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Cultural Influences on Mental Health Symptoms in a Primary Care Sample of Latinx Patients

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Abstract

The present study examines how both between group (i.e., ethnic group membership) and within group cultural factors (i.e., nativity status, age of immigration, and perceived discrimination) may contribute to anxiety and related symptoms in Latinx with anxiety disorders. Baseline data were examined from patients who participated in one of the largest intervention studies for adults with anxiety disorders in primary care settings; 196 Latinx and 568 NLW (non-Latinx White) patients participated. Proportions of anxiety disorders were similar between Latinx and NLWs; however, Latinx, on average, had a greater number of anxiety disorders than NLWs. Levels of anxiety and depression symptom severity, anxiety sensitivity, and mental functional impairment were similar between the ethnic groups. Latinx expressed greater somatization and physical functional impairment than NLWs. Among Latinx, perceived discrimination, but not other cultural variables, was predictive of mental health symptoms while controlling for age, gender, education, and poverty. Overall, these findings suggest more similarities than differences in types and levels of anxiety and anxiety-related impairment, with some important exceptions, including greater levels of somatization and physical functional impairment among Latinx patients. Further, perceived

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discrimination may be an important factor to consider when examining risk for greater symptom burden among Latinx with anxiety.

Keywords

Primary care; Latino/a; Latinx; Anxiety; Somatization; Discrimination

1. Introduction

Much of the previous research on anxiety disorders among Latinx has focused on ethnic group differences in large epidemiological samples. Although results from these studies suggest mostly comparable prevalence rates for anxiety disorders among Latinx relative to non-Latinx White (NLW) individuals (Asnaani, Richey, Dimaite, Hinton, & Hofmann, 2010; Breslau et al., 2006; Grant et al., 2005; Smith et al., 2006), some studies suggest that rates of anxiety disorders may increase with higher levels of acculturation (Alegría et al., 2008; Burnam, Hough, Karno, Escobar, & Telles, 1987). More consistently, studies have found ethnic group differences in the persistence of these disorders (Breslau, Kendler, Su, Aguilar-Gaxiola, & Kessler, 2005), as well as differences in symptom expression, with Latinx reporting greater persistence and more somatic expressions of anxiety. Furthermore, studies have also found that variables such as acculturative stress and discrimination share a consistent relationship with anxious and depressive symptoms in Latinx (Berkel et al., 2010; Chou, Asnaani, & Hofmann, 2012; Finch, Kolody, & Vega, 2000; Hovey & Magana, 2000; Hwang & Goto, 2008; Otiniano Verissimo, Gee, Ford, & Iguchi, 2014; Torres, 2010).

Data also suggest heightened functional impairment in Latinx and other minority groups with anxiety when compared to NLWs (Moitra et al., 2014; Polo, Alegría, Chen, & Blanco, 2011). For instance, Polo and colleagues found higher impairment across home, work, and relationship domains for Latinx with social anxiety relative to NLWs with social anxiety. Other studies have found comparable to lower levels of functional impairment in Latinx relative to NLWs (Huang, Chung, Kroenke, & Spitzer, 2006; Ortega & Rosenheck, 2000). More research examining differential severity and burden of disability across racial and ethnic groups is necessary, especially in light of treatment outcome data suggesting that functional impairment often persists even when symptoms resolve (Stout, Dolan, Dyck, Eisen, & Keller, 2001).

A consistent finding from community and treatment-seeking samples suggests higher rates of somatization in Latinx compared to NLWs (Escobar, Gomez, & Tuason, 1983; Mezzich & Raab, 1980). Researchers have proposed that somatization may be a culturally appropriate way of expressing emotional or social distress in an individual's cultural context (Kirmayer & Young, 1998), whereas other symptoms, including cognitive symptoms of anxiety represent mental health dysfunction that is stigmatized (Varela & Hensley-Maloney, 2009). Existing studies with Latinx have typically included small sample sizes and compared NLWs in the U.S. with Latinx residing in countries outside of the U.S. More data has emerged from studies with youth, in which higher rates of somatization were found among Latinx in the U.S. and Puerto Rico when compared to NLWs; although, these studies also

found that results were dependent on region of origin and Spanish language use (Canino, Rubio-Stipec, Canino, & Escobar, 1992; Hirai, Stanley, & Novy, 2006). Additional studies examining whether somatic symptoms are differentially endorsed across Latinx and NLWs may improve both detection and the precision of treatment strategies in clinical samples.

While differences between racial/ethnic groups can be a starting point to understanding the impact of culture on anxiety and related conditions, there are also important within group differences to consider. Given that approximately 40% of the Latinx population in the United States is foreign-born (United States Department of Health and Human Services, 2001), variables related to immigration may be particularly important. It was initially thought that an individual's immigrant status (e.g., being foreign-born) would be associated with various acculturation-related and socioeconomic challenges, placing immigrants at higher risk for developing mental health problems (Leong, Park, & Kalibatseva, 2013); however, research has been mixed in its support of the immigrant risk hypothesis (Alegría et al., 2008). There is some evidence that when considering Latinx in aggregate, foreign-born individuals have lower rates of anxiety and mood disorders as well as substance abuse than their U.S.-born counterparts, a phenomenon referred to as the "immigrant paradox" (Alegría et al., 2008; Burnam et al., 1987; Vega et al., 1998). Overall, studies have yielded inconsistent results regarding risk for psychopathology by nativity status potentially due to differences among Latinx in their age of immigration, length of residency in the U.S, and region of origin (Alegría et al., 2008; Alegría, Sribney, Woo, Torres, & Guarnaccia, 2007). For instance, when examining anxiety in Latinx sub-groups (e.g., Mexicans, Cubans, and Puerto Ricans) the immigrant paradox is found most consistently in Mexicans/Mexican Americans (Alegría et al., 2008). At present, little research has examined the impact of nativity status on anxiety and depressive symptoms or functional impairment in treatment seeking samples.

