

1-1-2012

Discrimination, Acculturation, Acculturative Stress, and Latino Psychological Distress: A Moderated Mediation Model

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Abstract: Prior research has found that perceived discrimination is associated with adverse mental health outcomes among Latinos. However, the process by which this relationship occurs remains an understudied area. The present study investigated the role of acculturative stress in underlying the relationship between perceived discrimination and Latino psychological distress. Also examined was the ability of acculturation to serve as a moderator between perceived discrimination and acculturative stress. Among a sample of Latino adults ($N=669$), moderated mediation analyses revealed that acculturative stress mediated the perceived discrimination-psychological distress relationship, and that the link between perceived discrimination and acculturative stress was moderated by Anglo behavioral orientation but not Latino behavioral orientation. The findings are discussed within a stress and

coping perspective that identifies the psychological consequences associated with perceived discrimination and acculturative stress.

Keywords: Latino mental health, perceived discrimination, acculturation, acculturative stress, psychological distress

The Latino population living in the United States continues to grow at an exponential rate with estimates indicating that this group will constitute approximately 30% of the national population by the year 2050 (U.S. Census, 2010). Despite these demographic trends and increased presence in the U.S., prejudice and discrimination against Latinos persists in society. The prevalence of perceived discrimination among Latinos has been reported at 30% while 38% of Latinos aged 16 to 25 and 31% aged 26 or older have indicated that they or someone they know have been the target of racial or ethnic discrimination (Perez, Fortuna, & Alegria, 2008; Pew Hispanic Center, 2009). As such, Latinos have an added risk of experiencing mental health problems because of the burden of having to deal with discrimination along with navigating between different cultures (Falcon & Tucker, 2000). In addition, aspects of the acculturation experience, including the strategies used to manage cultural interactions or exchanges, and appraisals of acculturative stress, contribute to Latino mental health (Berry, 2006). Unfortunately, limited research has been conducted regarding the psychological consequences associated with discrimination and acculturative stress among Latinos (Araujo & Borrell, 2006; Finch, Hummer, Kolody, & Vega, 2001; Finch, Kolody, & Vega, 2000). Guided by a stress and coping model, the current study posits that perceived discrimination is related to acculturative stress which, in turn, is associated with psychological distress. Further, acculturation is proposed to moderate the association perceived discrimination and appraisals of acculturative stress. Such a line of inquiry advances the empirical literature by delineating the links by which negative life events and cultural adaptation relate to the psychological health of Latinos.

Discrimination, defined as negative attitude, judgment, or unfair treatment of members of a particular group (Williams, Spencer, & Jackson, 1999), has been linked to negative psychological consequences. A recent meta-analysis of 110 studies reported small to medium effect sizes regarding the relationship between perceived

discrimination and poor mental health (Pascoe & Smart Richman, 2009). Similar to the broader literature with African American samples, an association between perceived discrimination and deleterious outcomes, such as psychological distress and depression, has been reported with Latino groups. For instance, a recent investigation tracked the discriminatory experiences of Latino adults over a two-week period and found that participants reported higher levels of depressive symptoms, when compared to their own baseline, the day after experiencing a discriminatory event (Torres & Ong, 2010). This finding suggested that not only did perceived discrimination have an immediate impact on the mental health of Latinos but that it may have had a negative carryover or lag effect. Other reports have connected perceived discrimination with psychological distress among Latino college students (Hwang & Goto, 2008; Torres, 2009) and adults (Finch et al., 2000; Flores et al., 2008; Moradi & Risco, 2006).

Pascoe and Smart Richman (2009) proposed that heightened stress responses mediate the relationship between perceived discrimination and mental health. As supporting evidence for such a pathway, a recent study with African Americans identified a stress proliferation process by which experiences of discrimination contributed to greater levels of other stressors, such as negative life events (Ong, Fuller-Rowell, & Burrow, 2009). Among Latinos, these stressors can involve *acculturative stress*, defined as the reactions to intercultural contact or the cultural adaptation process (Berry, 2006). Acculturative stressors can include the pressures of learning a new language, balancing differing cultural values, and having to broker between American and Latino ways of daily living (Araujo Dawson & Panchanadeswaran, 2010; Rodriguez, Myers, Bingham Mira, Flores, & Garcia-Hernandez, 2002). Among a sample of Dominican women, both daily discrimination and major racist events significantly predicted acculturative stress (Araujo Dawson & Panchanadeswaran, 2010). In turn, acculturative stress can result in psychological health problems (Moyerman & Forman, 1992; Williams & Berry, 1991). Recent work reported that Latino adults who experienced acculturative stressors, namely the pressure to attain English competency, were over two times more likely to show high levels of depressive symptoms (Torres, 2010). Acculturative stress has been linked to mental health problems in numerous studies including samples of Latino college students (Crockett et al., 2007) and Mexican migrant farm workers (Hovey &

Magana, 2002). A further study showed that, among a large group of Mexican-origin adults, the association between discrimination and physical health decreased once acculturative stress was included in the model which suggested a mediational process (Finch et al., 2001).

