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The Protective Roles of Latinx Intercultural Competence and Acculturation on Acculturative Stress and Depression: A Brief Longitudinal Study

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Abstract

This study examined the ability of cognitive schemas of culturally based skills, or Latinx intercultural competence (LIC), and acculturation to influence later acculturative stress and depression symptom severity. Latinx adults (final n 98), recruited from national e-mail listings and organizations with a predominant Latinx cultural base, completed online self-report measures of Latinx and Anglo acculturation, acculturative stress, LIC, and depression symptom severity at baseline (T1) and 6-month

follow-up (T2). Path analysis indicated that T1 LIC was significantly related to greater T1 Latinx and T1 Anglo acculturation, and that T1 LIC was significantly, indirectly related to lower T2 acculturative stress through greater T1 Latinx acculturation. Greater T1 Latinx acculturation, but not T1 Anglo acculturation, was significantly, indirectly related to lower T2 depression through lower T2 acculturative stress. For Latinx adults, LIC may guide the expression of culturally sanctioned behavior through greater Latinx and Anglo acculturation. Heritage-culture acculturation may be crucial in protecting against later acculturative stress and depression. Findings are discussed in the context of the person-environment fit for effective intercultural exchange, and the potential importance of strengthening ties to cultural heritage in promoting Latinx mental health.

Keywords

Approximately 55.2 million Latinxs live in the United States, comprising 17.3% of the total U.S. population (U.S. Census Bureau, 2016). Despite considerable representation, Latinxs experience unique stressors including immigration, family separation, discrimination, and the process of navigating multiple distinct cultural contexts. These experiences substantially contribute to adverse mental health outcomes (Berry, 2003; Driscoll & Torres, 2013; Rusch & Reyes, 2013; Sam & Berry, 2010; Torres, Driscoll, & Voell, 2012), of which depression is one of the most commonly encountered. Prior studies estimate the lifetime prevalence rate of depressive disorders among Latinx adults to be between 15.4% and 18.3% (Alegría et al., 2008; Breslau et al., 2006), which may be a conservative estimate given that depression prevalence may be moderated by a number of factors such as nativity status, age of immigration, and ethnic subgroup (Alegría et al., 2007, 2008; Finch, Kolody, & Vega, 2000; Lee & Park, 2014; Vega et al., 1998). Moreover, depression symptoms are more severe among Latinxs compared to non-Latinx Whites (Menselson, Rehkopf, & Kubzansky, 2008).

Recent efforts to understand depression among Latinxs have implemented stress-and-coping frameworks (cf. Lazarus & Folkman, 1984), wherein variations in individual (e.g., diathesis, coping strategies, acculturation) and social/ethnocultural factors (e.g., supportive social and family networks religion) are proposed to mediate and/or moderate the stress–depression relationship (Crockett et al., 2007; Driscoll & Torres, 2013; Torres, 2009, 2010). The current study investigated the roles of Latinx intercultural competence (LIC), acculturation, and acculturative stress, in predicting depression symptoms over time among Latinx adults living in the United States. *LIC* consists of cognitively based schemas of culturally sanctioned, instrumental skills and attributes that guide behavior to facilitate effective intercultural contact between individuals (Torres, 2009, 2013; Torres & Rollock, 2007). *Acculturation* refers to changes in cultural behaviors, values, beliefs, and attitudes resultant from sustained intercultural contact between individuals and/or groups (Berry, 2003; Sam & Berry, 2010; Schwartz, Unger, Zamboanga, & Szapocznik, 2010). *Acculturative stress* constitutes psychological stress responses that arise out acculturation and intercultural contact (Berry, 2006; Umaña-Taylor & Alfaro, 2009). These cultural adaptation processes comprise a significant component of Latinx individuals' daily, lived experiences and therefore may confer significant risk and/or protection in relation to understanding, preventing, and treating Latinx depression.

LIC

As research on cultural adaptation processes expands to incorporate receiving-culture context (e.g., Schwartz et al., 2010), nuanced analyses of the Latinx-specific skill sets and attributes that guide effective interactions with individuals in heritage and receiving cultures is increasingly relevant. LIC extends research on acculturation and acculturative stress to incorporate contextual information related to the culturally sanctioned, functional skills and attributes Latinx individuals use to navigate acculturative demands (Birman, 1998). Prior studies suggest that the skills and attributes that contour effective cultural adaptation include knowledge about receiving and heritage cultures, language proficiency and communication ability, positive attitudes toward receiving and heritage cultures, belief in one's ability to effectively develop skills to navigate multiple cultural contexts, flexible expression of culturally- or situationally appropriate social behavior, and networking within and maintaining a connection to one's cultural identity and community (LaFromboise, Coleman, & Gerton, 1993; Matsumoto, Hirayama, & LeRoux, 2006; Torres, 2009, 2013). Intercultural competence is posited to reflect the cultural learning necessary to acquire and then express context-specific skillful acculturative behaviors while interacting with one's own culture as well as with the receiving culture. A critical component of intercultural competence is the ability to acknowledge and integrate the cultural behaviors associated with multiple cultural groups (LaFromboise et al., 1993). That is, an individual holds the cultural behaviors of each group in positive regard, but not in a hierarchical manner. Indeed, prior experimental research focusing on the benefit of intercultural competence suggests that those individuals who view multiple cultural identities as complementary more effectively alternate cultural attitudes and values in response to situational cultural cues (Benet-Martínez, Leu, Lee, & Morris, 2002). Thus, intercultural competence differs from acculturation in that the former refers to culturally relevant, functional skill sets that contribute to successful interpersonal interaction between and within multiple cultural contexts, whereas the latter refers to the particular behavioral and cognitive cultural adaptations that occur (Torres, 2009). That is, although an important task for Latinx individuals is to engage in intercultural behavior, one's participation in different cultures or acculturation alone may not necessarily correspond to competent behavior in diverse cultural settings (David, Okazaki, & Saw, 2009). Therefore, as shown in Figure 1, the present study theorizes that LIC may significantly influence the acquisition of behavioral and cognitive characteristics of the receiving culture, the retention of behavioral and cognitive characteristics of one's heritage culture, and their flexible expression in varying cultural contexts. This has important implications for understanding, treating, and preventing Latinx depression given previous findings that the coping responses individuals use to negotiate stressful life events predict depressive symptoms (Driscoll & Torres, 2013; Holahan, Moos, Holahan, Brennan, & Schutte, 2005; Nezu & Ronan, 1985; Potthoff, Holahan, & Joiner, 1995).
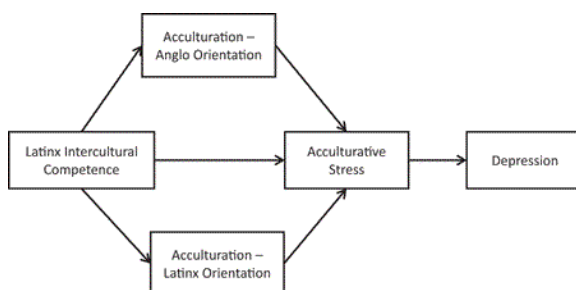
Figure 1. Proposed relationships among Latinx intercultural competence, acculturation, acculturative stress, and depression.