A more in depth analysis of immigration suggests that age of immigration may be important to consider when examining mental health outcomes (e.g., Alegría, Sribney, et al., 2007; Mills & Henretta, 2001; Vega, Sribney, Aguilar-Gaxiola, & Kolody, 2004). Findings, although limited, suggest that individuals who either immigrate during childhood (e.g., before the age of 16) or later in life (e.g., after the age of 35) have been found to be at increased risk for psychiatric disorders (Mills & Henretta, 2001; Vega et al., 2004). It has been hypothesized that individuals immigrating in childhood are more likely to experience intergenerational conflict and stressors associated with balancing two cultures (Alegría, Sribney, et al., 2007; Suarez-Orozco & Todorova, 2003). Individuals over the age of 35, on the other hand, may encounter difficulties with language proficiency and transferring education to the U.S., thereby increasing stress (Kaplan & Marks, 1990). A better understanding of age of immigration and its impact on psychological symptoms among those seeking treatment may assist both prevention and treatment efforts.

Lastly, cultural processes such as acculturative stress, which includes distress related to adapting to a new society and perceptions of discrimination, can also enhance our understanding of the way that culture may impact mental health. Among Latinx community samples, perceived discrimination has been linked to anxiety, depression, suicidality, and substance use (Berkel et al., 2010; Chou et al., 2012; Hwang & Goto, 2008; Otiniano

Verissimo et al., 2014). Perceived discrimination also has been associated with increased number of disability days, clinic visits, poor self-rated health, and health-related quality of life in Latinx (Finch, Hummer, Kolody, & Vega, 2001; Howarter & Bennett, 2013; Otiniano & Gee, 2012). Additional attention devoted to cultural processes is necessary in order to have a more nuanced understanding of the causes of anxiety and related disorders in Latinx.

Most of the existing research findings have emerged from community-based and epidemiological surveys, and little is known about anxiety and related impairment in Latinx clinical samples. Latinx who seek treatment may have a unique clinical and sociodemographic profile, given existing data suggesting potential differences in treatment seeking between Latinx and their NLW counterparts. Overall, Latinx are less likely to seek and to receive mental health services compared to NLWs (Alegría et al., 2002; Wang et al., 2005), especially if they are less acculturated or recent immigrants (Alegría, Mulvaney-Day, et al., 2007; Cabassa, Zayas, & Hansen, 2006). Some data suggest that Latinx who receive services may take longer to seek treatment than NLWs (Wells, Klap, Koike, & Sherbourne, 2001), suggesting a longer chronological gap between onset of symptoms and treatment.

Latinx patients in primary care are particularly important to study given data suggesting that primary care medical settings are the most common context where Latinx seek mental health services (Vega & Lopez, 2001). In addition, there may be unique characteristics of primary care samples, including high rates of comorbidity between mental health problems and medical diagnoses (Smith, Soubhi, Fortin, Hudon, & O'Dowd, 2012; Wittchen, Lieb, Wunderlich, & Schuster, 1999). Although previous research has established the efficacy and feasibility of anxiety interventions for Latinx in primary care (Chavira et al., 2014; Miranda, Azocar, Organista, Dwyer, & Areane, 2003), there remains limited information about risk factors for anxiety symptoms, and mental health symptoms more generally, among Latinx in this setting. There has been some research that found that transdiagnostic factors (e.g., anxiety sensitivity; the interaction between anxiety sensitivity and other factors such as negative affectivity and social status) contribute to anxiety and depressive psychopathology among Latinx in primary care (Zvolensky et al., 2015; Zvolensky et al., 2016). The identification of risk factors among Latinx presenting to primary care will be crucial to future screening protocols and mental health interventions targeting primary care settings and underserved populations.

1.1 Aims and Hypotheses

This study addresses a need for research examining the clinical presentations of Latinx, individuals with anxiety disorders, including information on ethnic differences in diagnostic rates and symptom expression. Furthermore, this study is novel in that it goes beyond an examination of ethnic group differences and begins to explore the impact of within group variability on anxiety and related symptoms in a large primary care sample. Latinx in primary care are particularly important to study given data suggesting that primary care medical settings are the most common context where Latinx seek mental health services (Vega & Lopez, 2001).

We hypothesize that Latinx will exhibit comparable rates of anxiety disorders, and anxiety-related symptoms relative to NLWs; however, based on research that suggests Latinx are

more likely to present with mixed symptoms of anxiety and depression (Camacho et al., 2015; Fava et al., 2006), we predict Latinx will be more likely to have a comorbid diagnosis of major depressive disorder (MDD). We also hypothesize that Latinx will exhibit greater levels of somatization relative to NLWs, and that perceived discrimination will be associated with anxiety and depressive symptoms. Given limited research findings with regard to ethnic differences in functional impairment and the impact of immigration factors (i.e., nativity status and age of immigration) on anxiety, these analyses are exploratory.

2. Method

2.1 Design

This study is a substudy of one of the largest intervention studies for patients with anxiety disorders in primary care (CALM; Roy-Byrne et al., 2010). A total of 1004 primary care patients with an anxiety disorder were enrolled in the study between June 2006 and April 2008. The analyses of the present study use data from a baseline assessment of the randomized controlled effectiveness trial that compared the CALM intervention to usual care in 17 primary care clinics in 4 U.S. cities. The participating research institutions were University of Washington (Seattle, WA), University of California—Los Angeles, University of California—San Diego, University of Arkansas for Medical Sciences (Little Rock, AK), and RAND Corporation (assessment site only; Roy-Byrne et al., 2010).

