to produce a cultural affiliation scale score. Second, one item asked which of two statements participants most agreed with: "I [do not] feel a strong connection with the cultural origin of my family." This question categorized participants into two groups: those feeling cultural connection (interpreted as low acculturation) and those not feeling cultural connection (interpreted as high acculturation).

Moderating Variables

To explore whether responses to these scales differed across sub-groups, we included several moderating variables. The two most important variables are neighborhood composition and immigrant status (Anderson et al., 2016). The other potentially moderating variables were included exploratorily, as literature suggests they may be relevant to acculturation, though results are mixed. These included age, gender, political affiliation (and its importance), employment status, and education (Bethel & Schenker, 2005; Pennell et al., 2004; Schwartz et al., 2013).

We included neighborhood composition because research has shown that it moderates the effect of neighborhood belonging on acculturation (Padilla & Perez, 2003). To measure neighborhood composition, we asked participants, "What is the ethnic composition of your neighborhood?" Responses were rated on a 5-point scale from "almost entirely Hispanic/Latino" to "almost no Hispanic/Latino" with a midpoint of "about half Hispanic/Latino." We constructed a binary neighborhood-type variable by combining the "almost entirely Hispanic/Latino" and "mostly Hispanic/Latino" responses, which we designated as *Hispanic/Latinx* neighborhoods. We combined the three other responses, which we designated as *non-Hispanic/Latinx* neighborhoods.

We included immigrant status to evaluate how immigrants and nonimmigrants differed on these scales. We assessed immigrant status based on self-reported country of birth. Participants could select "United States" or "other" and then specify their country of birth.

Centrality of Family

Based on our review of the existing acculturation measures, we identified family as a central cultural value across Hispanic/Latinx populations (Elder et al., 2009). To confirm this interpretation, we asked participants to rank a series of values, one of which was the importance of family. We analyzed these rankings to see whether the importance of *family cohesion and pride* and *family cultural conflict* aligned with the participants' beliefs. We found that the majority of respondents chose "family" as the most important

value for both themselves (82.70%) and their community (84.10%). Thus, the participants' focus on family lends further credence to our focus on family-related topics.

Participants

The participants (N = 219) were 71% female and an average of 46.19 years old (SD = 10.16). Education levels varied, with 76 people (35%) reporting a high school education or less, 95 people (43%) having some college, and 48 people (22%) having a bachelor's degree or higher. Regarding employment, 112 participants (51%) reported working full-time, 32 (14%) reported working part-time, and 75 (32%) reported being unemployed (some of whom were retired, some not looking for work, and some actively seeking employment). Participants came from 36 different states, with 105 (48%) identifying as Democrat, 59 (27%) as Republican, and 50 (23%) as Independent.

Qualtrics was used to recruit participants and collect data. The survey took around 20 minutes to complete. The first author's university granted IRB approval, and participants were compensated for their participation. The data analyzed in this study were collected as part of a larger online cross-sectional survey about prediabetes and acculturation distributed in early 2023. The larger study collected data from U.S. men and women who identified as Hispanic/Latino, were over the age of 34, and were at least moderately fluent in English (Demetriades, Walter, & Robbins, 2024).

Analysis

We conducted three analytic phases to (1) describe the measurement quality of each scale, (2) evaluate how each measure relates to acculturation, and (3) explore the potential impact of moderating variables.

First, to describe the measurement quality of each scale, we analyzed the item distributions, item descriptive statistics, and reliability estimates for each scale. We also conducted factor analysis to examine the internal structure of the scales and to identify a latent factor structure. Additionally, we calculated the scores for each scale and examined correlations between scores to investigate the relationships among the scales.

Second, to evaluate how each measure relates to acculturation, we compared the four scales to traditional measures of acculturation based on language and self-reported cultural affiliation. We conducted separate regressions for each scale, using scale scores to predict differences in acculturation as measured by language and culture measures, respectively. For the binary cultural connection item, we used t-tests to compare the average scale scores between the low- and high-acculturation groups. We controlled for multiple comparisons within each cluster of tests using Holm's family-wise error rate (FWER) correction to keep $\alpha < .05$.