The pathways by which perceived discrimination contributes to mental health through stress responses (i.e., acculturative stress) can include variables that moderate these relationships (Pascoe & Smart Richman, 2009). Informed by a stress and coping framework, Berry (2006) suggested that negative environmental experiences, perceived discrimination in this case, contributes to acculturative stress and that this relationship can be moderated by acculturation attitudes and behaviors. *Acculturation* regards the changes in the original cultural patterns of different groups that come into continuous contact (Redfield, Linton, & Herskovits, 1936). Empirical studies of acculturation have commonly assessed language fluency, social affiliation, cultural knowledge, and/or daily living preferences (Lara, Gamboa, Kahramanian, Morales, & Bautista, 2005). Several reports have indicated that acculturation was negatively related to acculturative stress among Latinos (Caetano, Ramisetty-Mikler, Caetano Vaeth, & Harris, 2007; Vega, Gil, & Wagner, 1998). Findings from the National Latino and Asian American Survey (NLAAS) showed that, for Latinos, English language proficiency was associated with decreased acculturative stress while Spanish language proficiency was related to increased acculturative stress (Lueck & Wilson, 2011). Numerous discrepancies have emerged in the empirical literature regarding the relationship between acculturation and mental health due in part to research methodology and samples utilized (c.f., Lara et al., 2005; Rogler, Cortes, & Malgady, 1991). Examining acculturation as a proximal variable contributing to acculturative stress and the psychological health of Latinos can provide insights into the adaptation process.

Bidimensional acculturation models stipulate that two distinct continua exist and involve orientations toward the mainstream culture as well as the traditional heritage culture (Berry, 2003). Thus, an Anglo orientation emphasizes cultural contact and an interest or preference for participating in the mainstream society. On the other hand, a Latino orientation, also referred to as *enculturation*, involves cultural continuity and the maintenance of the traditional culture. As

these are separate yet related dimensions, individuals may exhibit high levels on both acculturation orientations. It has been purported that obtaining a high degree of Anglo and Latino orientations was associated with healthier outcomes (Berry, 2006; LaFromboise, Coleman, & Gerton, 1993). For instance, Kim and Omizo (2006) suggested that individuals who have high levels of orientation to the mainstream U.S. and traditional cultures might experience decreased acculturative stress because of their fluency in both cultures. Additional strategies can involve preferences for one acculturation orientation, whether the mainstream U.S. or the traditional culture, over the other. Low levels of both acculturation orientations have been linked with the poorest outcomes (Berry, 2006).

The negative impact of discrimination may differ for individuals based on their acculturation orientation and the role of acculturative stress in contributing to mental health difficulties (Cook, Alegria, Lin, & Guo, 2009). That is, individuals who value acculturation (i.e., high Anglo orientation) may be more prone to psychological problems when experiencing perceived discrimination than those who have little desire to be part of the mainstream U.S. culture and, thus, can ignore these negative interactions. The risk or protective function of acculturation within the context of perceived discrimination and acculturative stress remains unclear and largely unexplored with Latinos. A high level of Anglo orientation can serve as a risk factor in relation to discrimination (Alamilla, Kim, & Lam, 2010). On the one hand, with increased English fluency, Latinos may be more likely to understand and interpret discriminatory actions (Perez et al., 2008). On the other hand, the ability to communicate effectively may help to reduce the effects of these negative interactions. Maintaining a Latino orientation can provide a protective function by providing individuals access to traditional cultural resources. A recent study provided support for this notion and reported that retention of the traditional Latino culture moderated the relationship between everyday discrimination and general stress among a sample of Dominican women (Araujo Dawson, 2009). However, contrary evidence has shown that a Latino orientation augmented the relationship between perceived discrimination and anxiety among Latino college students (Alamilla et al., 2010). As such, continued research is necessary to identify the influence of Anglo and Latino behavioral orientations on the relationship between perceived discrimination and acculturative stress.