An implication of the above research is that intercultural competence influences person–environment fit. Intercultural competence may positively contribute to adaptive functioning, and by extension mental health, if the behaviors and skills exhibited by the individual fit within that person's

environmental context (Ogbu, 1981). The absence of a fit between intercultural competence and acculturative behaviors exhibited a discrepancy between the environment and the individual may result (Torres & Rollock, 2007). The individual's environmental context may respond receptively (e.g., flexible and willing to adapt or accommodate) or punitively (e.g., rejecting, inflexible, demanding change, exhibiting prejudice or discrimination; Berry, 2003, 2006; Padilla & Perez, 2003; Schwartz et al., 2010). Behavioral skills and knowledge appropriate to the environmental context may ameliorate acculturative stress and negative mental health outcomes. In contrast, behavioral skills and knowledge at variance with the cultural environment may contribute to negative mental health outcomes. For example, Alegría and colleagues (2007) suggested that LIC facilitates successful exchanges with individuals of the receiving culture and provide opportunities for social mobility while simultaneously eroding ties with those of the same cultural background (e.g., family and friends). Extending this consideration to the present study, LIC may contribute to the prediction of future depression to the extent that it buffers or otherwise attenuates the influence of acculturative stress on depression vis-à-vis acculturation.

Although few studies explicitly examine LIC and Latinx mental health, the extant literature suggests a relationship between the two. With respect to the relationship between intercultural competence and other culturally relevant variables, research suggests that intercultural competence is negatively associated with acculturative stress above and beyond acculturation and general active coping strategies (Torres & Rollock, 2004). Furthermore, LIC has been found to moderate acculturation such that, among individuals with LIC, high acculturation buffered depression symptoms (Torres & Rollock, 2007). Greater concerns about intercultural competence—and thus lower intercultural competence—were found to significantly predict self-reported general psychological distress among Latinx and Asian American college students (Wilton & Constantine, 2003). Taken together, prior research suggests that LIC may indirectly influence depression through its relationship to acculturation, acculturative stress, or both. Consistent with a stress-and-coping framework (Lazarus & Folkman, 1984), this study posits that LIC influences Latinx individuals' acculturative behaviors such that they experience lower acculturative stress, which is subsequently related to lower depression severity (see Figure 1).

Acculturation

Acculturation is a dynamic component of Latinx individuals' cultural adaption process and not limited solely to immigrants (Gonzales, Fabrett, & Knight, 2010; Sam & Berry, 2010; Schwartz et al., 2010). Current acculturation theory emphasizes bidimensional models, where one dimension corresponds to cultural heritage (i.e., cultural continuity) and a second dimension corresponds to the receiving culture (i.e., cultural contact). In addition, contextual, environmental, and individual factors influence acculturation (Berry, 2003; Padilla & Perez, 2003; Schwartz et al., 2010). Effective interaction with members of the receiving cultural group requires that acculturating individuals develop and express a range of behaviors, some of which may differ dramatically from those typically exhibited in the context of one's heritage culture. The particular acculturative strategy exhibited is based on an individual's relative preference for retaining cultural continuity and preference for cultural contact and/or participation with other cultural groups (Berry, 2003; Cuéllar, Arnold, & Maldonado, 1995; Padilla & Perez, 2003).

Although high receiving-culture and heritage-culture acculturation are often presumed to predict optimal mental health outcomes (Berry, 2003; Moyerman & Forman, 1992), empirical studies suggest a mixed relationship (Moyerman & Forman, 1992; Rogler, Cortes, & Malgady, 1991; Yoon et al., 2013; Yoon, Langrehr, & Ong, 2011). Some studies suggest greater bidimensional acculturation protects against adverse mental health outcomes among Latinxs (Caetano, Ramisetty-Mikler, Wallisch, McGrath, & Spence, 2008; Smokowski & Bacallao, 2007; Thoman & Surís, 2004), other studies suggest greater bidimensional acculturation may constitute a risk factor (Alegría et al., 2008), and still other studies suggest no relationship (Birman, 1998). Mixed results have also been found among studies examining the specific relationships among receiving- and heritage-culture acculturation. For instance, various studies have found that receiving-culture, or Anglo, acculturation benefits mental health (e.g., Thoman & Surís, 2004; Torres et al., 2012), whereas others suggest it harms mental health (e.g., Caetano et al., 2008; Rivera, 2007; Torres & Ong, 2010). Similarly, some research suggests greater heritage-culture, or Latinx, acculturation is related to better mental health (e.g., Caetano et al., 2008; Rodriguez, Mira, Paez, & Myers, 2007; Torres & Ong, 2010). These inconsistent findings call for research that examines possible mechanisms through which cultural changes influence Latinx mental health.

