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Authors

Escovar, Emily
Bocanegra, Elizabeth
Craske, Michelle
et al.

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Mediators of ethnic differences in dropout rates from a randomized controlled treatment trial among Latinx and non-Latinx White primary care patients with anxiety disorders

Emily L. Escovar, PhD[1], **Elizabeth S. Bocanegra, BA**[1], **Michelle Craske, PhD**[1], **Alexander Bystritsky, MD**[2], **Peter Roy-Byrne, MD**[3], **Cathy D. Sherbourne, PhD**[4], **Murray B. Stein, MD, MPH**[5], **Greer Sullivan, MD, MSPH**[6], **Denise A. Chavira, PhD**[1]

[1]Department of Psychology, University of California, Los Angeles, Los Angeles, CA, USA

[2]Department of Psychiatry & Biobehavioral Sciences, University of California, Los Angeles, Los Angeles, CA, USA

[3]Center for Healthcare Improvement for Addictions, Mental Illness, and Medically Vulnerable, Populations (CHAMMP), University of Washington at Harborview Medical Center, USA

[4]RAND Corporation, Santa Monica, CA, USA

[5]Department of Psychiatry and Department of Family Medicine & Pubic Health, University of California, San Diego, La Jolla, CA, USA

[6]South Central VA Mental Illness Research Education and Clinical Center, North Little Rock, AK, USA; University of Arkansas for Medical Sciences, USA, School of Medicine, University of California, Riverside, Riverside, CA, USA

Abstract

Disparities in treatment engagement and adherence based on ethnicity have been widely recognized but are inadequately understood. Few studies have examined treatment dropout among Latinx and non-Latinx White (NLW) individuals. Using Andersen's Behavioral Model of Health Service Use (Andersen, 1968, 1995) as a framework, we examine whether pretreatment variables (categorized as predisposing, enabling and need factors) mediate the relationship between ethnicity and premature dropout in a sample of Latinx and NLW primary care patients with anxiety disorders who participated in a randomized controlled trial (RCT) of Cognitive Behavioral Therapy. Data from a total of 353 primary care patients were examined; 96 Latinx and 257 NLW patients participated. Results indicated that Latinx patients dropped out of treatment more often than NLW patients, resulting in roughly 58% of Latinx patients failing to complete treatment compared to 42% of NLW, and approximately 29% of Latinx patients dropping out prior to engaging in modules related to cognitive restructuring or exposure, relative to 11% of NLW patients. Mediation analyses suggest that social support and somatization partially explained the relationship between ethnicity and treatment dropout, highlighting the importance of these variables in understanding treatment disparities.

*Correspondence should be addressed to Emily Escovar, Ph.D. (emilyescovar@ucla.edu).

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Keywords

Latinx; dropout; treatment; engagement; anxiety

Mediators of ethnic differences in dropout rates among Latinx and non-Latinx White patients

Minority groups such as African Americans, Asian Americans, and Latinx have less access to mental health care, and are less likely to receive services that match their needs compared to their non-minority counterparts (Alegría et al., 2007; United States Department of Health and Human Services, 2001; Vega & Alegría, 2001). This is particularly true among Latinx who are recent immigrants or less acculturated (Alegría et al., 2007; Cabassa et al., 2006). In general, racial-ethnic minorities also attend fewer treatment sessions (Chavira et al., 2014) and are less likely to adhere to psychotropic medication recommendations (Diaz et al., 2005; Olfson et al., 2006). Among primary care patients receiving treatment for anxiety or depression, studies report lower therapeutic engagement and higher dropout among racial and ethnic minorities when compared to non-Latinx White individuals (Chavira et al., 2014; O'Brien et al., 2008). To date, studies examining the influence of culture on mental health service utilization often rely on categorical variables such as ethnic group membership, however there are also salient proximal constructs (e.g., attitudes about treatment, social support, etc.) that may explain variance in treatment engagement among minority groups.

Conceptual models that examine how culture influences mental health propose that cultural variables such as ethnicity shape values, attitudes, beliefs, and behaviors that in turn, influence the conceptualization, expression, detection, and diagnosis of mental health problems as well as help-seeking behaviors (Chavira et al., 2020). Models of health service use, more specifically, provide a framework for understanding the ways in which values, attitudes, and beliefs may impact mental health service use, inclusive of initial service use and treatment dropout. Andersen's Behavioral Model of Health Service Use (Andersen, 1968, 1995), in particular, proposes that there are varying levels of influence that impact service use. At the individual level these factors include predisposing (e.g., demographic characteristics, attitudes, values), enabling (e.g., insurance, social support), and need characteristics (e.g., symptom severity). Apart from these individual level factors, environmental influences such as health system factors and provider level characteristics are also considered in Andersen's model (Andersen, 1968, 1995).