Despite the evidence that perceived discrimination and acculturative stress are salient experiences in the daily lives of Latinos living in the United States, there remains limited research examining the relationship between these variables particularly as they relate to psychological distress (Araujo Dawson & Panchanadeswaran, 2010). Researchers have previously included discriminatory experiences as an aspect of acculturative stress both in terms of theoretical conceptualization and assessment (Alderete, Vega, Kolody, & Aguilar-Gaxiola, 1999; Finch et al., 2000). Still, some findings have indicated that discrimination had a unique contribution to the depression of Mexican migrant farmworkers in contrast to several acculturative stress domains, namely language conflicts and legal residence status (Alderete et al., 1999). Recent work has argued that perceived discrimination and acculturative stress are separate but related processes (Araujo Dawson & Panchanadeswaran, 2010). Some researchers contend that discrimination is due to the individual's ethnic or social position within the U.S. whereas acculturative stress is inherent to the adaptation process (Rodriguez et al., 2002). Furthermore, discrimination due to race or ethnicity has been conceptualized as a sudden, negative, uncontrollable event (Carter, 2007; Flores et al., 2010) whereas acculturative stress has been described as problematic but controllable and surmountable (Berry, 2006). Considering perceived discrimination and acculturative stress as distinct but related constructs provides a clearer depiction of the differential demands experienced by Latinos and limits confounding the measurement between these variables.

The purpose of the current study was to investigate the influence of perceived discrimination and acculturative stress on psychological distress among Latino adults. Based on the conceptualization proposed by Pascoe and Smart Richman (2009) and Berry (2006) it is believed that a moderated mediational model will be supported by which perceived discrimination will be related to acculturative stress which, in turn, will be associated with psychological distress. It is also expected that behavioral orientations of Anglo and Latino acculturation will moderate the relationship between perceived discrimination and acculturative stress. It is hypothesized that Anglo behavioral orientation will serve as a risk factor and exacerbate acculturative stress while Latino behavioral

orientation will function as a protective factor and be associated with less acculturative stress.

Method

Participants

Participants were a community sample of self-identified Latino adults ($n = 669$, 63.6% female) from a moderately-sized, Midwestern city. The mean reported age was 39 years old ($SD = 14$; Range 18–80). Slightly over half of all participants reported that they were born in a country other than the U.S. (53.2%). The majority of participants ($n = 487$, 86.2%) identified their cultural background as Mexican, Mexican-American, or Chicano; however, Latinos of Puerto Rican, Cuban, and South/Central American cultural background were also represented in the present sample. Participants had lived, on average, 64.30% of their lives in the United States ($SD = 35.38\%$), with a mean of 24.46 years lived in the United States ($SD = 17.84$). A portion of participants ($n = 257$, 40.5%) reported an annual household income less than \$20,000; however 38.6% ($n = 245$) had a household income of \$20,000–\$50,000, 13.4% ($n = 85$) had a household income of \$50,000–\$75,000, and 7.4% ($n = 47$) had a household income greater than \$75,000. Slightly greater than one-third of participants ($n = 238$, 36%) had 11 years or fewer education; however, 26.3% ($n = 174$) had a high school diploma, 23.8% ($n = 157$) had attended at least one year of college, and 13.9% ($n = 92$) had a bachelor's degree or higher.

Procedure

Participants were recruited from local culturally-based events and from a community-based outpatient medical clinic located in a moderately-sized, Midwestern city. Participants completed packets of questionnaires that asked about demographic information, experiences of perceived discrimination, acculturation, acculturative stress, and psychological distress (see Measures section below). Spanish- and English-language versions of all study measures were available to participants and were administered in participants' stated preferred language. Participants received a \$10 gift card as compensation for

completion of study measures. All procedures were approved by, and in compliance with, the sponsoring institution's Institutional Review Board (IRB).

Measures

Perceived Discrimination

The *Perceived Racism Scale for Latinos (PRSL; Collado-Proctor, 1999)* assessed participants' perception of the frequency of which they had been targets of ethnically/racially-motivated discrimination. The PRSL, which was slightly modified from its original form by Moradi & Risco (2006), is a 34-item self-report questionnaire that assesses the frequency of discriminatory events in a variety of contexts, including occupational (e.g., "Because I am Latino, I have been passed up for promotions and benefits at work"), academic (e.g., "Teachers and students assume I am less intelligent because I am Latino"), health care (e.g., "I have been treated with disrespect in health care settings because I am Latino"), and public settings (e.g., "Because I am Latino, I have been stopped, ignored, or harassed by the police"), as well as covert discrimination (e.g., "I have experienced that Latinos are perceived as a threat when they socialize with other Latinos"). Participants report how often they have experienced discrimination within the past year by rating PRSL items on a Likert scale that ranges from 1 (*never*) to 5 (*several times a day*). Participants may also select *not applicable* as a response for each PRSL item (e.g., an individual may not be in school at the time of study participation and so may not have recently experienced discrimination in an academic setting). During analyses, participant responses of *not applicable* are subsequently coded as 1(*never*), because *not applicable* responses represent no discrimination event for that particular measure item (Moradi & Risco, 2006). PRSL items are averaged to yield an overall frequency of perceived discrimination score, where higher scores correspond to greater frequency. Moradi and Risco (2006) compared rates of reported discrimination using the PRSL to other commonly used measures of discrimination and found that the distribution of reported frequency of discrimination using the PRSL was similar to other multi-item discrimination measures. The internal consistency coefficients for the PRSL with Latino samples have been reported