Third, to demonstrate the theoretical relevance of each scale, we analyzed how the scale scores varied across several theoretically meaningful moderating variables. Based on our literature review, we included variables measuring immigration status, age, gender, political affiliation, level of education, and

employment status. Comparisons were conducted using *t*-tests or ANOVAs, depending on the measurement level of the variable. For each comparison, we first identified the expected difference based on prior research and then evaluated whether the results aligned or differed. We controlled for multiple comparisons within clusters of tests using the Holm FWER correction to keep $a < .05$ across significance tests.

Results

Scale Performance

Table 2 shows the mean, standard deviation, and skew for each item, as well as Cronbach's alpha for each scale. Overall, the scales demonstrated high internal consistency ($a = .81–.97$), indicating that every item on a given scale measures something similar. On average, participants in this sample had very high levels of *family cohesion and pride* ($M = 4.21$, $SD = .96$), low levels of *family cultural conflict* ($M = 2.31$, $SD = 1.11$), high levels of *cultural retention* ($M = 3.61$, $SD = .74$), and moderate levels of *neighborhood belonging* ($M = 3.29$, $SD = .74$). Regarding response distributions, responses to the family cohesion and pride items were highly negatively skewed (min = −1.18, max = −1.82); responses to the family cultural conflict items were positively skewed (min = .49, max = .72); responses to one cultural retention item were negatively skewed while the rest were highly negatively skewed (min = −.57, max = −1.35); and responses to the neighborhood belonging items were relatively normally distributed (min = −.20, max = −.45).

Table 2. Scales and Items: Content and Descriptive Statistics.

Scales and items	*M* (*SD*)	Skew
Family cohesion and pride (*α* = .97)	*4.21 (0.96)*	*−1.43*
Family members respect each other.*	4.33 (0.97)	−1.49
We share similar values and beliefs as a family.	4.17 (1.05)	−1.30
Things work well for us as a family.	4.13 (1.09)	−1.26
We really do trust and confide in each other.	4.09 (1.19)	−1.28
Family members feel loyal to the family.	4.20 (1.10)	−1.38
We are proud of our family.	4.38 (1.03)	−1.82
We can express feelings with our family.*	4.09 (1.19)	−1.18
Family members like to spend free time together.*	4.17 (1.13)	−1.35
Family members feel very close to each other.	4.16 (1.13)	−1.35
Family togetherness is very important.	4.37 (1.05)	−1.79
Family cultural conflict (*α* = .89)	*2.31 (1.11)*	*.57*
You have felt that being too close to your family interfered with your own goals.	2.18 (1.25)	.72
Because you have different customs, you have argued with members of your family.*	2.36 (1.31)	.60
Because of the lack of family unity, you have felt lonely or isolated.	2.39 (1.41)	.57
You have felt that family is becoming less important for people you are close to.*	2.46 (1.36)	.49
Your personal goals have been in conflict with your family.	2.18 (1.32)	.69
Cultural retention (*α* = .87)	*3.61 (0.74)*	*−1.17*
Knowing your family ancestry or lineage (tracing your family tree) is important.	4.00 (1.20)	−1.21
It is important to have relationships with your cousins, aunts, and uncles.	4.00 (1.22)	−1.15
It is important to know about the history of your country of origin.	4.13 (1.12)	−1.35
It is important to follow the customs and ways of life of your country of origin.	3.74 (1.12)	−.57
Neighborhood belonging (*α* = .81)	*3.29 (0.74)*	*−.05*
People in my neighborhood generally get along with each other.	3.41 (1.07)	−.25
I have neighbors who would help me if I had an emergency.	3.45 (1.25)	−.45
People in my neighborhood look out for each other.	3.32 (1.21)	−.20
I feel safe being out alone in my neighborhood during the night.	3.45 (1.25)	−.39

Note. N = 219. All items are rated on a scale from one to five.
*Indicates items in which we changed the wording from the original source; changes are underlined.

To evaluate the internal structure of these scales as a single instrument, we conducted factor analyses. Initial analyses of KMO (.75–.97) and item distributions indicated that factor analysis was appropriate. Parallel analysis identified four factors that had eigen values greater than 1 and were greater than the 95% percentile of simulated factors. However, the four-factor solution identified with maximum likelihood estimation and oblique rotation had communalities greater than 1, which indicates an ultra-Heywood case, thus rendering the model uninterpretable (McCoach, Gable, & Madura, 2013). We also fit a

confirmatory factor analysis model specifying the link between each item and its corresponding scale. This model showed good fit indices but included negative unique factor variance estimates, which, again, indicates an ultra-Heywood case. Based on these results, we were not able to explore any latent factor models between the items and the four scales.