2.2 Participants

A total of 764 participants with one or more anxiety disorders were included in the analyses; the participants were Latinx (n = 196), and NLW (n = 568). A total of 83 of the Latinx participants were born outside of the U.S.

2.2.1 Recruitment—Participants were referred from primary care (inclusive of routine care, health education, sick visits, and mental health-related concerns) by clinic nursing staff and primary care professionals using a five-question anxiety screening questionnaire, the Overall Anxiety Severity and Impairment Scale (OASIS; Campbell-Sills et al., 2009). After eligibility was determined, participants took part in a baseline interview before they were randomized to treatment as usual or an intervention group. All participants provided informed, written consent, which was approved by each institution's Institutional Review Board.

2.2.2 Inclusion criteria—Eligible participants were age 18 to 75, met *DSM-IV* criteria for one or more of panic disorder (PD), generalized anxiety disorder (GAD), social anxiety disorder (SAD), or post-traumatic stress disorder (PTSD), based on the Mini International Neuropsychiatric Interview for *DSM-IV* (Sheehan et al., 1998), and scored at least an 8 (moderate and clinically significant symptoms of anxiety) on the OASIS. Participants with co-occurring depression or alcohol or marijuana abuse (but not dependence) were included.

2.2.3 Exclusion criteria—Exclusion criteria were intended to exclude individuals who were unlikely to benefit from the intervention or for whom the intervention could be risky. Participants with life-threatening or unstable medical conditions, marked cognitive

impairments, active suicidal intent or plan, bipolar I disorder, or psychoses were excluded. In addition, participants with substance abuse (other than alcohol or marijuana) and patients with any substance dependence were excluded. Last, those who were already receiving CBT ($n = 7$) and those who did not speak English or Spanish ($n = 2$) were excluded.

2.3 Measures

Participants were administered self-report assessments at multiple time points to examine the impact of the CALM CBT intervention. As part of this study, only data from measures administered at baseline are examined.

2.3.1 Psychic anxiety and somatization—The Brief Symptom Inventory (BSI-18; Derogatis, 2001) is a measure of psychological distress. Respondents rate each of the BSI-18 items on a five-point Likert scale according to how distressed they felt during the past seven days. The subscales collected in the CALM study measure somatization (distress caused by the perception of bodily dysfunction), and psychic anxiety (symptoms of nervousness, tension, motor restlessness, apprehension, and panic states). The BSI-18 has been examined in numerous Latinx samples and demonstrates good reliability and validity; however, a couple studies have revealed an inconsistent factor structure, suggesting the need for further research on the psychometric properties of the BSI-18 with Latinx (Galdón et al., 2008; Torres, Miller, & Moore, 2013; Wiesner et al., 2010). In the current sample, both the anxiety and somatization subscales demonstrated good internal consistency reliabilities among NLW (Cronbach's alphas = 0.84 and 0.74 respectively), and Latinx (Cronbach's alphas = 0.85 and 0.79 respectively).

2.3.2 Anxiety sensitivity—The Anxiety Sensitivity Index (ASI; Reiss, Peterson, Gursky, & McNally, 1986) is an 16-item measure in which respondents rate items on a five-point Likert scale ranging from 0 (*very little*) to 4 (*very much*) according to the extent to which they are concerned about anxiety-related bodily symptoms (e.g., "Unusual body sensations scare me"). Responses are summed to create a total score. Studies have reported good internal consistency and convergent validity in Latinx samples (Cintrón, Carter, Suchday, Sbrocco, & Gray, 2005; Sandin, Chorot, & McNally, 1996). In the current sample, the ASI had high internal consistency among NLW (Cronbach's alpha = 0.87), and Latinx (Cronbach's alphas = 0.89).

2.3.3 Depression—The Patient Health Questionnaire (PHQ-9; Spitzer, Kroenke, & Williams, 1999) is a self-report questionnaire that assesses depressive disorders and suicidal ideation in the previous two weeks from administration. Each of the 9 items can be scored from 0 (*not at all*) to 3 (*nearly every day*). A score of 12 or greater is considered clinically significant distress. The Spanish version of the PHQ has been shown to have good reliability and validity in primary care and community samples (Diez-Quevedo, Rangil, Sanchez-Planell, Kroenke, & Spitzer, 2001; Donlan & Lee, 2010; Merz, Malcarne, Roesch, Riley, & Sadler, 2011). In the current sample, the PHQ-9 had high internal consistency among NLW (Cronbach's alpha = 0.85), and Latinx (Chronbach's alpha = 0.83).

2.3.4 Functional impairment—Functional impairment was measured with the Short Form Health Survey (SF-12; Ware, Kosinski, Bowker, & Gandek, 2002). The SF-12 is a 12 item self-report questionnaire that assesses health-related quality of life and functional impairment. Functional impairment is the extent to which health—both physical and emotional—interferes with functioning (i.e., one's ability to accomplish domestic, work-related, or social activities. The SF-12 yields a separate Physical Health Component Score (PCS) and Mental Health Component Score (MCS). The PCS consists of role limitations due to physical health and bodily pain. The MCS consists of role limitations due to personal problems, emotional problems, social functioning, vitality (energy/fatigue), and general mental health. Possible scores range from 0 to 100, with higher scores indicating better functioning. The SF–12 has been shown to be reliable and valid with Latinx samples (Ayuso-Mateos, Lasa, Vazquez-Barquero, Oviedo, & Diez-Manrique, 1999; Castillo, 2007). In the current sample, both the PCS and the MCS had high internal consistency among NLW (Cronbach's alphas = 0.87 and 0.82 respectively), and Latinx (Cronbach's alpha = 0.82 and 0.83 respectively).