at .93 and .92 (Collado-Proctor, 1999; Moradi & Risco, 2006). In the present sample, the PRSL demonstrated excellent internal consistency (see Table 1).

Table 1
Correlations, Means, and Standard Deviations for Study Variables

	1	2	3	4	5	6	7	8	9	10
1. Gender	—	.05	-.02	.02	.06	.03	.11**	-.03	.01	.02
2. Nativity Status		—	.02	.32***	.36***	.60***	-.44***	.11**	-.12**	-.25**
3. Age			—	.09*	-.05	.02	-.09*	-.04	-.05	-.11**
4. Annual Household Income				—	.44***	.43***	-.22***	-.10**	-.29***	-.33***
5. Education Level					—	.44***	-.22***	.06	-.13**	-.19***
6. Anglo Behavioral Orientation						—	(.87)	-.27***	.10**	-.18***
7. Latino Behavioral Orientation							—	(.88)	.03	.14**
8. Perceived Discrimination								—	(.95)	.50***
9. Acculturative Stress									—	(.91)
10. Psychological Distress										—
M			38.79			3.42	3.83	1.62	1.57	16.68
SD			13.53			1.11	1.03	0.65	0.61	15.93

Note. Where applicable, numbers presented along the diagonal correspond to scale internal consistency. Spearman correlations reported for gender, nativity status, annual household income, and education level. All other correlations are Pearson correlations.

Acculturation

The *Brief Acculturation Rating Scale for Mexican Americans-II (BARSMA-II; Bauman, 2005)* assessed participants' acculturation. The BARSMA-II is a shortened 10-item version of the original 30-item measure (Cuellar, Arnold, & Maldonado, 1995). The BARSMA-II emphasizes behavioral involvement in Latino and Anglo cultures assessed through individuals' language use (e.g., "I enjoy Spanish language movies," "My thinking is done in the English language"); however, the BARSMA-II also contains items that ask about the ethnicity of one's acquaintances (e.g., "I associate with Anglos/Americans"). Respondents rate the degree to which an item applies to them on a 5-point Likert scale that ranges from 1 (*not at all*) to 5 (*extremely often or almost always*). The BARSMA-II contains two orthogonal subscales, termed *Latino Orientation Scale (LOS)* and *Anglo Orientation Scale (AOS)*, which assess behavioral retention of one's heritage culture characteristics and acculturation to the majority culture, respectively. The BARSMA-II has been found to be a reliable measure with Cronbach's alpha coefficients reported at .91 and .73 for LOS and AOS, respectively (Bauman, 2005). Among the present sample, the LOS and AOS demonstrated excellent internal consistency (see Table 1).

Acculturative Stress

The *Multidimensional Acculturative Stress Inventory (MASI;* Rodriguez et al., 2002) assessed participants' acculturative stress. The MASI is a 36-item instrument that measures acculturative stress that originates from European American (e.g., "It bothers me that I speak English with an accent") and Latino sources (e.g., "I feel pressure to learn Spanish"). Specifically, the MASI assesses severity of acculturative stress related to competency of language use (English and Spanish), pressures to acculturate to the majority culture, and pressure against acculturation to the majority culture. Respondents rate items according to the perceived amount of acculturative stress experienced during the previous 3 months on a 6-point scale ranging from 0 (*does not apply*) to 5 (*extremely stressful*). Items are averaged to obtain an overall score that ranges from 0 to 5, where higher MASI scores correspond to greater acculturative stress. Prior studies with Latinos have found the MASI to contain an internal consistency coefficient of .90 (Rodriguez et al., 2002) MASI items that were rated as 0 by participants were rescored as 1 (*not at all stressful*), because an item that did not apply to participants could not be considered a source of acculturative stress. After recoding, possible MASI scores in the present sample ranged from 1 to 5. Among the present sample, the MASI demonstrated excellent internal consistency (see Table 1).