We compared the four scales with each other to examine discriminant and convergent validity evidence for these scales (McCoach et al., 2013). Table 3 shows the correlation between factor scores on each scale. For neighborhood belonging, we separately correlated scores for people in Hispanic/Latinx neighborhoods and non-Hispanic/Latinx neighborhoods. The directions of the significant correlations are almost entirely as expected, based on past research, which supports the conceptual interpretations we propose for these scales. First, family cohesion and pride was inversely related to family cultural conflict to a moderate degree (r = −.53). Second, there are different effects of neighborhood belonging depending on whether someone lives in a Hispanic/Latinx or non-Hispanic/Latinx dominant neighborhood. Neighborhood belonging was moderately positively associated with family cohesion, but only among those living in Hispanic/Latinx neighborhoods (r = .41). Additionally, neighborhood belonging was weakly positively associated with cultural affiliation, but only among those in Hispanic/Latinx neighborhoods (r = −.30). There was also a weak positive correlation between cultural affiliation and family cohesion (r = .27). Family cultural conflict showed no relationship to neighborhood belonging (no relationship was expected) nor to cultural affiliation (a positive relationship was expected).

Table 3. Bivariate Correlations Between Scale Scores.

Scale	Family cohesion and pride	Family cultural conflict	Cultural affiliation
Family cultural conflict	−.53*		
Cultural retention	.27*	−.14	
Neighborhood belonging	.36*	−.10	.25*
Hispanic/Latinx (n = 140)	.41*	−.15	.30*
Non-Hispanic/Latinx (n = 74)	.28	.01	.20

*p < .05.

Scale Relationships to Acculturation Measures

We compared scores on each of the four scales with two measures of acculturation, one based on language preference and the other on cultural affinity. For language preference, scores range from −2 (lower acculturation) to 2 (higher acculturation). For cultural affinity with Hispanic/Latinx cultures, scores range from 1 (higher acculturation) to 5 (lower acculturation) and are inversely related to acculturation. The acculturation scale based on language preference had high internal consistency (α = .93). We centered the 5-point language scale at 0 (which indicates using both English and Spanish), −2 indicating a strong preference for Spanish, and 2 indicating a strong preference for English. Higher values of language preference are interpreted as higher acculturation. On average, participants preferred English (M = 3.77, SD = .92). The response distribution was negatively skewed (skew = −.56), indicating that the majority of participants in this sample preferred English.

Table 4 shows regressions results for each of the four scales and acculturation, as measured by language preference. We fit simple regressions predicting language preference from the scores on each of the four scales ($language\_preference_i = \beta_0 + \beta_1 scale\_score_i + \epsilon_i$). We also fit multiple regressions that added a control for early language use and preference, either Spanish, English, or both equally ($language\_preference_i = \beta_0 + \beta_1 scale\_score_i + \beta_2 early\_language_i + \epsilon_i$). In both models, we were interested in how the scale scores relate to acculturation (as measured by language preference) and, particularly, whether any observed relationship aligns with theory. The scale scores were centered so that β_0 can be interpreted as the estimated language preference for someone at the lowest end of the four scales (this makes 4 the maximum possible value on the x-axis).

Family cohesion and pride scores were negatively associated with a preference for English (β_1 = −.33, *SE* = .06)—which means they are positively associated with a preference for Spanish. This relationship was smaller, but remained significant, when controlling for early language (β_1 = −.15, *SE* = .05). Family cultural conflict, cultural retention, and neighborhood belonging were not associated with language preference (we could not reject the null hypothesis, H_0: $\beta_1 = 0$; H_A: $\beta_1 \neq 0$). Unsurprisingly, using Spanish as an early language was strongly associated with a preference for Spanish (β_2 = −.83– −.87), while using English as an early language was clearly associated with a preference for English (β_2 = .59–.68).

Table 4. Predicting Acculturation (as Measured by Language Preference).