2.3.5 Ethnicity and cultural variables—Participants were asked to indicate their ethnic background by choosing "Hispanic or Latino" or "Not Hispanic or Latino." They were then asked to indicate their racial background. Participants who indicated "Hispanic or Latino" from the ethnicity item and "White/Caucasian not of Hispanic/Latino descent" from the race item were included.

Perceived discrimination was measured with an item adapted from the National Latino and Asian American Survey (NLAAS; Alegría et al., 2004) in which participants indicated the frequency that they are treated unfairly due to their race or ethnicity by choosing *never, rarely, sometimes, or often*. Analyses on perceived discrimination were conducted by combining the *sometimes* and *often* categories as well as the *never* and *rarely* categories to create discrete discrimination groups.

Participants also reported their nativity status (i.e., whether or not the participant was born in the U.S.), and age of immigration. Previous research on age of immigration suggests individuals who either immigrate before the age of 16 or after the age of 35 are at increased risk for psychiatric disorders (Mills & Henretta, 2001; Vega et al., 2004); thus, age of immigration was examined as a categorical variable divided into individuals who immigrated younger than 16 (n = 31), individuals who immigrated between the ages of 16 and 35 (n = 38), and individuals who immigrated older than 35 (n = 13).

2.3.6 Other demographic information—Demographic information for each participant was collected, including age, gender, education level, and a poverty index. Poverty was determined by collecting income and calculating a weighted average income threshold based on the Federal Poverty Guidelines (United States Census Bureau, 2010), adjusted for family size, age of respondent, and number of children less than 18-years-old. Family income divided by this threshold value created a poverty ratio.

2.4 Data Analyses

One Latinx participant was not included in the perceived discrimination analyses for not responding to the discrimination item. In addition, one of the foreign-born participants did not provide information on age of immigration. All other participants had complete baseline data.

ANCOVAs accounting for demographic factors (i.e., age, gender, education, and poverty) were used to examine ethnic group differences in the anxiety diagnoses and severity of anxiety, somatization, anxiety sensitivity, depression, and functional impairment. Levene's tests verified homogeneity of variance between the groups for all outcomes with the exception of the ASI ($F = 3.27$, $p = .002$). For this reason, analyses were conducted with a log transformation of the ASI. Homogeneity of variance was verified for the log transformation of the ASI ($F = 1.22$, $p = 0.29$). Among Latinx participants, hierarchical linear regression models were used to examine the influence of cultural variables such as perceived discrimination and immigration factors on measures of anxiety and related symptoms.

3. Results

3.1 Ethnic Group Differences in Diagnoses, Comorbidity, and Symptom Expression

3.1.1 Descriptive statistics—Demographic characteristics are presented in Table 1. There was a significant difference in age between the ethnic groups ($t(762) = -2.81$, $p = .005$); Latinx participants ($M^{age} = 40.95$, $SD = 13.45$) were, on average, younger than NLW participants ($M^{age} = 44.13$, $SD = 13.74$). Latinx participants were also more often female ($\chi^2(1, n = 764) = 14.19$, $p < .001$), were less likely to have completed some college ($\chi^2(1, n = 764) = 24.95$, $p < .001$) and tended to score higher on the poverty index ($t(762) = -2.80$, $p = .005$) than NLW participants. These variables are included as covariates in the analyses. NLW ethnicity was associated with more medical conditions relative to Latinx ethnicity after controlling for age, gender, education level, marital status, alcohol use, nicotine use, BMI, and frequency of exercise (Niles et al., 2015). Hospitalizations (for any reason) in the six months prior to pretreatment were uncommon ($M = 0.13$, $SD = 0.59$) and there was no ethnic difference in number of hospitalizations in the previous six months ($p = 0.96$). Patients also reported the number of visits to primary care in the six months prior to pretreatment ($M = 4.44$; $SD = 4.87$); there was no ethnic difference in the number of these visits ($p = 0.22$).

3.1.2 Diagnostic rates and comorbidity—Overall, rates of anxiety disorders were similar for GAD, PD, SAD and PTSD between Latinx and NLW patients after covarying demographic factors (Table 2). Using a sum of the number of anxiety disorders (ranging from 1 to 4), Latinx had, on average, more anxiety diagnoses than NLWs after accounting for demographic factors; ($M = 1.89$, SD = .92 vs. $M = 1.73$, $SD = .77$), $F(1, 758) = 6.07$, $p = .05$). There was no statistically significant ethnic difference for comorbid MDD after accounting for demographic factors (Table 2).

3.1.3 Symptom expression—ANCOVAs accounting for gender, age, education, and poverty were conducted to examine ethnic group differences in symptom expression. There were no significant differences between the ethnic groups on the BSI Anxiety subscale (F(1, 758) = 0.57, p = 0.45, *partial* η^2 = .001), the ASI (F(1, 758) = 1.78, p = 0.18, *partial* η^2 = .002), the PHQ-9 (F(1, 758) = 1.88, p = 0.17, *partial* η^2 = .002), and the MCS (F(1, 758) = 0.04, p = 0.83, *partial* η^2 < .001). There was, however, an ethnic difference on the BSI Somatization subscale (F(1, 758) = 7.52, p = .006, *partial* η^2 = 0.01), with Latinx (M = 6.96, SD = 4.91) expressing more somatization than NLWs (M = 5.60, SD = 4.35). There was also an ethnic difference on the PCS (F(1, 758) = 5.02, p = 0.02, *partial* η^2 = .007), with Latinx (M = 48.38, SD = 10.56) expressing lower physical functioning than NLWs (M = 50.30, SD = 11.45). Higher scores indicate better functioning for the SF-12 subscales.