Research examining predisposing factors (aside from ethnicity), such as gender, age, marital status, and education level indicates that younger age, and lower education levels are the most consistent variables that predict premature dropout, whereas other factors such as gender and marital status are not consistently predictive (Swift & Greenberg, 2012; Wierzbicki & Pekarik, 1993). Attitudes toward mental health treatment also have been shown to influence service use and engagement in treatment (Cabassa & Zayas, 2007; Castillo et al., 1995; Interian et al., 2007). Findings from multiple studies suggest that individuals from ethnic minority groups are less likely to utilize services because of stigmatizing perceptions about mental illness that often originate from families, social

networks, and religious contexts (Schraufnagel et al., 2006). Among Latinx, findings suggest that attitudes such as negative labeling extend both to depression symptoms and use of antidepressant medication (Interian et al., 2007) and that Latinx individuals also report greater embarrassment about having a mental illness than African Americans or European Americans, which has been attributed to greater concerns about disappointing family (Jimenez et al., 2013). The extent to which stigma explains ethnic disparities in premature treatment dropout requires additional attention.

Enabling factors (i.e., factors related to access to services) have been examined as predictors of service use among Latinx individuals, including health insurance status (Albizu-Garcia et al., 2001; Vega et al., 2001), income (Alegría et al., 2002), and presence of cultural competency training among providers (Bernal & Castro, 1994; McGuire & Miranda, 2008). Enabling factors may be shaped, in part, by ethnicity. For example, some racial-ethnic minorities, including Latinx individuals, are more likely to be exposed to inequitable policies in employment and education that contribute to ethnic differences in enabling factors such as income and access to resources (Braveman et al., 2010). Low income has been found to be related to premature dropout from mental health services in the general population (De Haan et al., 2013; Edlund et al., 2002; Roseborough et al., 2016; Warden et al., 2009). Additionally, in a treatment study that addressed poverty-related barriers to treatment, Miranda and colleagues (2003) found that 17.1% of Latinx who received CBT plus case management (designed to address logistic and income related barriers to treatment) dropped out of treatment relative to 40.5% of Latinx in the CBT-only condition, suggesting that enabling factors play an important role in retention in psychotherapy for this group.

Other enabling factors such as acculturative stress, defined as stress related to discrimination and adaptation to a new society, are more directly impacted by ethnic group membership. With regard to discrimination, Latinx experience higher levels of perceived and actual discrimination relative to non-Latinx White individuals (Hovey et al., 2000). Among patients presenting to primary care, Latinx patients report higher levels of perceived discrimination than non-Latinx White patients (Escovar et al., 2018). Although the impact of perceived discrimination on Latinx service use and engagement has not been examined, perceived discrimination has been found to be associated with use of informal services in Asian Americans (Spencer et al., 2010) and lower mental health service utilization in non-Latinx White, Black, and Asian groups (Burgess et al., 2008).

Lastly, individuals who identify as Latinx often endorse cultural beliefs and values that emphasize the importance of physical, emotional, and social support within the family (Steidel & Contreras, 2003). As an enabling factor, the effects of social support on mental health service use have been varied. On the one hand, greater social support has been viewed as a factor that facilitates service use and treatment engagement given its potential to offset potential barriers to treatment-seeking and retention such as lack of transportation and childcare. Alternatively, individuals who have social support may perceive less of a need for treatment or require less of it. For instance, family support is associated with more favorable self-rated mental health (Mulvaney-Day et al., 2007). In other studies, low levels of familial social support have been associated with an increased likelihood of dropout (Chang & Biegel, 2018). Some studies suggest that Latinx family members exert an

influence over whether or not a patient should adhere to treatment; in these instances, Latinx with mental health problems may experience familial conflicts and limited social support that deter appropriate service use (Interian et al., 2007). Given the importance of family, and interpersonal relationships within Latinx groups, the impact of social support on mental health service use requires further investigation (Cardoso & Thompson, 2010; Sabogal et al., 1987; Valdivieso-Mora et al., 2016).