Predictor	β_0 (*SE*)	β_1 (*SE*)	β_2 En (*SE*)	β_2 Sp (*SE*)	*F* (*df*)	R^2	*p*
			Model 1				
Family cohesion and pride	1.84 (.21)*	−.33 (.06)*			27.77 (1,201)	.12	<.000†
Family cultural conflict	.62 (.09)*	.11 (.19)			3.51 (1,201)	.01	.06
Cultural retention	1.20 (.20)*	−.15 (.06)*			5.26 (1,201)	.02	.02
Neighborhood belonging	.68 (.18)*	.04 (.07)			.28 (1,201)	−.00	.60
			Model 2[a]				
Family cohesion and pride	1.33 (.19)*	−.15 (.05)*	.59 (.12)*	−.83 (.12)*	58.52 (3,197)	.46	<.000†
Family cultural conflict	.86 (.10)*	−.01 (.04)	.66 (.12)*	−.87 (.12)*	53.63 (3,197)	.44	<.000†
Cultural retention	1.11 (.17)*	−.09 (.05)	.63 (.12)*	−.87 (.12)*	55.52 (3,197)	.45	<.000†
Neighborhood belonging	.70 (.16)*	.06 (.05)	.68 (.12)*	−.85 (.11)*	54.31 (3,197)	.44	<.000†

Note. En = English; Sp = Spanish.
[a] Controlling for early childhood language use.
**p* < .05. †Holm corrected *p* < .05.

The acculturation scale based on cultural affinity for Hispanic/Latinx culture had high internal consistency (α = .90). On average, participants demonstrated strong affiliation with Hispanic/Latinx culture (M = 3.89, SD = 1.04). Responses were negatively skewed (skew = −.69), which indicates that most participants in this sample had strong affinity with Hispanic/Latinx culture.

Table 5 shows the regressions between each of the four scale scores and acculturation—as measured by self-reported cultural affinity. In the unidimensional model, cultural affinity is defined as the inverse of acculturation—which means higher cultural affinity scores indicate lower acculturation. We fit simple regressions predicting cultural affinity from scores on each of the four scales ($cultural\_affinity_i = \beta_0 + \beta_1 scale\_score_i + \epsilon_i$). We also fit a second model for neighborhood belonging that accounted for neighborhood type ($cultural\_affinity_i = \beta_0 + \beta_1 scale\_score_i + \beta_2 neighborhood\_type_i + \beta_3 scale\_score_i * neighborhood\_type_i + \epsilon_i$). In both models, we were interested in how the scale scores related to acculturation (as measured by cultural affinity). The scale scores were centered so that β_0 equals the estimated cultural affinity for someone at the lowest end of each of the scales (this makes 4 the maximum possible value).

For each scale, scores were associated with cultural affinity in the way expected from acculturation theory: family cohesion and pride was positively associated with Hispanic/Latinx cultural affinity (β_1 = .53, SE = .06); family cultural conflict was negatively associated with Hispanic/Latinx cultural affinity (β_1 = −.20, SE = .06); and cultural retention was positively associated with Hispanic/Latinx cultural affinity (β_1 = .35, SE = .07). Overall, neighborhood belonging was also positively associated with Hispanic/Latinx cultural affinity. However, this relationship was only positive for people living in Hispanic/Latinx neighborhoods (β_1 = .40, SE = .09); it was negative for those living in non-Hispanic/Latinx neighborhoods (β_1 = −.11, SE = .17). (In Table 5, we combine coefficient and standard error terms from the multiple regression model for easier comparison across models; the individual model coefficients were β_0: $\hat{\beta}$ = 3.01 SE = .23, p < .001; β_1: $\hat{\beta}$ = .40 SE = .23, p < .001; β_2: $\hat{\beta}$ = .80, SE = .37, p = .03; β_4: $\hat{\beta}$ = −51, SE = .14, p < .001). Regarding the simple linear regressions with family cultural conflict and neighborhood belonging, although the models and coefficients are significant, the effect size, multiple correlation squared (R^2), is less than .10. This suggests that, in practice, the relationships are not impactful.

Table 5. Predicting Acculturation (as Measured by Affinity to Hispanic/Latinx Cultures).