3.2 Impact of Cultural Variables on Mental Health Outcomes among Latinx

Latinx ethnicity was associated with higher rates of perceived discrimination relative to NLW ethnicity (χ^2(2, n = 764) = 88.11, p < .001); 29.74% of Latinx endorsed facing discrimination “sometimes” or “often”, relative to 8.45% of NLWs. Among Latinx, foreign nativity status was also associated with higher rates of endorsement of perceived discrimination relative to U.S. nativity status (χ^2 (2, n = 195) = 13.49, p = .001); 40.96% of foreign-born participants versus 21.43% of U.S.-born participants endorsed facing discrimination “sometimes” or “often.” Among foreign-born Latinx (41.84% of Latinx; n = 82), age of immigration ranged from 1- to 64-years-old (M = 19.62, SD = 12.40). Perceived discrimination did not differ across the age of immigration groups.

Hierarchical linear regressions were used to examine whether specific cultural experiences were associated with anxiety, somatization, depression, anxiety sensitivity and functional impairment in Latinx, while controlling for age, gender, education, and poverty. In these regression analyses, the first block included demographic factors; the second block included cultural factors that were relevant to all Latinx patients (i.e., perceived discrimination, and nativity status), and a third block included the interaction between perceived discrimination and nativity status. Full models for BSI Anxiety, BSI Somatization, ASI, and MCS, which included covariates and cultural variables, were not significant (Table 3). Significant findings emerged for depressive symptoms as measured by the PHQ-9 (R^2 = 0.11, *Adjusted* R^2 = 0.08, F(7, 187) = 3.50, p = .001). The addition of perceived discrimination and nativity status accounted for 5% of the explained variance (*F change* (2, 188) = 4.77, p = .009). Perceived discrimination was significantly associated with depressive symptoms while controlling for demographic factors (B = 2.94, t = 3.04, p = .003); nativity status was not a statistically significant predictor. Although the overall model was not significant for BSI Anxiety, perceived discrimination emerged as a significant predictor of BSI Anxiety (B = 1.81, t = 2.09, p = .03). The full model was also significant for the PCS of the SF-12 (R^2 = 0.11, *Adjusted* R^2 = 0.08, F(7, 187) = 3.36, p = .002); however, age was the only significant variable associated with PCS in the overall model (B = −0.17, t = −2.82, p = .005). In addition, perceived discrimination and nativity status accounted for 2% of this variance (*F change*(2, 188) = 2.59, p = .05). The interaction between perceived discrimination and nativity status was not significant for any of the mental health outcomes.

A second set of hierarchical regressions was conducted with only foreign-born Latinx (n = 82; Table 4) in order to examine the impact of age of immigration, which has been shown to be associated with mental health outcomes (e.g., Alegría, Sribney, et al., 2007; Mills & Henretta, 2001; Vega et al., 2004). In these analyses, the first block included demographic factors and the second block included perceived discrimination, and early (younger than 16 years) or late (older than 35 years) age of immigration. Given that previous research suggests both early and late ages of immigration are potential risk factors for psychopathology (Mills & Henretta, 2001), age of immigration between the ages of 16 and 35 was coded as the reference group.

Similar to the analyses which included all Latinx, the full model was significant for the PHQ-9 (R^2 = 0.18, *Adjusted* R^2 = 0.10, $F(7, 74) = 2.27$, $p = 0.03$). The addition of perceived discrimination and age of immigration accounted for 12% of the explained variance (*F change*$(3, 74) = 3.47$, $p = .02$). Higher perceived discrimination and lower education level were significantly associated with higher PHQ-9 scores ($B = 4.08$, $t(74) = 2.91$, $p = .005$); however, age of immigration was not significant. Models predicting the BSI Anxiety, BSI Somatization, ASI, MCS, and PCS were not significant in foreign-born Latinx.

4. Discussion

This study is the first to examine both ethnic group differences and cultural predictors of mental health symptoms in a large clinical sample of Latinx with anxiety disorders. Research with large samples of Latinx are generally epidemiological studies that focus on distal predictors of mental health—mainly, ethnic group differences in diagnostic rates (Asnaani et al., 2010; Grant et al., 2005; Smith et al., 2006). Research has less frequently focused on clinical samples of Latinx. This is likely because many clinical trials do not include large enough samples to conduct separate ethnic analyses (e.g., Porensky et al., 2009; Rollman et al., 2005; Stein et al., 2004; Watts, Turnell, Kladnitski, Newby, & Andrews, 2015; Weisberg, Dyck, Culpepper, & Keller, 2007). The CALM study offers the largest clinical sample of Latinx (n = 196), allowing for an examination of both between group ethnic differences in measures of anxiety and related impairment as well as a closer look at within group differences (i.e., perceived discrimination, nativity status, and age of immigration) that may be associated with anxiety in this clinical sample.