Psychological Distress

The *Brief Symptom Inventory-18 (BSI-18;* Derogatis, 2000) assessed participants' self-reported psychological distress. The BSI-18 is a widely-used 18-item measure and can be used in both clinical- and community-based samples. Participants rate items according to the extent to which they have been distressed by a variety of symptoms that reflect dysphoria/depression (e.g., "Feeling no interest in things"), anxiety (e.g., "Nervousness or shakiness inside"), and somatization (e.g., "Faintness or dizziness") during the previous week on a 5-point Likert scale that ranges from 0 (*not at all*) to 4 (*extremely*). BSI-18 items are summed to yield a global severity index (GSI) that ranges from 0 to 72, where higher scores correspond to greater psychological distress. Normative data for the BSI-18 in community samples, based on 1,314 adults (605 men, 517 women) from the mainstream U.S.

culture (ethnicity/race not reported), indicates that an individual raw GSI score of 20 or higher is considered positive for risk or "caseness" (Derogatis, 2000).

The BSI-18 and its variants have been used with a diverse range of ethnocultural groups including African Americans (e.g., Sellers, Caldwell, Schmeelk-Cone, & Zimmerman, 2003; Utsey, Giesbrecht, Hook, & Sanard, 2008), Asian Americans (e.g., Hwang & Goto, 2008), and Latinos (e.g., Asner-Self, Schrieber, & Marotta, 2006; Hwang & Goto, 2008; Moradi & Risco, 2006; Myers et al., 2002; Thoman & Surís, 2004). Analysis of the BSI-18 factor structure using Principal Components Analysis (PCA) in a sample of Central Americans found evidence of a single factor that measured overall psychological distress rather than independent depression, anxiety, and somatic subscales (Asner-Self et al., 2006), suggesting that the total BSI-18 GSI scale is appropriate for use among Latinos. Prior research has found that greater psychological distress as assessed by the BSI-18 is significantly associated with greater discrimination (Hwang & Goto, 2008; Moradi & Risco, 2006), greater U.S.-culture acculturation (Moradi & Risco, 2006; Thoman & Surís, 2004), and greater acculturative stress (Thoman & Surís, 2004). An internal consistency coefficient alpha of .91 has been reported for the BSI-18 among a group of Latino participants (Asner-Self et al., 2006). The BSI-18 was found to have excellent internal consistency in the present study (see Table 1).

Results

Descriptive Statistics and Preliminary Analyses

Table 1 presents means, standard deviations, internal consistencies, and bivariate correlations among major study variables. Participants' BARSMA AOS and LOS scores suggested some acclimation to the majority culture as well as relatively higher retention of behavioral characteristics associated with Latino culture. In terms of psychological distress, the current sample reported, on average, moderate symptomatology with greater than one-third of participants (34.3%) scoring above the clinical cut-off. The BSI-18 mean scores were higher than those reported previously with Latinos (Asner-Self

et al., 2006). With respect to perceived discrimination, participants' mean PRSL score suggested that they had experienced discrimination on one or more occasions during the previous twelve months. The mean score in the present study was comparable to other research that has used the PRSL, but with a larger standard deviation (cf., Moradi & Risco, 2006). This difference may be partially accounted for by the size of the present sample, which may reflect a broader range of frequency of experiences of discrimination. Among the events listed on the PRSL that participants reported having experienced at least once in the past year, the most frequently endorsed items were "I have heard negative comments about Latinos" (69%), "I have experienced that Latinos who have more ethnic features experience more racism" (57.8%), "I have experienced that Latinos who look white are seen as an exception to the race" (57.2%), and "I have experienced that Latinos who achieve or are successful are viewed as a 'special case' or 'exception to the rule'" (54.8%).

Gender (Alegria & Woo, 2009) and nativity status (Alegria et al., 2007) have been implicated as demographic variables contributing to the mental health of Latinos. A 2 (gender) \times 2 (nativity status) multivariate analysis of variance (MANOVA) was conducted to examine demographic differences among the study variables, namely Latino and Anglo behavioral orientation, perceived discrimination, acculturative stress, and psychological distress, while protecting against inflated Type 1 error rates. The assumptions for MANOVA were met except for homogeneity of variance-covariance matrices (Box's test of equality of covariance matrices=182.73, $p<.001$) possibly due to unequal cell sizes. When such a situation occurs, Tabachnick and Fidell (2007) recommend using the more robust Pillai's criterion over Wilks' lambda. The results of the MANOVA showed statistically significant differences for gender, Pillai's criterion=.02, $F(5, 605) = 2.28, p=.042$, and nativity status, Pillai's criterion=.42, $F(5, 605) = 88.84, p<.001$. The interaction effect of gender and nativity status was not statistically significant. Table 2 shows the results of follow up univariate analyses of variance (ANOVAs). These preliminary analyses revealed that women reported greater Latino behavioral orientation relative to men. Also, foreign-born Latinos indicated significantly greater Latino behavioral orientation, acculturative stress, and psychological distress but less Anglo behavioral orientation compared to their U.S. born counterparts. Checks for multicollinearity were