Acculturative Stress

Acculturative stress is separate but related to acculturation in that situational demands associated with cultural change tax individuals' existing behavioral and cognitive repertoires. For instance, lower English-language proficiency, greater Spanish-language preference, and greater experiences of discrimination are associated with greater acculturative stress (Bekteshi & van Hook, 2015; Lueck & Wilson, 2011; Torres et al., 2012). Generational differences have been reported for acculturative stress, with first-generation Latinxs (i.e., born outside the United States) generally reporting more acculturative stress compared to later generations (Mena, Padilla, & Maldonado, 1987; Padilla, Alvarez, & Lindholm, 1986). Numerous studies support that acculturative stress is associated with adverse mental health outcomes among Latinxs, including worse general well-being and self-esteem, depression, posttraumatic stress disorder (PTSD), psychological distress, and substance use and abuse (Capielo, Delgado-Romero, & Stewart, 2015; Crockett et al., 2007; Da Silva, Dillon, Verdejo, Sanchez, & De La Rosa, 2017; Driscoll & Torres, 2013; Finch et al., 2000; Kim, Hogge, & Salvisberg, 2014; Lorenzo-Blanco et al., 2016; Thoman & Surís, 2004; Torres et al., 2012; Torres & Vallejo, 2015). The coping strategies used in response to an event influence the degree to which an event is experienced as stressful or threatening (Monroe, 2008). For instance, prior studies have found that active coping styles (Crockett et al., 2007; Driscoll & Torres, 2013) and use of social support (Panchang, Dowdy, Kimbro, & Gorman, 2016) protect against acculturative stress. Thus, individuals' capacity to exhibit adaptive behavior should negatively relate to acculturative stress and offset the adverse influence of acculturative stress on Latinx mental health (Miranda & Matheny, 2000; Torres & Rollock, 2007). To date, only one study (Torres & Rollock, 2004) has directly examined the relationship between acculturative stress and intercultural competence. This study, however, was limited by using measures of intercultural competence and acculturative stress that were subscales of the same larger scale. It therefore remains unclear whether intercultural competence directly contributes to lower acculturative stress, or if it indirectly contributes to lower acculturative stress and subsequent depression through acculturation (see Figure 1).

Present Study and Hypotheses

Although previous research has found evidence of robust interrelationships among acculturation, acculturative stress, and depression among Latinxs, it remains unclear to what extent LIC contributes to the selection and expression of various culturally sanctioned, role-appropriate behaviors and skills, as what is effective in one situation or context may be ineffective in another. The present study, therefore, examined three research questions. First, what is the nature of the direct relationships among LIC, acculturation, and acculturative stress? Second, how do these cultural adaptation processes relate to Latinx mental health, specifically severity of depression symptoms, over time? Third, does LIC protect against depression through more adaptive acculturation and subsequent lower acculturative stress? Given previous research findings, the following hypotheses were articulated for the present study:

> *Hypothesis 1:* Greater LIC, measured at baseline (T1), will be significantly related to greater acculturation for both Latinx (i.e., heritage culture) and Anglo (i.e., mainstream culture) acculturation.
> *Hypothesis 2:* Greater T1 Latinx acculturation and greater T1 Anglo acculturation will be significantly associated with lower acculturative stress measured at 6-month follow-up (T2).
> *Hypothesis 3:* Greater T1 LIC, T1 Latinx acculturation, and T1 Anglo acculturation will be significantly related to lower T2 acculturative stress and T2 depression.

The following specific indirect relationships between LIC, acculturation, acculturative stress, and depression were also predicted: first, the relationship between greater T1 LIC and lower T2 acculturative stress will be mediated by greater T1 Latinx and Anglo acculturation; second, the relationship between greater T1 LIC and lower T2 depression will be mediated by their indirect relationship through greater T1 Anglo and Latinx acculturation, and lower T2 acculturative stress.

Method

Participant Recruitment and Demographics

Participants were self-identified Latinx adults (i.e., at least 18 years old) recruited from national e-mail listings and organizations with a predominant Latinx cultural base. Participating organizations were predominantly professional networking listservs in medical, social services, college professional, and social work domains. All participants provided electronic, informed consent before completing an online battery of questionnaires in their preferred language (i.e., Spanish or English). Six months from individual baseline, participants completed follow-up study measures, also administered online. Participants were compensated with a $10 electronic gift card at both measurement occasions. Those who completed both measurement occasions were entered in a raffle for a $50 electronic gift card.

At T1, 136 participants completed study measures. Of those participants who completed T1, 98 participated in the T2 6-month follow-up assessment. This yielded a 72% retention rate for participants from T1 to T2. No significant differences were found between completers and noncompleters for age, number of years lived in the United States, for gender distribution, marital status, income, education level, nativity status, Latinx and Anglo acculturation, acculturative stress, LIC, and depression. All

descriptive statistics below refer to information for participants who completed both measurement occasions.