The proportion of Latinx in this study with each of the respective anxiety disorders was similar to that of their NLW counterparts. These findings mirror patterns that emerge from epidemiological studies, where there do not seem to be significant differences between Latinx and NLWs in rates of specific types of anxiety disorders (Asnaani et al., 2010; Grant et al., 2005; Smith et al., 2006). Results from the present study also add to the mixed literature that has found both similar and higher risk for PTSD in Latinx compared to NLWs (Alcántara, Casement, & Lewis-Fernández, 2013; Alegría et al., 2013; Roberts, Gilman, Breslau, Breslau, & Koenen, 2011). Discrepant results may be attributed to variability in culture of origin. For instance, previous studies have found increased risk for PTSD among Dominicans and Puerto Ricans (but not other Latinx groups) relative to NLWs (Galea et al., 2004). Data regarding Latinx ethnic subgroups were not examined in the present study;

however, given U.S. Census Bureau statistics from participating regions, participants were most likely to be of Mexican origin (United States Census Bureau, 2010).

This study also addressed the question of whether Latinx present with greater symptom severity and functional impairment than NLWs in a primary care sample. Overall, there were similar levels of cognitive symptoms of anxiety, depression, anxiety sensitivity, and mental health functional impairment across Latinx and NLW patients; however, Latinx endorsed greater levels of physical functional impairment, and somatization than NLWs. The lesser rates of comorbid medical conditions (e.g., diabetes, hypertension) among Latinx in this sample relative to African Americans and NLWs (Niles et al., 2015) suggest that these findings cannot be attributed to differences in rates of medical illnesses. Although these differences in physical functional impairment and somatization are notable, effect sizes were small (*partial* η^2 = .007 and 0.01 respectively), suggesting only minimal ethnic groups differences. These findings provide partial support for the hypothesis that Latinx wait until symptoms are more severe to seek services, however, in this case, it may be increased perceived severity of somatic symptoms and impairment, rather than cognitive anxiety and worry, that prompts service seeking.

Greater endorsement of somatization among Latinx may be explained using a cultural framework. Researchers have proposed that somatization may be a culturally appropriate way of expressing emotional or social distress in an individual's cultural context (Kirmayer & Young, 1998) whereas other symptoms, including cognitive symptoms of anxiety represent mental health dysfunction that is stigmatized (Varela & Hensley-Maloney, 2009). In addition, Latinx may hold conceptualizations of the origins of symptoms as stemming from physiological causes, reflecting belief in a reciprocal connection between mind and body (Kirmayer & Young, 1998). This is evident in Spanish-language terminology, such as the term *nervios*, which reflects a broad range of mental and physical states including anxiety and somatization (Salgado de Snyder, Diaz-Perez, & Ojeda, 2000). Others have explained that Latinx believe that they are more likely to receive care if they disclose physical problems rather than mental health problems (Canino et al., 1992).

This study also sought to go beyond an examination of ethnic differences to better understand how within group variability might contribute to anxiety symptoms. Consistent with this aim, we examined the contribution of cultural variables relevant to Latinx, including nativity status, age of immigration, and perceived discrimination. Perceived discrimination, but not other cultural variables, was significantly associated with mental health symptoms, specifically depression. The addition of culture-related variables accounted for 5% and 12% (all Latinx and foreign-born Latinx respectively) of the explained variance in the models over and above demographic factors. This is consistent with previous research suggesting a connection between discrimination and depression in community samples (Berkel et al., 2010; Chou et al., 2012; Hwang & Goto, 2008). One of the most critical areas for future research is to identify mechanisms by which perceived discrimination may adversely affect health (Williams, Neighbors, & Jackson, 2003). The prevailing theory implicates stress as a potential causal mechanism. For instance, Hwang and Goto (2008) found that not just perceived discrimination, but the appraisal of discriminatory experiences as stressful, is predictive of mental health problems. Stressors that are

uncontrollable and unpredictable are particularly detrimental to health (Williams & Mohammed, 2009).

Despite previous research indicating an association between nativity status, age of immigration, and mental health symptoms (e.g., Alegría et al., 2008; Alegría, Sribney, et al., 2007; Vega et al., 1998), the current study did not support these relationships. It is possible the present sample lacked sufficient variability in acculturation levels to capture the association between immigration factors and mental health problems. A majority of the sample from the present study was English-speaking and mean length of residency was 25 years suggesting a higher level of acculturation. Differences may be captured when comparisons are made between more and less acculturated individuals, potentially with a sample that includes those who immigrated more recently.

4.1 Limitations

The CALM study focused on the overall effectiveness of a CBT model of treatment delivery for patients with anxiety disorders in primary care; as such, it was not designed to focus on ethnic group differences, and measures of acculturation and acculturative stress were not included in this study. Nativity status and age of immigration are only proxies of acculturation; further research needs to be conducted using validated measures of acculturation and acculturative stress in clinical samples. Although this is the largest clinical sample of Latinx with anxiety disorders, sample size of foreign-born, Latinx individuals was not large enough to examine potential interactions between perceived discrimination and age of immigration in foreign-born individuals. Given previous research suggesting differential endorsement of perceived discrimination depending on age of immigration (Brondolo et al., 2015), future research should focus on the potential interactions between these constructs in their impact on mental health symptoms.

Furthermore, the Latinx sample size did not allow for separate analyses depending on region of origin. Previous research suggests that disaggregating Latinx by their regions of origin reveals differences in rates of disorders (Alegria, Canino, Stinson, & Grant, 2006). For instance, island-born and mainland U.S.-born Peurto Ricans, but not U.S.-born Cuban Americans or Mexican Americans, experience a greater risk of anxiety and mood disorders than NLWs, after adjusting for sociodemographic characteristics (Alegria et al., 2006). A limitation of the present study was that data regarding Latinx ethnic subgroups were not collected; however, given U.S. Census Bureau statistics from participating regions, participants were most likely to be of Mexican origin (United States Census Bureau, 2010). Future research should focus on the impact of the interactions between region of origin and within group factors such as perceived discrimination on mental health symptomology.