Predictor	β_0 (SE)	β_1 (SE)	F ratio	df	R^2	p
Family cohesion and pride	2.17 (.21)*	.53 (.06)*	68.94	1,217	.24	<.000
Family cultural conflict	4.15 (.11)*	−.20 (.06)*	10.20	1,217	.04	.002
Cultural retention	2.86 (.21)*	.35 (.07)*	26.37	1,217	.10	<.000
Neighborhood belonging	3.33 (.19)*	.23 (.07)*	10.26	1,217	.04	.002
Hispanic/Latinx	3.07 (.23)*	.40 (.09)*	10.77	3,210	.12	<.000†
Non-Hispanic/Latinx	3.87 (.43)*	−.11 (.17)*				

*****p < .05. †Holm corrected p < .005.

We also measured acculturation using a single self-report question asking how strongly individuals feel connected to their culture of origin. This question was used to create groups with high acculturation ("no connection," n = 33) and low acculturation ("strong connection," n = 186). As with affinity for Hispanic/Latinx culture, acculturation is inversely related to cultural connection. Table 6

shows the results for *t*-tests comparing the scale scores in each group. The results mostly align with the pattern of results from the regression models predicting Hispanic/Latinx cultural affinity. Those with a strong cultural connection had higher family cohesion and pride, lower family cultural conflict, and higher cultural retention. One difference, however, is that there was no difference in neighborhood belonging on this measure.

Table 6. Predicting Acculturation (as Measured by Binary Cultural Connection).

Predictor	No connection	Strong connection	*t*	*p*	Cohen's d_s
	M (*SD*)	*M* (*SD*)			95% CI
Family cohesion and pride	3.35 (1.21)	4.36 (0.82)	−4.64	<.000[†]	1.15 [.77, 1.54]
Family cultural conflict	2.84 (1.17)	2.21 (1.07)	2.85	.006[†]	−0.58 [−.95, −.20]
Cultural retention	3.41 (1.11)	4.07 (0.93)	−3.63	.003[†]	0.69 [.31, 1.06]
Neighborhood belonging	3.11 (0.89)	3.42 (0.96)	−1.63	.14	0.27 [−.10, .64]
Hispanic/Latinx	3.25 (1.02)	3.49 (0.93)	−0.92	.36	.26 [−.31, .83]
Non-Hispanic/Latinx	3.15 (0.79)	3.41 (1.05)	−1.06	.30	.26 [−.25, .76]

[†]Holm corrected $p < .05$.

Comparing Scales Based on Moderating Variables

We also compared response patterns on the four scales based on variables often considered moderators of acculturation or related to acculturative processes. We conducted tests comparing scale scores based on immigration status (six *t*-tests), age (four simple regressions), gender (four *t*-tests), political affiliation and importance (four multiple regressions), and level of education (four ANOVAs). For each variable, we adjusted the FWER to account for multiple comparisons. We report the results for immigration status in Table 7. For the other comparisons, there was no significant difference in the scale scores based on the moderating variables, except for education level, which was positively related to neighborhood belonging ($\beta_1 = .12$, $SE = .05$, $p = .01$), $F(1,215) = 6.37$, $p = .02$, $R^2 = .02$. However, though we can reject the no-effect model, in practice, this effect size is not meaningful.

Immigrant status was the most important moderating variable used to compare these scales. A quarter of the participants were immigrants ($n = 58$), and most were born in the United States ($n = 161$). Immigrants (those born outside the United States) had very high family cohesion and pride ($M = 4.68$, $SD = .51$) while nonimmigrants had high family cohesion and pride ($M = 4.04$, $SD = 1.02$); though family cohesion and pride in both groups is higher than the scale average, the .64 scale-point difference is a large effect ($d_s = -.70$). As Table 7 shows, immigrants did not differ from nonimmigrants in terms of family cultural conflict, cultural retention, or neighborhood belonging. Regarding acculturation as measured by language, nonimmigrants preferred English ($M = 1.07$, $SD = .72$), whereas immigrants

preferred English and Spanish about equally (M = −.06, SD = .89); this 1.15 scale-point difference is a significant effect (d_s =1.48). Regarding acculturation, as measured inversely by cultural affinity for Hispanic/Latinx culture, there was no difference between immigrants (M = 4.15, SD = .93) and nonimmigrants (M = 3.79, SD = .06); the moderate effect (d_s = −.35) was not significant at $\alpha = .05$ after controlling for FWER.

Table 7. Scale and Acculturation Score Differences Between Immigrants and Nonimmigrants.