Need factors are some of the most consistent predictors of past-year service use for Latinx (Alegría et al., 1991; Cabassa et al., 2006). Among Latinx, factors such as functional impairment, comorbidity, poor physical health, and symptom severity have been associated with service use even after adjusting for demographic factors, social network variables, and health insurance (Cabassa et al., 2006). While results from epidemiological surveys suggest mostly comparable prevalence rates for anxiety disorders among Latinx and non-Latinx White individuals (Asnaani et al., 2010; Breslau et al., 2006; Grant et al., 2005; Smith et al., 2006), some studies suggest that Latinx individuals experience more acute internalizing symptomatology than other racial-ethnic groups, including negative mood (Kann et al., 2016), somatic symptoms (McLaughlin et al., 2007; Pina & Silverman, 2004; Varela et al., 2004), depression severity (McLaughlin et al., 2007), and worries (McLaughlin et al., 2007; Varela et al., 2004). Data also suggest heightened functional impairment in Latinx and other minority groups when compared to non-Latinx White individuals (Moitra et al., 2014; Polo et al., 2011), although findings have been inconsistent (Huang et al., 2006; Ortega & Rosenheck, 2000).

In general, low initial symptom severity across disorders has typically been associated with premature dropout (Issakidis & Andrews, 2004; Simon & Ludman, 2010); however, research has also found that patients with mental health comorbidities, including comorbidities between mood and anxiety disorders (Issakidis & Andrews, 2004; Olfson et al., 2009), and greater levels of functional impairment (Jennings et al., 2016) are more likely to drop out of both medical and psychiatric treatment. Studies that cite an association between low initial symptom severity and premature dropout (e.g., Issakidis & Andrews, 2004; Simon & Ludman, 2010) have been conducted with the general population and use general measures of anxiety or depression that do not separately examine cognitive and somatic symptoms (e.g., Depression Anxiety Stress Scales; Penn State Worry Questionnaire; Patient Health Questionnaire). Given that Latinx with anxiety and depression report higher levels of somatization relative to non-Latinx White individuals (Escovar et al., 2018; Gureje et al., 1997), it is important to consider the unique contribution of somatic symptoms when examining the impact of severity on premature dropout. In a cultural context that emphasizes the salience of physical symptoms (Escovar et al., 2018), low initial somatization may reflect a lack of perceived need among patients, and be an indicator of subsequent dropout. On the other hand, high levels of somatization may be reflective of mental health stigma (Kirmayer, 2001; McNealy & Lombardero, 2020), which also has been shown to be associated with premature dropout (Ben-Noun, 1996; Olfson et al., 2009; Sirey et al., 2001). Overall, while somatic symptoms are a salient type of distress among Latinx, their association with dropout has been understudied.

The Present Study

The purpose of this study is to examine whether pretreatment variables mediate the relationship between ethnicity and premature dropout in a sample of Latinx and non-Latinx White adults participating in a CBT intervention for anxiety, the Coordinated Anxiety and Learning Management (CALM) study (further information on the CALM study can be found in the Method section). While varying definitions of dropout exist, premature dropout has often been defined as occurring when a patient stops the intervention without completing the recommended course of treatment or without gaining the full benefits that would have been available if the patient had continued to attend (Swift & Greenberg, 2012). In the case of the CALM protocol, failure to complete the relapse prevention module was used as one index of premature dropout (Chavira et al., 2014; Glenn et al., 2013). Alternatively, the discontinuation of treatment before the completion of sessions containing theorized mechanisms of change in CBT, including cognitive restructuring and exposure (i.e., evidence-based practice dosage dropout), was used as a separate way of conceptualizing dropout (McLean et al., 2001; Wergeland et al., 2015). A well-established theoretical framework, Andersen's Behavioral Model of Health Service Use (Andersen, 1968, 1995), was used to inform the selection of potential mediators of the relationship between ethnicity and dropout. Previous research suggests that factors from each of the categories posited by Andersen's model—predisposing, enabling, and need—are relevant for predicting treatment uptake and past-year service use in Latinx and non-Latinx White individuals (Cabassa et al., 2006). To our knowledge, this is the first study to examine predisposing, enabling, and need factors as potential mediators that explain the relationship between ethnicity and premature dropout.