conducted by examining the Variance Inflation Factor (VIF) and Tolerance values for the study variables. Cohen, Cohen, West, and Aiken (2003) suggested that a VIF of 10 or more and Tolerance values of .10 or less are indicative of problems with multicollinearity. The VIF and Tolerance values of the current study variables were well within these limits (VIF range= 1.04–1.93, Tolerance range = .52–.97) suggesting that the assumption of multicollinearity was not violated

Table 2
Gender × Nativity Status Multivariate Analysis of Variance (MANOVA)

	<i>M (SD)</i>	Univariate <i>F</i>	<i>df</i>	<i>p</i>	Partial η^2
Gender					
	Men/Women				
Anglo Behavioral Orientation	3.41 (1.04)/3.46 (1.14)	0.01	1/609	.93	.00
Latino Behavioral Orientation	3.69 (.99)/3.89 (1.05)	9.93	1/609	.002	.02
Perceived Discrimination	1.63 (.62)/1.62 (.67)	0.03	1/609	.86	.00
Acculturative Stress	1.55 (.58)/1.59 (.63)	0.14	1/609	.71	.00
Psychological Distress	15.74 (14.83)/17.37 (16.60)	1.28	1/609	.26	.00
Foreign/U.S. born					
Nativity Status					
Anglo Behavioral Orientation	2.87 (1.03)/4.21 (.65)	288.13	1/609	<.001	.32
Latino Behavioral Orientation	4.25 (.75)/3.28 (1.09)	150.35	1/609	<.001	.20
Perceived Discrimination	1.58 (.66)/1.68 (.64)	3.04	1/609	.08	.01
Acculturative Stress	1.62 (.63)/1.50 (.56)	4.74	1/609	.03	.01
Psychological Distress	19.50 (15.98)/12.83 (14.70)	19.67	1/609	<.001	.01

Moderated Mediation Analyses

Tests of the moderated meditational model were based on the recommendations and SPSS macro created by Preacher, Rucker, and Hayes (2007). This approach assesses the conditional indirect effects to examine the ability of a moderator to influence a meditational pathway. Preacher and colleagues define conditional indirect effect as the indirect effect that is conditional on one or more moderators. Several researchers have advocated examining the conditional indirect effects via bootstrapping techniques as a robust way to assess significance and a more effective control of Type 1 error rates when compared to more traditional tests of indirect effects, namely the causal steps approach and Sobel test (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Preacher et al., 2007). Bootstrapping is a nonparametric resampling procedure to effect size estimation that does not impose the assumption of normality of the sampling distribution (Preacher & Hayes, 2008). Bootstrapping occurs by taking a large number of samples, 5000 in the current study, and computing the indirect effect for each sample. The bootstrapping procedure then constructs percentile confidence intervals, bias-corrected confidence intervals (BC), and bias-corrected and accelerated (BCa) intervals of

the indirect effect. Confidence intervals that do not include zero indicate that the indirect effect is significantly different from zero at $p < .05$.

The first moderated mediational model tested the ability of acculturative stress to mediate the relationship between perceived discrimination and psychological distress with Anglo behavioral orientation moderating the perceived discrimination and acculturative stress link. Several covariates were included in the analyses given some of the significant group differences according to gender and nativity status as well as the significant correlations observed with age, annual household income, and education level. Also, unique study variables including location of data collection and language of survey were included as covariates. As shown in Table 3, the analyses revealed that perceived discrimination significantly predicted acculturative stress, which, in turn, predicted psychological distress. Also observed was a significant Anglo behavioral orientation X perceived discrimination interaction effect on acculturative stress. The 95% confidence intervals, BCs, and BCAs calculated at the mean of Anglo behavioral orientation and one standard deviation above and below the mean ($\pm 1SD$) did not include 0 suggesting significant conditional indirect effects at these levels of the moderator variable. Furthermore, the conditional indirect effects appear stronger at low levels of Anglo behavioral orientation when compared to the mean and +1SD groups.