Scale	Nonimmigrant	Immigrant	*t*	*p*	Cohen's d_s
	M (*SD*)	*M* (*SD*)			95% CI
Family cohesion and pride	4.04 (1.02)	4.68 (.51)	6.11	<.000†	−.70 [−1.01, −39]
Family cultural conflict	2.35 (1.14)	2.21 (1.01)	−.85	.40	.12 [−.18, .42]
Cultural retention	3.95 (.94)	4.00 (1.12)	.33	.74	−.06 [−.36, 24]
Neighborhood belonging	3.41 (1.00)	3.41 (.83)	−.06	.97	0 [−.30, .31]
Hispanic/Latinx	3.61 (1.04)	3.23 (.86)	−1.36	.18	−.39 [−.87,.1]
Non-Hispanic/Latinx	3.28 (.78)	3.51 (.98)	1.66	.10	.25 [−.15,.65]
Acculturation (language)*	1.07 (.72)	−.06 (.89)	−8.47	<.000†	1.48 [1.14, 1.82]
Acculturation (cultural affiliation)	3.79 (1.06)	4.15 (.93)	2.40	.02	−.35 [−.65, −.05]

*This scale is scored −2 to 2 (all other scales are scored 1 to 5).
†Holm corrected $p < .001$.

Discussion

At the outset of this article, we argued that existing acculturation measures are limited in their ability to capture the dimensions of acculturation associated with negative health outcomes. We identified four scales—family cohesion and pride, family cultural conflict, cultural retention, and neighborhood belonging—which we argue measure acculturative processes that buffer the negative health consequences associated with acculturation. The analyses explored whether these scales are associated with each other and with traditional measures of acculturation in the ways our argument predicts. Overall, the findings suggest that these measures focus on acculturative processes that emphasize social support and its role in buffering against negative health outcomes associated with acculturation. Below, we interpret our findings for each scale in more detail.

Both family-related scales—family cohesion and pride and family cultural conflict—were associated with acculturation, as we would expect when acculturation is measured by cultural affinity. This was demonstrated by the regression predicting cultural affinity and the *t*-test comparing cultural connection and

disconnection. In both cases, family cohesion and pride was inversely related to acculturation, and family cultural conflict was positively related to acculturation (though the effect size was small). Likewise, when acculturation was measured by language preference, family cohesion and pride was negatively related to acculturation. However, family cultural conflict showed no relationship when acculturation was measured by language. Taken together, these results support the interpretation that acculturation, whether measured by language preference or self-reported cultural affinity, is slowed by strong family cohesion and pride. We also see some evidence that family cultural conflict moderates this relationship, such that higher conflict is related to increased acculturation. This relationship is supported by the moderate negative correlation between family cohesion and pride and family cultural conflict scale scores. However, our work does not establish the causal direction of this relationship.

Cultural retention was not related to acculturation as measured by language but was positively associated with acculturation as measured by both cultural affiliation and cultural connection. These positive associations suggest an *inverse* relationship between acculturation (as measured by self-reported cultural affinity) and cultural retention, which is in line with how acculturation is conceptualized in the unidimensional model. However, when acculturation was measured by language preference, we did not find a relationship. This finding, that cultural retention is only related to some measures of acculturation, supports conceptualizing acculturation and cultural retention as two related but different processes rather than opposite ends of a unidimensional process. Measures of acculturation that use cultural affinity and language preference interchangeably imply that acculturation is accompanied by a loss of the culture of origin, but our results show that this may depend on whether acculturation is defined in terms of language preference or cultural connection.

Neighborhood belonging showed different patterns for those living in Hispanic/Latinx-dominant and not Hispanic/Latinx-dominant neighborhoods. The scores for neighborhood belonging were moderately correlated with both family cohesion and pride, as well as cultural retention, but only among individuals living in Hispanic/Latinx-dominant neighborhoods. This suggests that living in Hispanic/Latinx neighborhoods facilitates the retention of Hispanic/Latinx values like family cohesion and pride. Neighborhood belonging was not associated with acculturation as measured by language preference or self-reported connection. However, neighborhood belonging was inversely associated with acculturation as measured by cultural affinity among those living in Hispanic/Latinx neighborhoods. In contrast, for those living in non-Hispanic/Latinx neighborhoods, neighborhood belonging was positively associated with acculturation as measured by cultural affinity. This suggests that Hispanic/Latinx neighborhoods are conducive to the retention of one's culture of origin as well as some of the aspects Hispanic/Latinx culture, specifically family cohesion and pride, both of which buffer against acculturative stress.