Aims and Hypotheses

Hypothesis 1.—It was hypothesized that predisposing attitudinal factors, such as beliefs about treatment and stigma, would mediate the relationship between ethnicity and premature dropout, operationalized as both relapse prevention dropout (RP dropout) and evidence-based practice dosage dropout (hereafter referred to as dosage dropout), after accounting for demographic factors and treatment site. It was predicted that Latinx patients, relative to non-Latinx White patients, would have higher levels of negative beliefs about treatment and stigma. In addition, it was predicted that these attitudinal variables would be associated with greater premature dropout. Mediation analyses that included dosage dropout were exploratory given the absence of previous studies that have examined this alternative conceptualization of dropout.

Hypothesis 2.—It was hypothesized that poverty, social support, and perceived discrimination would mediate the relationship between ethnicity and premature dropout (operationalized as both RP dropout and dosage dropout). It was predicted that Latinx patients would have higher levels of poverty and perceived discrimination and lower levels of perceived social support. It was predicted that higher poverty, lesser social support, and higher perceived discrimination would be associated with greater dropout. Mediation analyses that used dosage dropout as the outcome variable were exploratory given that absence of previous studies that have examined this alternative conceptualization of dropout.

Hypothesis 3.—It was hypothesized that somatic symptom severity would mediate the relationship between ethnicity and premature dropout (operationalized as both RP dropout and dosage dropout). It was predicted that Latinx would endorse higher levels of somatic symptoms. It was also predicted that greater somatic symptoms would be associated with greater dropout. Due to the mixed literature regarding group differences for cognitive symptoms of anxiety, depressive symptoms, comorbidity between anxiety disorders, and functional impairment, analyses with these variables were exploratory. Mediation analyses that included the alternative conceptualization of dropout (dosage dropout) were also exploratory.

Method

Participants.

A total of 353 primary care patients with one or more anxiety disorders who were participants in the CALM intervention, and identified as Latinx ($n = 96$) or non-Latinx White ($n = 257$), were included in the analyses. A total of 38 Latinx and 18 non-Latinx White participants were born outside of the U.S. Eligible patients were age 18- to 75-years-old, met *DSM-IV* criteria for one or more disorder, including panic disorder (PD; 50% Latinx, 44.7% non-Latinx White), generalized anxiety disorder (GAD; 80.2% Latinx, 75.1% non-Latinx White), social anxiety disorder (SAD; 47.9% Latinx; 38.9% non-Latinx White), or post-traumatic stress disorder (PTSD; 29.2% Latinx; 13.6% non-Latinx White) (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 Overall Anxiety Severity and Impairment Scale (OASIS; Campbell-Sills et al., 2009). Patients with co-occurring depression or alcohol or marijuana abuse (but not dependence) were included in the CALM study. Patients unlikely to benefit from the CALM intervention, such as those with unstable medical conditions, marked cognitive impairments, active suicidal intent or plan, bipolar I disorder, or psychoses were excluded. In addition, patients with substance abuse (other than alcohol or marijuana) or any substance dependence were excluded.

Recruitment.

Patients were recruited from 17 primary care clinics at 4 sites across the United States. Patients were referred by primary care professionals and clinic nursing staff using a five-question anxiety screener, the OASIS (Campbell-Sills et al., 2009). Referred patients met with an Anxiety Clinical Specialist (ACS), who was trained on the study protocol. After eligibility was determined, patients took part in a baseline interview before they were randomized to either the treatment as usual or the intervention group. All patients provided informed, written consent, which was approved by each institution's Institutional Review Board.

Randomization and treatment selection.

A total of 104 Latinx patients and 279 non-Latinx White patients were randomized to receive the CALM intervention. All 383 patients completed baseline questionnaires. Out of these patients, 17 dropped out prior to starting the intervention ($n^{Latinx} = 11$; $n^{NLW} = 6$). A majority of the remaining patients selected to receive the CBT intervention ($n = 336$; n^{Latinx}

= 85; n^{NLW} = 251). The remaining patients were not included in the analyses because they opted to receive only pharmacotherapy (n = 30; n^{Latinx} = 8; n^{NLW} = 22). The present study included Latinx and non-Latinx White patients who received the CBT only intervention or CBT plus pharmacotherapy (n = 353; n^{Latinx} = 96; $n^{non\text{-}Latinx\ White}$ = 257).

Setting.