Table 3
Moderated Mediation Analysis for Perceived Discrimination, Acculturative Stress, Anglo Behavioral Acculturation, and Psychological Distress

	B	SE B	t			
Mediator – Acculturative stress						
Predictor: Perceived Discrimination	.77	.12	6.63***			
Moderator: Anglo Behavioral Orientation	.04	.06	0.71			
Interaction: Perceived Discrimination X Anglo Behavioral Orientation	-.09	.03	-2.91**			
Outcome – Psychological Distress						
Mediator: Acculturative Stress	6.17	1.23	5.04***			
Predictor: Perceived Discrimination	6.89	3.33	2.07*			
	Boot ind. Effect	Boot SE	Boot z	95% CI	BC 95% CI	BCa 95% CI
-1 SD	3.38	.74	4.57***	1.78, 5.28	1.82, 5.41	1.78, 5.31
Mean	2.78	.59	4.67***	1.57, 4.17	1.59, 4.23	1.58, 4.19
+1 SD	2.18	.53	4.13***	1.01, 3.59	1.11, 3.74	1.11, 3.73

Note. Location of data collection, survey language, gender, age, annual household income, education level, and nativity status were covaried in all analyses. CI = confidence interval; BC = bias corrected, BCa = bias corrected and accelerated.
* $p < .05$. ** $p < .01$. *** $p < .001$.

The same analysis as described above was conducted to test for a moderated mediational relationship of perceived discrimination,

acculturative stress, Latino behavioral orientation, and psychological distress. As with the preceding analyses, gender, nativity status, annual household income, education level, age, location of data collection, and language of survey were entered as covariates. The results did not support the moderated mediational model and showed a non-significant Latino behavioral orientation X perceived discrimination interaction effect on acculturative stress. Thus, no statistically significant conditional indirect effects were found with Latino behavioral orientation.

Discussion

The main purpose of this study was to investigate perceived discrimination and acculturative stress in relation to psychological distress among a community sample of Latinos living in the Midwestern United States. Based on a model proposed by Pascoe and Smart Richman (2009), which suggests that stress processes underlie the consequences of perceived discrimination, it was hypothesized that acculturative stress would mediate the relationship between perceived discrimination and psychological distress. Given the conceptualization provided by Berry (2006), which postulates that acculturation factors influence the experience of acculturative stress, it was expected that acculturation would moderate the perceived discrimination-acculturative stress relationship. In support of study hypotheses, the current findings provide evidence for a moderated mediational model in which perceived discrimination was associated with heightened acculturative stress, which, in turn, was related to increased psychological distress. Furthermore, Anglo behavioral orientation moderated the perceived discrimination and acculturative stress link. Given that one-third of participants scored above the clinical cut-off score for psychological distress,¹ the findings of this study build upon research that has examined the relationship of perceived discrimination to Latino mental health outcomes as influenced by cultural adaptation and associated stressors. Specifically, these findings are consistent with previous research suggesting that perceived discrimination is related to psychological functioning (Torres, 2009), and that stress processes in particular play a significant role in contributing to mental health (Pascoe & Smart Richman, 2009; Utsey et al., 2008).

Conceptualized as an experience rooted in the social hierarchy within the U.S., perceived discrimination is related to the appraisal of acculturative stress. Perceived discrimination and acculturative stress may have overlapping processes but each has distinct etiologies. Thus, the notion that discriminatory events can influence one's level of acculturative stress is particularly noteworthy and can help to explain the pervasive mental health disparities evident among Latino groups in the U.S. It is important to point out that the relatively strong correlations between acculturative stress and psychological distress as well as perceived discrimination can influence these mediational pathways. Although differentiated from general stress in previous research (Hwang & Ting, 2008), the notion that acculturative stress is tapping into some underlying stress process cannot be discounted.

A significant finding of the present study was that Anglo behavioral orientation, but not Latino behavioral orientation, moderated the relationship between perceived discrimination and acculturative stress. These results are consistent with past research among Asian populations which found that a lack of Anglo orientation was associated with maladjustment whereas no significant relationships were reported with traditional heritage acculturation (Hwang & Ting, 2008). The current study suggests that the conditional indirect effects are stronger among individuals with low Anglo behavioral orientation than those with high Anglo behavioral orientation. In other words, it appears that the ability of acculturative stress to mediate the relationship between perceived discrimination and psychological distress is more salient for Latinos at low levels of Anglo behavioral orientation. Given that language preference is a common barometer of acculturation (Zea, Reisen, & Tyler, 1996) and that English competency pressures is a central aspect of acculturative stress particularly for recent immigrants (Rodriguez et al., 2002), it may be the case that having a reduced English fluency can serve to exacerbate the acculturative stressors associated with perceived discrimination. Thus, within the context of perceived discrimination it could be that having a low Anglo behavioral orientation, in the form of decreased English acquisition, augments the acculturative stress of participants living in the Midwest region of the U.S.