Finally, we discuss how the four scales relate to immigration status. Being an immigrant was positively associated with family cohesion and pride as well as acculturation as measured by language preference. These findings indicate that Hispanic/Latinx immigrants are more likely to prefer the Spanish language and retain values important in Hispanic/Latinx cultures (i.e., the importance of family) compared to non-Hispanic/Latinx immigrants. These group differences further justify our argument that family cohesion is an important tenant across Hispanic/Latinx cultures, making it a valuable acculturation-related measure. This finding also highlights a core problem with language-based measures of acculturation: Hispanic/Latinx immigrant populations will, almost by definition, prefer Spanish. Thus, communication

studies using language preference as a proxy for acculturation may struggle to assess acculturation in ways that capture acculturative stress between generations because the measure (language preference) inherently differs across generations. Instead, focusing on other dimensions of acculturation—such as family cultural conflict, cultural retention, and neighborhood belonging—that do not differ between immigrants and nonimmigrants can better capture important acculturative processes across generational groups. We found that family cultural conflict, cultural retention, and neighborhood belonging *did not* differ between immigrants and nonimmigrants. Additionally, the four scales did not differ across other common moderators related to acculturation, including age, gender, political affiliation, and education.

In addition to supporting the use of these four scales as measures focusing on acculturation processes that buffer the negative health effects associated with acculturation, our findings also demonstrate some of the limitations of traditional acculturation measures. Specifically, the findings indicate that measures of acculturation based on language preference vary significantly depending on childhood language experience. This shows the limitation of using language as a measure of acculturation: Adult language preference is strongly tied to childhood language. Though most first-generation immigrants have childhood experiences with Spanish, subsequent generations have more experience with English. This makes language a limited proxy for studying acculturation and the accompanying health outcomes in immigrant populations. Additionally, past research has failed to link negative health outcomes to acculturation as measured by language (Anderson et al., 2016). Instead, the four concepts proposed in this study offer an alternative to measuring acculturation with language, and the four concepts studied in this article are more likely to capture acculturation processes related to health outcomes.

Limitations and Future Work

Overall, the four scales had satisfactory reliability. However, data limitations prevented evaluation of their internal structure using factor analysis. As such, new data are needed to evaluate the internal structure of these scales using confirmatory factor analysis. Likewise, new data will be necessary to evaluate whether a higher-order factor model is appropriate for these four scales.

Next, because the scales evaluated in this study were distributed as part of a larger study assessing whether vicarious self-affirmation increased Hispanic/Latinx willingness to self-test for prediabetes (Demetriades et al., 2024), the sample available is not a full representation of the population in question. Specifically, because the larger study was interested in people at high risk for prediabetes, the participants were all above 34 years of age. Because there was no quota on gender, participants were also majority female (72%). Although we observed no differences based on age or gender in the scale scores, the sample characteristics limit generalizability. Previous research on how gender and age impact acculturation has had mixed results, so additional exploration is warranted (Alcántara, Molina, & Kawachi, 2015; Lorenzo-Blanco et al., 2012; Mansyur et al., 2016).

Lastly, these findings are constrained because we collected data only from U.S.-residing Hispanic/Latinx people who were fluent in English. This constraint has two major implications. First, the scale was written only in English and distributed exclusively to people who claimed to be proficient in English, thus overrepresenting fully bilingual speakers. Given this, acculturation as measured by language is very

high and negatively skewed in this sample (M = 4.21, skew = −1.43). Despite this restriction of range in responses, we still found significant associations between the scales and language preference, which suggests that the effects we observed would be as large or larger in a sample with a wider range of Spanish to English language proficiencies (Ramirez, Willis, & Rutten, 2017). Future work should test this premise using items in both Spanish and English with a larger sample of participants not born in the United States.

Conclusion

All measures of acculturation are reductionistic (Abraído-Lanza et al., 2006; Thomson & Hoffman-Goetz, 2009), but communication scholars should accept reduction with intentionality. Traditional measures of acculturation (based on language and cultural affinity) rely on reductions that do not capture acculturative processes related to health. We encourage communication health scholars to reflect on what their chosen measures of acculturation leave out. This study illustrates one possible choice: an alternative that focuses on acculturative processes that buffer against the negative health outcomes linked to acculturation. What we propose here is a first attempt that, with further research, could become a brief, universally applicable, and valid Hispanic/Latinx acculturative health scale.

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