In addition, perceived discrimination was assessed using an item in which participants were asked how often they are treated unfairly due to their race or ethnicity. Although previous studies have assessed discrimination in a similar manner (e.g., Spencer, Chen, Gee, Fabian, & Takeuchi, 2010; Zhang, Hong, Takeuchi, & Mossakowski, 2012), further research using well-validated measures of discrimination, both attitudinal and actual, are necessary.

Last, it is important to note that although the clinical nature of the sample is viewed as a strength of the study, it affects the generalizability of findings. In particular, estimates of comorbidities may reflect a bias toward higher rates of comorbidities inherent in primary care samples (Galbaud du Fort, Newman, & Bland, 1993).

4.2 Implications and Future Directions

Results from this study have a number of practical implications for Latinx who are seeking treatment for mental health problems. While there were not differences in severity of anxiety, some data suggest more subtle differences including greater levels of somatization and physical functional impairment. It is possible that Latinx may not seek services until physical symptoms lead to impairment. This tendency for Latinx to endorse more somatic symptoms and physical impairment should be considered when conducting mental health screening and assessments with Latinx. Physiological symptoms (e.g., stomachache, trouble catching one's breath, tiredness) may be indicators of anxiety less notable to clinicians than traditional symptoms of cognitive worry and avoidance behaviors.

There were also notable ethnic differences in sociodemographic characteristics of patients presenting to primary care. Latinx were, on average, younger, more likely to be female, less likely to have completed some college, and tended to score higher on the poverty index than NLWs. Some of these differences may be characteristics of the general population (e.g., population-level ethnic differences in age, education, and poverty; United States Census Bureau, 2010); however, they may also reflect interactions between ethnicity and demographic factors in predicting access to and use of health care (e.g., lack of service use among Latinx elderly or Latino men). Future research may focus on the clinical presentations of Latinx presenting to primary care as they are influenced by these factors.

Future research should also assess the impact of perceived discrimination on health behaviors (e.g., impaired sleep hygiene, decreased physical activity, substance use; Williams et al., 2003). In addition to the impact of discrimination on depression, studies have found that perceived discrimination is associated with substance use (Otiniano Verissimo et al., 2014), and lower medication compliance (Cuffee et al., 2013). Further research is needed to understand if the tendency to report discrimination experiences is associated with negative treatment expectancies, lower comprehension of therapeutic materials, or treatment dropout. Such studies could inform whether discrimination should be a potential target for cultural adaptations among Latinx with anxiety and depressive disorders.

Last, this study examines the contribution of ethnic group membership and within group cultural factors to anxiety symptoms and functional impairment at a single time point, but not how these factors relate to the chronicity of mental health symptoms or to the persistence of functional impairment over the lifetime. Previous research on the relationship between Latinx ethnic group membership and persistence of anxiety symptoms is limited; however, Latinx may experience more persistence in mood disorders relative to NLWs (Breslau et al., 2005). In addition to racial/ethnic differences, the importance of within group factors (e.g., nativity status, perceived discrimination) in predicting the persistence of mental health symptoms and functional impairment over the lifetime is unknown and an area for future research.

5. Conclusion

Although these findings indicate that Latinx have similar diagnostic profiles to NLWs upon entering treatment, cultural differences in patient perceptions and expression of symptoms may inform clinical conceptualizations and decision-making when working with Latinx. Furthermore, this study goes beyond the examination of a distal cultural predictor of mental health symptoms (i.e., ethnicity) and addresses whether proximal cultural characteristics are relevant in predicting symptomology in a treatment-seeking context. Discrimination, in particular, is a salient cultural factor associated with internalizing symptoms that may be incorporated into treatment with Latinx patients.

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Highlights

- Proportions of specific anxiety disorders are similar between Latinx and non-Latinx Whites in a primary care sample.
- Latinx expressed greater levels of somatization and physical functional impairment than non-Latinx Whites.
- Perceived discrimination may be an important factor to consider when examining risk for greater symptom burden among Latinx with anxiety.

Table 1

Demographic characteristics by ethnicity

Measure	Ethnicity				*t*	*p*
	Latino (N=196)		Non-Latino White (N=568)			
	M	*SD*	*M*	*SD*		
Age	40.95	13.45	44.13	13.74	−2.81	.005
Poverty *	3.26	2.30	5.20	9.56	−2.80	.005
	N	%	*N*	%	χ^2	*p*
Sex					14.19	< .001
Male	40	20.41%	198	34.86%		
Female	156	79.59%	370	65.14%		
Education					24.95	<.001
Grade 12 or less	69	35.20%	102	17.96%		
Some college or more	127	64.80%	466	82.04%		

* Income adjusted for family size and age of respondent. Using Federal Poverty Guidelines (U.S. Census Bureau, 2010), we defined individuals with regard to the poverty line such that 0 = poverty level, 1 = 100% above poverty line, 2 = 200% above poverty line, 3 = 300% above the poverty line, etc.

Table 2

ANCOVAs examining ethnic differences in the rates of each of the anxiety disorders and the total number of anxiety disorders after covarying age, gender, education, and poverty. In addition, the proportions of diagnoses and average number of anxiety disorders by ethnicity are presented.

	F	*p*	Rates of diagnoses by ethnicity *N* (%)	
			Latino	**non-Latino White**
GAD	0.05	0.82	147 (75.00%)	424 (74.65%)
PD	1.00	0.32	99 (50.51%)	261 (45.95%)
SAD	1.77	0.18	89 (45.41%)	214 (37.68%)
PTSD	0.87	0.35	37 (18.88%)	85 (14.96%)
MDD	1.23	0.27	133 (67.86%)	345 (60.74%)
	F	***p***	***M* (*SD*)**	***M* (*SD*)**
Number of anxiety disorders	3.76	.05	1.90 (0.92)	1.73 (0.77)

Table 3

Hierarchical regressions with all Latinos (n = 195). Model 1: demographic factors, including age, gender, education and poverty. Model 2: demographic factors, perceived discrimination, and nativity status.