Participants' mean age was 33.35 (*SD* = 11.04), with an age range of 18 to 67. More participants identified as female (*n* = 79, 80.6%) than male. The three most commonly reported marital statuses were, in order of descending frequency, single (*n* = 49, 50.0%), married or cohabiting with a partner (*n* = 42, 42.8%), or separated/divorced (*n* = 5, 5.1%). Overall, participants were well educated. Most (*n* = 75, 76.5%) had obtained a bachelor's degree or higher, 14 (14.3%) had attended at least one year of college, 2 (2.0%) had a high school diploma, and 7 (7.1%) had attended 11 years or less of school. Compared to estimates of the U.S. Latinx population, the present sample had a greater proportion of individuals with a bachelor's degree or higher (15.0%), and a smaller proportion of individuals with at least one year of college (23.6%) or a high school education or less (61.4%; Pew Research Center, 2015). The most commonly reported total household income for the present sample was $75,000 or greater (*n* = 43, 44.3%), 26 (26.8%) reported $20,000–50,000, 21 (21.6%) reported $50,000–75,000, and two (7.2%) reported less than $20,000. The median reported income for the present sample was greater than the median estimate income for the U.S. Latinx population ($50,000–75,000 vs. $44,800; Pew Research Center, 2015). Many identified their cultural background as Mexican, Mexican American, or Chicano (*n* = 48, 48.9%); however, participants who identified as Puerto Rican (*n* = 12, 12.2%), Central/South American (*n* = 24, 24.5%), Cuban (*n* = 2, 2.0%), or other than the above (e.g., multiethnic background, Dominican; *n* = 12, 12.2%) were also represented in this sample. Approximately one third of participants reported they were born outside the coterminous United States (*n* = 31, 31.6%). The average number of years lived in the United States was 27.94 (*SD* = 11.41); however, the mean percentage of years lived in the United States, defined as the quotient of years lived in the United States divided by participants' age, was 86.06% (*SD* = 25.02%).

Measures

Demographic information
The following demographic information was collected from study participants: age; gender; current marital status; number of children living in participants' household; number of adults living in participants' household; self-identified cultural heritage (Mexican, Mexican American, Chicano, Puerto Rican, Cuban, write-in option for South/Central American, write-in option for other); nativity status coded as a dichotomous variable (born in the United States vs. born in another country); self-identified country of birth if not born in the United States; participant generation level determined by self-report of (a) whether participant was born in the United States and (b) identification of the first family member to immigrate to the United States; personal and household income; whether participants were currently a student and the total number of years they had attended school; and current occupation.

LIC
LIC at T1 was measured with the Mexican Intercultural Competence Scale (MICS; Torres, 2009, 2013). The MICS is a 19-item questionnaire that assesses competence in terms of mastery of skills necessary to adapt to contextual demands imposed by particular situations. Respondents indicate the degree to which they agree or disagree with behaviors that facilitate successful interpersonal interactions in intercultural contexts on a five-point scale that ranges from 0 (*not at all important* or *not at all a*

description of me) to 4 (*very important* or *very accurate description of me).* Scale responses are summed, and the mean of responses is computed to determine participants' self-reported intercultural competence. Higher scores correspond to greater intercultural competence. The MICS was initially developed using a two-stage process. Phase 1 entailed qualitative development of scale items through focus groups. Phase 2 consisted of scale development through cultural consensus analysis (Torres, 2009). Principal component analysis of the MICS with a sample of Latinxs living in a moderately sized midwestern city by Torres (2013) revealed 19 items uniquely loading onto five factors with eigenvalues greater than 1.00 accounting for 71.63% of the variance: (a) ambition/perseverance (e.g., "Having a strong desire to be successful," "Striving for more, always looking to be more successful"); (b) networking (e.g., "Meeting new people and seeing how those people can help you," "Connecting with people so you can help them and they can help you"); (c) family (e.g., "Keeping in touch with everyone in the family," "Having strong family values"), (d) communication (e.g., "Being able to relate to all sorts of people," "Being able to express yourself in English and Spanish"); and (e) traditional culture (e.g., "Embracing your culture for motivation," "Identification with one's past or roots"). Subsequent confirmatory factor analysis by Torres (2013) supported the five-factor structure of the MICS. Torres (2013) found the MICS was significantly, positively correlated with measures of general competence and bidimensional acculturation suggesting construct and concurrent validity, respectively. The MICS total score was used in the present study. Cronbach's alphas at T1 indicated good internal consistency for the MICS (see Table 1).

Table 1. Descriptive Statistics, Reliabilities, and Bivariate Correlations Among Demographics and Major Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	M (SD)
1. Age	—										33.35 (11.04)
2. Gender	−.14	—									—
3. Household income	.15	.16	—								—
4. Education level	.09	.31**	.11	—							—
5. Number of years lived in the U.S.	.52***	−.16	.09	.21*	—						27.94 (11.41)
6. T1 intercultural competence	−.11	.35***	.12	.06	−.07	(.86)					3.46 (.38)
7. T1 acculturation—Anglo orientation	−.07	.19†	.06	−.002	.10	.31**	(.71)				3.85 (.40)
8. T1 acculturation—Latinx orientation	.06	.08	.06	.05	−.19†	.30**	.01	(.79)			3.62 (.56)
9. T2 acculturative stress	−.14	−.04	−.12	−.01	.12	−.04	−.13	−.23*	(.88)		.92 (.58)
10. T2 depression	−.06	.11	−.14	−.12	.04	−.06	−.04	−.16	.28**	(.89)	13.23 (9.12)

Note. Numbers presented along the diagonal correspond to scale internal consistency (Cronbach's alpha). For gender, male = 0, female = 1. Spearman correlations are reported for gender, education level, and income.
$†p < .06$. * $p < .05$. ** $p < .01$. ***$p ≤ .001$.