Maintaining the traditional culture has been thought to provide some psychological advantages (Berry, 2006). The non-significant

moderator results of Latino behavioral orientation may be indicative of the notion that perceived discrimination and, to some extent acculturative stress, is experienced primarily when interacting with the mainstream U.S. culture. As such, the buffering effect of speaking Spanish may not be an adequate match for the demands associated with perceived discrimination. On the other hand, it could be that the protective effects of maintaining traditional Latino characteristics go beyond assessments of Spanish speaking preferences. A more comprehensive evaluation of traditional Latino social networks and/or cultural values may begin to outline the specific cultural features that are associated with mental health. For instance, *familism*, or the preference to maintain connected with family, has been purported to serve a vital function in developing sources of support against psychological problems (Santiago-Rivera, Arredondo, & Gallardo-Cooper, 2002).

As a limitation to the generalizability of the current results, participants included a convenience sample of Latinos who were living in the Midwestern U.S. and thus the findings may not extend to Latinos who live in other geographic locations. Previous epidemiological studies conducted on Latinos living in California have found prevalence rates of psychiatric disorders, and depression in particular, varied according to whether participants' resided in an urban center, rural area, or moderately-sized town (Vega, Kolody, et al., 1998). Although the current study analyzed a large number of participants, Latinos sampled from different geographical areas may experience different or more severe types of discrimination or acculturative stress as a function of their local political or cultural context. A second limitation of the present study is that the sample was comprised of Latinos of multiple cultural backgrounds. Latinos are comprised of numerous cultural groups, and the unique migratory and cultural experiences of each group influence psychological functioning (Balls Organista, Organista, & Kursaski, 2003). Therefore replication of the present study among specific Latino cultural groups is recommended. Third, the measure of acculturation used in the current study focused on behavioral features, primarily language preferences, and did not account for cognitive or affective aspects of cultural adaptation. It has been suggested that behavioral acculturation may overlook nuances evident across generations (Castillo, Conoley, & Brossart, 2004; Zane & Mak, 2003). The present findings can have

further restrictions given that the PRSL responses “not applicable” and “never” were coded as equivalent. Although this approach was guided by the original scale authors who reported equivalence across scoring methods (see Moradi & Risco, 2006), it is plausible that these responses are associated with qualitatively different experiences. Lastly, causal conclusions based on the moderated mediational model tested in the current study cannot be determined given the cross-sectional design that does not examine temporal effects.

Several strengths of the current project should be noted along with the corresponding theoretical and practical implications. First, the present study extends previous work by following a complex theoretical conceptualization to examine perceived discrimination and psychological distress. As such, the data supporting a moderated mediational model provides a sophisticated framework by which to build future research. Such a line of investigation provides a rigorous and comprehensive depiction of the factors contributing to mental health, thus, facilitating the development of culturally-appropriate intervention strategies and prevention efforts. Further investigations can begin to outline other cultural factors, such as ethnic identity, and coping variables that can moderate the discrimination-acculturative stress-psychological distress relationships. Second, the major findings provide some insight into the process that underlies the link between perceived discrimination and psychological distress among Latinos and may help to highlight the role that acculturative stress plays in successful cultural adaptation. Future studies should continue to examine perceived discrimination and acculturative stress together as well as provide a molecular-level of analysis that illustrates the specific cultural stressors that influence mental health. Finally, in terms of clinical implications, the current findings suggest that decreasing a Latino's level of acculturative stress may ameliorate the psychological consequences of experiencing discrimination. To this end, encouraging bicultural or intercultural competence can facilitate negotiating the different cultural contexts as well as identifying the key resources from each culture that provide positive psychological functioning.

Acknowledgments

This research was supported in part by a grant from the National Institute of Mental Health (Torres, R21 MH077735).

Footnotes

¹A binomial logistic regression was conducted using the BSI-18 cut-off scores as the dichotomous outcome variable (low and high psychological distress). The analyses revealed that when compared to the low psychological distress group, individuals above the BSI-18 clinical cut-off were significantly more likely to endorse perceived discrimination (OR=1.57), have increased acculturative stress (OR=3.35), and have a higher Latino behavioral orientation (OR=1.26), $\epsilon^2=114.57$, $p<.001$, Nagelkerke $R^2=.23$.

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