Seventeen primary care clinics in four regions (Little Rock, Arkansas, Los Angeles County, San Diego, California, and Seattle, Washington) were chosen based on a number of considerations, including primary care provider interest, space availability, size, diversity of the patient population, and insurance factors. RAND corporation in Santa Monica, California served as an assessment only site.

CALM Intervention.

The CALM CBT intervention (i.e., CALM Tools for Living; Craske, Rose, et al., 2009) was developed as a computer-assisted therapy, that is, CALM sessions were led by ACS personnel (i.e., therapists) but were guided by the computer program to promote fidelity (Craske et al., 2011). CBT was administered by the ACS personnel typically in six to eight weekly sessions. The first session included a decision-making module in which patients received information on anxiety disorders and chose an anxiety or trauma and stress-related disorder on which to focus. Patients with multiple disorders were asked to choose the most distressing disorder with the expectation that comorbid anxiety disorders would also improve (Brown et al., 1995; Tsao et al., 2005). The CBT intervention consisted of eight additional modules, which were education, self-monitoring, hierarchy development, breathing training, cognitive restructuring, exposure to internal stimuli, exposure to external stimuli, and relapse prevention. The relapse prevention module marked the completion of treatment and consisted of teaching a patient how to structure continued practice, setting up long term goals, and helping the patient identify high risk times and mange setbacks. Patients could opt to repeat modules, or continue treatment following completion of the relapse prevention module. Following treatment, patients were entered into continued care and received monthly follow-up telephone calls to reinforce CBT skills, manage medication adherence, or both (for further information regarding the CALM intervention see Craske et al., 2011; Roy-Byrne et al., 2010).

Measures

Outcome measures.—The primary outcome in this study was premature dropout using a well-established definition—discontinuation of treatment prior to completion of the therapeutic protocol (in the case of the CALM protocol, failure to complete the relapse prevention module after having been randomized to the intervention condition). An exploratory, alternative definition of dropout was also examined. Evidence-based practice dosage dropout (referred to as dosage dropout) was defined as patient termination prior to completion of at least one session containing cognitive restructuring or exposure principles. Cognitive restructuring and exposure are considered critical factors of anxiety treatment (e.g., Beck et al., 1979; Craske, Roy-Byrne, et al., 2009); thus, dropout prior to introduction of these modules was considered an inadequate dose of treatment.

Demographic information.—Demographic information for each patient was collected, including age, ethnicity, gender, and education level. Education was treated as a dichotomous variable reflecting less than or equal to versus more than a high school education.

Attitudinal predisposing factors.

Beliefs about treatment.: Beliefs about treatment were captured with two subscales: beliefs about medication and beliefs about psychotherapy. These scales were treated separately for the purpose of analyses. Items for each subscale were selected from the Beliefs about Medications and Psychotherapy scale, which was developed with a primary care sample of patients with anxiety disorders (Bystritsky et al., 2005). Patients in this study indicated their level of agreement or disagreement on a five-point Likert scale (scored on a 0 to 4 scale) with two statements regarding medication ("Medications are important in the treatment of anxiety;" and "Medication for anxiety does not help a person cope better,") and two statements regarding psychotherapy ("Therapy can help an individual learn new ways of coping with problems;" and "Therapy patients are wasting money"). When applicable, items were reverse coded such that low scores indicated positive beliefs about treatment and high scores indicated negative beliefs about treatment.

Stigma.: Five items from the National Comorbidity Survey Replication (NCS-R), a nationally representative household survey, were included to measure comfort with and stigma toward mental health treatment. Patients responded to items addressing willingness to seek formal mental health treatment, comfort with speaking to a mental health professional, and embarrassment if others knew about help-seeking for an emotional problem, using a four-point Likert scale. These items were summed to form a stigma scale. In addition, two items inquired about the percentage of individuals who 1) are helped by professional services for serious emotional problems and 2) get better even without professional help.

Enabling factors.

Poverty.: Poverty level 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.

Social support.: Four items were included from the Medical Outcomes Study Social Support Survey (Sherbourne & Stewart, 1991). Patients indicated how often other individuals are available for various kinds of support, including relaxation, help with daily chores, suggestions on how to deal with a personal problem, and feeling loved or wanted. Patients indicated responses on a five-point Likert scale (0–4) with the options, *none of the time, a little of the time, some of the time, most of the time and all of the time.* A short form was created by averaging the items. The scale demonstrated good internal consistencies among non-Latinx White (Cronbach's alpha = 0.80), and Latinx patients (Cronbach's alpha = 0.73).