Acculturation

Acculturation at T1 was measured with the Acculturation Rating Scale for Mexican Americans-II (ARSMA-II; Cuéllar et al., 1995), a widely used 30-item, self-report questionnaire based on Berry's (2003) model of acculturation strategies. The ARSMA-II assesses behavioral and affective components of acculturation for Latinx and United States' culture. Participants indicate the degree to which they engage in behaviors and activities that correspond to the previously mentioned domains of acculturation measured on a 5-point scale ranging from 1 (*not at all*) to 5 (*extremely often or almost always).* The ARSMA-II contains two orthogonally developed subscales that correspond to acculturation to Latinx culture (Latinx Orientation Scale [LOS]), or cultural continuity, and receiving culture (American Orientation Scale [AOS]), or cultural contact. LOS and AOS scores are derived by calculating the mean of all items for each scale. At T1, internal consistency, measured by Cronbach's alpha, was acceptable for LOS and AOS subscales (see Table 1).

Acculturation stress

Acculturative stress at 6-month follow-up was measured with the Multidimensional Acculturative Stress Inventory (MASI; Rodriguez, Myers, Mira, Flores, & Garcia-Hernandez, 2002). The MASI is a 36-item instrument that assesses acculturative stress along a bidimensional model. That is, acculturative stress that originates from non-Latinx White (e.g., "It bothers me that I speak English with an accent") and Latinx sources (e.g., "I feel pressure to learn Spanish"). Respondents rate measure items according to the perceived amount of acculturative stress experienced during the previous three months on a six-point scale ranging from 0 (*does not apply*) to 5 (*extremely stressful*). Higher MASI scores reflect greater acculturative stress. Principal components analysis suggests the MASI measures four individual factors: (a) Spanish competency pressures, (b) English competency pressures, (c) pressure to acculturate, and (d) pressure against acculturation (Rodriguez et al., 2002). The factor structure and factorial invariance of the MASI has been supported in Asian American and Latinx college students (Castillo et al., 2015). Either the total score or individual subscales may be used (Rodriguez et al., 2002; Torres, 2010), and the total score was used in the present study. Tests of reliability suggest the MASI has good internal consistency with respect to the overall scale and corresponding subscales (Cronbach's alpha ranges from .77 to .90) as well as test–retest reliability (Rodriguez et al., 2002; Schwartz & Zamboanga, 2008). Evidence of excellent internal consistency for the MASI was found at T2 (see Table 1).

Depression

The Center for Epidemiological Studies—Depression scale (CES-D; Radloff, 1977), a 20-item self-report questionnaire, assessed participants' severity of depressive symptoms at T2. Respondents indicate how frequently they have experienced depression symptoms during the past week rated on a Likert scale from 0 (*rarely or none of the time, less than 1 day*) to 3 (*most of the time—5 to 7 days).* Ratings are summed to obtain a total score ranging from 0 to 60. A CES-D total score of 16 or greater is considered to reflect scores of significant clinical elevation, or "caseness," with higher scores reflecting more severe depression symptoms (Nezu, Maguth Nezu, McClure, & Zwick, 2002; Radloff, 1977). The CESD has been used extensively with Latinxs (e.g., Crockett et al., 2007; Torres, 2009; Torres & Rollock, 2007). Psychometric studies of the CES-D suggest that use of this scale with Latinx samples reduces contaminating effects of physical health symptoms found in other measures of depression symptoms (Vega & Rumbaut, 1991), and has demonstrated functional and scalar equivalence for Latinxs and non-

Latinx Whites (Crockett, Randall, Shen, Russell, & Driscoll, 2005). The CES-D had excellent internal consistency at T2 (see Table 1).

Results

Descriptive Statistics and Preliminary Analysis

Descriptive statistics and bivariate correlations for major study variables are presented in Table 1. As shown, participants reported moderately high levels of Latinx and Anglo acculturation at T1, suggesting that the present sample exhibited high knowledge of and engagement in behaviors associated with the culture of their ethnic background as well as with mainstream American culture. The mean scores on T1 Latinx and Anglo acculturation scales were similar to those reported by Cuéllar et al. (1995) in their initial report of the ARSMA-II reliability and validity among first through third generation Latinxs. In addition, participants' MICS score suggested moderate-to-high importance of culturally based skill sets. Greater T1 LIC was significantly correlated with both greater T1 Latinx and Anglo acculturation, and this correlation was of a similar magnitude for both acculturation scales (see Table 1). On average, participants reported low levels of T2 acculturative stress, similar to prior studies that have used the MASI (e.g., Driscoll & Torres, 2013; Torres et al., 2012). T1 Latinx acculturation, but not T1 Anglo acculturation, was significantly, negatively correlated with T2 acculturative stress. Greater T2 acculturative stress was significantly correlated with greater T2 depression. Using the above-mentioned cutoff score of 16, approximately one third of study participants ($n = 30$, 31.6%) reported elevated depression symptom severity. Independent samples t tests were conducted to test for differences in T1 Latinx and Anglo acculturation, T1 LIC, T2 acculturative stress, and T2 depression by gender and nativity status. Latinx women reported significantly higher Anglo acculturation and intercultural competence than Latinx men, $t(96) = -3.30$, $p = .001$, and $t(96) = -2.21$, $p = .03$, respectively. No other significant differences were found for gender and nativity status.