	Model 2						
	R^2	*Adj* R^2	*F*	*p*	*B*	*SE*	*t*
BSI Anxiety	0.04	0.02	1.49	0.18			
Age					−0.03	0.03	−0.97
Gender					−0.81	0.97	−0.83
Education					−0.19	0.83	−0.23
Poverty					−0.25	0.18	−1.41
Discrimination					1.81	0.87	2.09*
Nativity Status					0.66	0.86	0.78
BSI Somatization	0.06	0.03	2.11†	.05			
Age					−0.02	0.03	−0.85
Gender					−0.98	0.88	−1.11
Education					−0.31	0.75	−0.41
Poverty					−0.33	−0.16	−2.08*
Discrimination					1.53	0.78	1.95†
Nativity Status					−0.27	0.78	−0.34
PHQ-9	0.11	0.08	3.98**	.001			
Age					0.03	0.03	0.84
Gender					.004	1.09	.004
Education					−2.18	0.93	−2.35*
Poverty					−0.27	0.19	−1.38
Discrimination					2.94	0.97	3.04**
Nativity Status					−0.16	0.96	−0.17
ASI	0.02	0.01	0.54	0.78			
Age					−0.02	0.08	−0.27
Gender					−1.18	2.63	−0.45

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					Model 2		
	R^2	*Adj* R^2	*F*	*p*	*B*	*SE*	*t*
Education					−0.19	2.24	−0.09
Poverty					−0.09	0.47	−0.20
Discrimination					1.68	2.34	0.72
Nativity Status					−2.90	2.31	−1.25
PCS	0.11	.08	3.94**	.001			
Age					−0.17	0.06	−2.83**
Gender					0.16	1.84	0.09
Education					−0.11	1.57	−0.07
Poverty					0.51	0.33	1.52
Discrimination					−3.04	1.64	−1.85
Nativity Status					1.73	1.62	1.06
MCS	0.04	.007	1.24	0.29			
Age					0.01	0.06	0.18
Gender					−1.67	1.86	−0.90
Education					1.05	1.59	0.66
Poverty					0.39	0.34	1.16
Discrimination					−3.14	1.66	−1.89†
Nativity Status					−1.59	1.64	−0.97

† .05 < p < .10

* p < .05

** p < .01

Table 4

Hierarchical regressions with only foreign-born Latinos (n = 82). Model 1: demographic factors, including age, gender, education and poverty. Model 2: demographic factors, perceived discrimination, and age of immigration.

					Model 2		
	R^2	*Adj* R^2	*F*	*p*	*B*	*SE*	*t*
BSI Anxiety	0.10	0.01	1.14	0.35			
Age					−0.04	0.05	−074
Gender					−1.69	1.52	−1.11
Education					0.38	1.27	0.30
Poverty					−0.20	0.40	−0.49
Discrimination					2.74	1.29	2.12*
Age of Immigration- < age 16					1.60	1.45	1.10
Age of immigration- > age 35					−0.95	1.90	−0.50
BSI Somatization	0.09	0.03	1.03	0.41			
Age					−0.02	0.05	−0.42
Gender					−1.48	1.46	−1.02
Education					0.69	1.22	−0.56
Poverty					−0.43	0.38	−1.13
Discrimination					2.43	1.24	1.95†
Age of Immigration- < age 16					−1.29	1.40	0.92
Age of immigration- > age 35					−1.11	1.83	−0.60
PHQ-9	0.18	0.10	2.27*	0.03			
Age					0.06	0.06	0.95
Gender					−0.08	1.65	−0.05
Education					−2.59	1.37	−1.89†

	Model 2						
	R^2	*Adj* R^2	*F*	*p*	*B*	*SE*	*t*
Poverty					0.15	0.43	0.35
Discrimination					4.08	1.40	2.91**
Age of Immigration- < age 16					−1.54	1.58	−0.98
Age of immigration- > age 35					−3.85	2.06	−1.86†
ASI	0.05	0.03	0.61	0.75			
Age					−0.14	0.16	−0.90
Gender					0.58	4.35	0.13
Education					3.48	3.62	0.96
Poverty					−0.49	1.13	−0.44
Discrimination					5.91	3.70	1.60
Age of Immigration- < age 16					0.68	4.16	0.16
Age of immigration- > age 35					−0.89	5.45	−0.16
PCS	0.07	0.02	0.79	0.60			
Age					−0.07	0.10	−0.70
Gender					−2.09	2.91	−0.72
Education					−1.75	2.42	−0.72
Poverty					0.77	0.76	1.02
Discrimination					−3.37	2.48	−1.36
Age of Immigration- < age 16					2.36	2.78	0.85
Age of immigration- > age 35					2.85	3.64	0.78
MCS	0.09	.008	1.09	0.38			

	Model 2						
	R^2	*Adj* R^2	*F*	*p*	*B*	*SE*	*t*
Age					−0.04	0.09	−0.47
Gender					0.59	2.54	0.23
Education					0.76	2.12	0.36
Poverty					0.06	0.66	0.08
Discrimination					−4.91	2.16	−2.27*
Age of Immigration-< age 16					−2.83	2.43	−1.16
Age of immigration-					2.08	3.18	0.65

† .05 < p < .10

* p < .05

** p < .01