Primary Analysis and Hypothesis Testing

To test the relationships among LIC, Latinx and Anglo acculturation, acculturative stress, and depression, major study variables were fitted to a path model using AMOS 7.0 (Arbuckle, 2006). For the resultant path model maximum-likelihood estimation (ML) was used. In accordance with study hypotheses, the path model tested the direct relationships of T1 LIC to T1 Latinx and Anglo acculturation (Hypothesis 1), the indirect relationship of T1 LIC to T2 acculturative stress through T1 Latinx and Anglo acculturation (Hypothesis 2), the indirect relationship of T1 LIC to T2 depression as indirectly influenced by T1 Anglo and Latinx acculturation and T2 acculturative stress (Hypothesis 3). The hypothesized path model also estimated the direct relationship between T1 LIC and T2 despite their nonsignificant bivariate correlation (see Table 1), as a potential significant direct effect between the two may be suppressed by their indirect relationships through T1 Latinx and Anglo acculturation (Kline, 2005; Shrout & Bolger, 2002). The model chi-square, standardized root mean residual (SRMR), comparative fit index (CFI), Tucker Lewis index (TLI), and root mean square error of approximation (RMSEA) were used to evaluate the fit of the hypothesized path model. A nonsignificant model chi-square, SRMR < .10, CFI > .90, TLI > .95, and RMSEA < .05 with a 90% confidence interval (CI) that has a lower bound of less than .05 and an upper bound of less than .10 indicates good model fit (Kline, 2005; Schreiber, Nora, Stage, Barlow, & King, 2006). With regard to sample size and power, guidelines provided by Kline (2005) indicate a minimum of 10 cases for each path model free parameter is needed

to detect significant relationships among observed variables. The hypothesized model contains nine free parameters, thus sample size for participants who completed both waves of data collection was adequate.

Path analysis produced an identified model, where model $\chi^2(2) = 0.915$, $p = .63$; SRMR = .02, CFI = 1.00, TLI = 1.12, RMSEA = .00, 90% CI [.00, .16]. Thus, model fit indices suggested that the hypothesized model was an adequate fit to participant data. Figure 2a depicts parameter estimates for the path model. As shown, and in support of Hypothesis 1, greater T1 LIC was significantly associated with greater T1 Latinx and Anglo acculturation. T1 Latinx acculturation was significantly associated with greater T2 acculturative stress but T1 Anglo acculturation was not, providing partial support for Hypothesis 2. Greater T2 acculturative stress was significantly associated with greater T2 depression. As shown in Figure 2a, the direct relationships of T1 Latinx and Anglo acculturation to T2 depression were not significant.
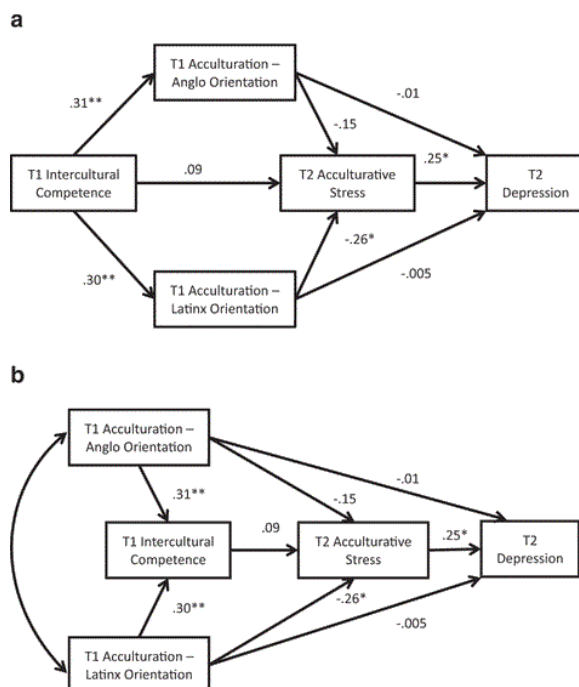

Figure 2. (a) Hypothesized longitudinal path model. (b) Alternative longitudinal path model. The parameter estimates shown in the above path model are standardized path coefficients. * p < .05. ** p < .01. *** p < .001.

To further evaluate the ability of T1 LIC and T1 acculturation to influence T2 depression, indirect effects were estimated in AMOS 7.0. Statistical significance of indirect effects was determined using distribution of the product methods. Indirect effects and total effects are depicted in Table 2. As shown, the prediction that greater T1 LIC was significantly related to lower T2 acculturative stress through T1 acculturation was supported (see Table 2). Specifically, acculturative stress measured at 6-month follow-up was significantly predicted by greater T1 Latinx acculturation, but not T1 Anglo acculturation, indicating that only T1 Latinx acculturation conferred the indirect effect of T1 LIC to T2 acculturative stress. In addition, the indirect relationship of T1 Latinx and T2 depression through T2 acculturative stress was significant, such that greater Latinx acculturation was associated with lower later acculturative stress, which, in turn, was related to lower depression (see Table 2). Thus, greater Latinx acculturation was protective against later acculturative stress and depression. Greater Anglo acculturation was also related to lower depression through lower acculturative stress, but this

relationship did not reach conventional levels of significance ($p < .06$; see Table 2), suggesting that the relationship between intercultural competence and later acculturative stress and depression is partially mediated by Latinx acculturation only.

Table 2. Indirect and Total Effects, 90% Confidence Intervals, and Bias-Corrected 90% Confidence Intervals

	T2 acculturative stress						T2 depression					
			90% CI		BC 90% CI				90% CI		BC 90% CI	
Variable	Effect	*SE*	LB	UB	LB	UB	Effect	*SE*	LB	UB	LB	UB
T1 intercultural competence												
Indirect	−.12	.05	−.20	−.05*	−.22	−.06**	−.04	.04	−.10	.04	−.14	.01
Total	−.04	.09	−.18	.14	−.21	.11	−.04	.04	−.10	.04	−.14	.01
T1 acculturation— Anglo orientation												
Indirect	—	—	—		—		−.04	.02	−.08	.002	−.09	−.01†
Total	−.15	.09	−.28	−.005	−.28	.02	−.04	.10	−.19	.11	−.18	.13
T1 acculturation—Latinx orientation												
Indirect	—	—	—		—		−.06	.04	−.15	−.01†	−.18	−.02*
Total	−.26	.10	−.41	−.09*	.41	−.09*	−.17	.11	−.36	.06	−.36	.06

Note. CI = confidence interval; BC = bias-corrected; LB = lower bound; UB = upper bound.

† *p* < .06. * *p* < .05. ** *p* < .01. *** *p* < .001.

An alternative path model was fitted using ML estimation to test the possibility that Latinx and Anglo acculturation could shape LIC, thereby protecting against later acculturative stress and depression (see Figure 2b). Inspection of fit indices suggested that this alternative model was also a good fit to study data, model $\chi^2(1) = 0.45$, $p = .83$, SRMR = .004, CFI = 1.00, TLI = 1.35, RMSEA = .00, 90% CI [.00, .16] and yielded similar path coefficients to the hypothesized model. Because of the similar fit indices and path coefficients for the hypothesized and alternative models, the Akaike information criterion (AIC) and Bayes information criterion (BIC) for the two models were compared. AIC and BIC are parsimony-adjusted measures of predictive model fit that assess the likelihood that a given model will replicate among repeated samples of a target population (Kline, 2005). In evaluating model fit, the resultant AIC and BIC values are compared and the model with the lower of the two values is retained. AIC and BIC values for the hypothesized model were 26.91 and 60.52, respectively. For the alternative model, the AIC was 28.04 and the BIC was 64.23. Thus, comparison among the AIC and BIC values indicated that the hypothesized model was a better fit and preferred over the alternative model.

Discussion

This study aimed to examine the relationship of cultural adaptation processes to Latinx depression by attending to longitudinal and indirect relationships among LIC, acculturation, and acculturative stress. Results provide partial support for study hypotheses. As expected, greater LIC was significantly related to Latinx and Anglo acculturation. However, only Latinx acculturation was significantly associated with lower acculturative stress at 6-month follow-up. Greater LIC was indirectly related to lower acculturative stress 6 months later through greater Latinx acculturation, suggesting that LIC protects against acculturative stress through Latinx acculturation. Finally, the results supported the hypothesized direct relationship between greater acculturative stress and greater depression, as well as the hypothesized indirect relationship of greater LIC to lower depression symptom severity six months later through greater Latinx acculturation and lower acculturative stress. Overall, the findings implicate the role of cognitive culturally based schemas of instrumental skills and attributes as guides for the expression of culturally sanctioned behavior and highlight heritage-culture behaviors as crucial in mediating their relationship to culturally based stress and subsequent depression.

Study findings advance prior research on the cultural adaption process and Latinx mental health in several important respects. First, previous studies have been restricted by limited use of longitudinal designs and explanatory variables to examine the mechanisms that account for how acculturation influences Latinx mental health (Horevitz & Organista, 2013; Schwartz et al., 2010; Torres, 2009). This study directly addresses these limitations with two measurement times and the examination of meditational processes to delineate potential mechanisms that explain the relationship of cultural behavior to Latinx depression. Second, the finding that intercultural competence is associated with both Anglo and Latinx acculturation suggests that cognitive schemas related to cultural behavior and skills contour the acquisition, retention, and expression of those cultural behaviors. Third, only Latinx acculturation predicted reduced acculturative stress and depression, indicating that behaviors related to cultural continuity exhibits a stronger temporal relationship to acculturative stress and depression compared to cultural contact.

Prior studies have suggested that acquisition of the receiving-culture characteristics provide opportunities for social mobility but simultaneously erode ties with family and friends of the same

cultural background (Alegría et al., 2007). This study's findings suggest that perhaps retention of behaviors associated with cultural continuity facilitated through intercultural competence may permit access to supportive resources (e.g., family support, social support) that, in turn, contribute lower acculturative stress over time (cf., Crockett et al., 2007). Congruent with this interpretation, Latinxs who report greater heritage culture acculturation also report greater family support (Rodriguez et al., 2007), and greater connection to heritage culture appears to attenuate the acculturative stress-depression relationship (Finch et al., 2000). Surprisingly, Anglo acculturation was not significantly associated with acculturative stress in the current findings. Given that participants reported high education and socioeconomic levels, it could be the case that the pressures associated with the receiving culture (i.e., English competency concerns) were less salient resulting in this nonsignificant relationship. Thus, this study furthers theoretical and empirical evidence for acculturation as a multidimensional process (e.g., Horevitz & Organista, 2013; Padilla & Perez, 2003; Schwartz & Zamboanga, 2008; Schwartz et al., 2010; Torres, 2010; Torres et al., 2012), with heritage- and receiving-culture acculturation exhibiting different relationships to Latinx mental health.

The finding that LIC is indirectly related to acculturative stress through Latinx acculturation suggests that heritage-culture behaviors mediate LIC and subsequent acculturative stress and depression, underscoring the importance of maintaining cultural traditions and ties for Latinx mental health (e.g., Alegría et al., 2008; Berry, 2003, 2006; Sam & Berry, 2010). One possible explanation for this finding is that greater LIC contributes to greater bidimensional acculturation, which in turn contributes to bicultural identity such that Latinx individuals successfully match cultural behaviors and attitudes to situational cues (Benet-Martínez et al., 2002), thus lowering acculturative stress, rather than simply assimilating to mainstream U.S. culture. This may facilitate effective intercultural exchange such that expressed cultural behaviors decrease discrepancies between individuals and groups during intercultural contact to protect against acculturative stress and depression over time. This is congruent with alternation models of cultural acquisition (LaFromboise et al., 1993), which posit that individuals can possess the ability to have knowledge and competence in more than one cultural context. Critically, the results of the present study support that LIC may facilitate adaptive expression of cultural behaviors and skills in multiple social contexts and not only in situations where Latinxs interact with individuals of the receiving cultural group. Indeed, skills that facilitate successful intercultural interaction with individuals of receiving culture while simultaneously retaining behaviors and characteristics associated with Latinx cultural heritage—including building communication abilities, setting realistic goals, possessing strong ambition and a desire to succeed (Torres, 2009)—may be critical to developing active behavioral coping styles that mitigate the acculturative stress-depression relationship (Driscoll & Torres, 2013).

Limitations

The findings of the present study should be considered in the context of a few limitations. First, nearly four times as many Latinx women than Latinx men participated. Previous research has indicated Latinx women are more likely to meet diagnostic criteria for depression compared to Latinx men (Menselson et al., 2008). This raises the possibility that depression scores in the present study may be somewhat inflated. Importantly, in this study Latinx women and men did not significantly differ in their depression symptom severity scores and this is consistent with prior findings (Crockett et al., 2007). Additional research is therefore needed to replicate the present study's findings in samples with more Latinx men.

Furthermore, this sample had higher educational attainment and household income compared to the overall U.S. Latinx population. Although preliminary analysis for the present study suggested that education and household income were unrelated to LIC, acculturation, acculturative stress, and depression, further research implementing population-based sampling strategies is necessary to determine whether the present study results generalize to Latinx individuals with lower educational attainment or socioeconomic status.

Another limitation is the use of self-report measures. Although this study's results align with previous findings that greater self-reported cultural competencies are associated with increased ability to respond to culturally relevant situational cures (i.e., Benet-Martínez et al., 2002; Torres & Rollock, 2007), they do not rule out the possibility that situation specific demands inhibit the expression of otherwise adaptive culturally based behavior in vivo. Experience sampling methods that rely less on recall ability, such as ecological momentary assessment, may help future studies disentangle the relationships among cultural adaption processes and Latinx depression.

Finally, two assessment periods restrict the range from which to evaluate the influence of cultural adaptation processes on Latinx depression. Increasing the number of assessments would provide a more nuanced depiction of the interrelationships between intercultural competence, acculturation, acculturative stress, and affect/mood. Furthermore, proximal (i.e., same- or next-day) and distal (i.e., weeks to months) relationships between intercultural competence, acculturation, acculturative stress, and depression may differ. Decreasing assessment intervals may therefore augment the ability to evaluate transactional relationships between cultural adaptation processes and depression. Such a conceptualization is congruent with recent daily diary studies of racial discrimination and next-day depression (e.g., Ong, Fuller-Rowell, & Burrow, 2009; Torres & Ong, 2010), as well as prominent theories of depressive psychopathology that focus on the reciprocal relationships between environmental stressors and depressive symptoms development and maintenance (i.e., *stress generation*; Hammen, 2005).

Despite the above limitations, the present study results have notable implications for further research on the influence of cultural adaption processes on Latinx depression. First, this study provides description of the individual-level skill sets and competencies that facilitate cultural adaptation among Latinxs. That is, this study further articulates protective mechanisms that may enable effective navigation of the myriad sociocultural contexts (and corresponding risks) that influence Latinx depressive symptom severity. Second, the results of this study are congruent with prior research that has found that competency-based skills influence acquisition, retrieval, generalization, and expression of behavioral skills sets that contribute to psychosocial functioning. An important implication of the present study is that it provides preliminary evidence that competency-based skills sets indirectly influence mental health through their relationship with cultural adaption processes. Furthermore, it is important to highlight the role of Latinx acculturation in protecting against acculturative stress 6 months' later in the present study's findings. Previous acculturation research suggests an Anglo behavioral orientation influences the relationship of acculturative stress on Latinx mental health, however this was in the context of examining the role of perceived discrimination (Torres et al., 2012). These findings expand on previous research to suggest that acculturative stress may not only be experienced in the context of interacting with another culture. That is, behavior related to retaining

continuity with one's ethnocultural heritage and not cultural acquisition were protective against later acculturative stress and subsequent depressive symptom severity. The results of the current study therefore implicate the potential importance of strengthening and/or reinforcing cultural ties in protecting against acculturative stress and subsequent depression among Latinxs. Previous research has discussed the role of nativity status in Latinx mental health, with some studies noting higher prevalence for depressive and anxiety disorders among U.S.-born Latinxs compared to Latinx immigrants (Alegría et al., 2008). Given that more participants in the present study were U.S.-born than foreign-born and that participants had typically lived the majority of their lives' in the United States, the results suggest that acculturative stress may influence mental health not only through the stressors and strains of intercultural contact but also through the possible exacerbation of perceived exclusion or marginalization from one's ethnocultural background. A critical direction for future research is the precise disentanglement of person-environment transactions that shape the expression and retrieval of culturally based behavior and subsequently magnify or diminish acculturative stress and subsequent mental health. In particular, methods that sample from daily, lived experiences (i.e., daily diary studies, ecological momentary assessment) may prove critical in establishing the causal relationships among intercultural competence, acculturation, acculturative stress, and depression.

Footnotes

[1] Because of the nonsignificant relationships between T1 LIC and T2 acculturative stress, and T1 Latinx and Anglo acculturation and T2 depression, three alternate path models were tested using procedures recommended by Danner, Hagemann, and Fiedler (2015): a single effect model where only the paths between T1 LIC and T1 Latinx acculturation, T1 Anglo acculturation, and T2 acculturative stress were freely estimated; an alternate single effect model where only the paths between T2 acculturative stress and T2 depression were freely estimated; and a full mediation model where only the paths between T1 LIC and T1 Latinx and Anglo acculturation, T1 Latinx and Anglo and T2 acculturative stress, and T2 acculturative stress and T2 depression were freely estimated. In all instances, the hypothesized model was a better fit to study data. These analyses are available from Mark W. Driscoll.

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