Perceived discrimination.: 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*.

Need factors.

Anxiety.: The Brief Symptom Inventory (Derogatis, 2001) is an abbreviated 18-item version of the SCL-90-R, a scale that measures psychological distress. Patients rated 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 measure somatization (distress caused by the perception of bodily dysfunction), psychic anxiety (symptoms of nervousness, tension, motor restlessness, apprehension, and panic states), and depression. Only the raw scores of the somatization and psychic anxiety subscales were examined in this study. The BSI-18 has been examined in numerous Latinx samples and demonstrates good reliability and validity; however, some 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 et al., 2013; Wiesner et al., 2010). In the current sample, both the anxiety and somatization subscales demonstrated good internal consistency in non-Latinx White (Cronbach's alphas = 0.84 and 0.74, respectively), and Latinx patients (Cronbach's alphas = 0.85 and 0.79, respectively).

Depression.: The Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001) 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 et al., 2001; Donlan & Lee, 2010). In the current sample, the PHQ-9 had high internal consistency in non-Latinx White and Latinx patients (Cronbach's alpha = 0.85 and 0.83, respectively).

Functional impairment.: Functional impairment was measured with the Short Form Health Survey (SF-12; Ware et al., 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-related quality of life—both physical and emotional—interferes with functioning (i.e., one's ability to accomplish domestic, work-related or social activities). It 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 primary care patients (Ayuso-Mateos et al., 1999; Castillo, 2007). In the current sample, both the PCS and the MCS had high internal consistency in non-Latinx White (Cronbach's alphas = 0.87 and 0.82 respectively), and in Latinx (Cronbach's alpha = 0.82 and 0.83 respectively).

Comorbidity.: Comorbidity was defined as meeting criteria for more than one disorder. Patients could meet criteria for up to four anxiety- or stressor-related diagnoses (generalized anxiety disorder, social anxiety disorder, panic disorder, and post-traumatic stress disorder). Diagnoses were made using the Mini International Neuropsychiatric Interview for *DSM-IV* (Sheehan et al., 1998).

Data Analytic Plan

A series of multiple mediation models (model 6; Preacher et al., 2007) were used to examine the association between ethnicity and premature dropout and the indirect effect of predisposing, enabling, and need factors. This study used baseline data from the CALM study; there were no missing data points. In order to examine multiple definitions of dropout, the relapse prevention definition of dropout (RP dropout) and the definition for evidence-based practice dosage dropout (dosage dropout) were examined. Data analyses consisted of two phases. In phase one, analyses were conducted to screen for group differences in potential mediators using independent samples t-tests and chi-square analyses. In phase two, the variables that differed significantly between the Latinx and the non-Latinx White groups in the hypothesized direction were added to a multiple mediation model. In order to be conservative, variables that approximated statistical significance were included in the model. Variables were considered to differ between the Latinx and non-Latinx White groups using a p-value of .10 or less. Demographic factors thought to be related to premature dropout based on meta-analyses (i.e., age and education; Swift & Greenberg, 2012; Wierzbicki & Pekarik, 1993), treatment type (psychotherapy combined with medication or psychotherapy only) and site were included as covariates. Given the paucity of research on the contribution of pretreatment factors to disparities in rates of ethnic dropout, separate multiple mediation models were conducted for each group of factors in Andersen's Behavioral Model of Health Service Use (i.e., predisposing, enabling and need factors). Data analytic assumptions were met by checking for absence of multicollinearity and linearity between mediator variables and log odds.

Multiple mediation based on bootstrapping was used. Bootstrapping utilizes nonparametric resampling and enables evaluation of the contingency of multiple mediators simultaneously with adjustment for potential covariates (MacKinnon et al., 2000), which reduces the probability of encountering effects such as confounding and suppression by the variables included in the regression model (Preacher & Hayes, 2008). Multiple mediation controls for intercorrelations among each mediator and calculates the unique role of each individual mediator over and above the other. Analyses were conducted with PROCESS macro (version 2.16.3), which allows for multiple mediators to be placed in one model and for binary outcomes.

The multiple mediation models estimated the following parameters: (1) the specific effect of ethnicity on each mediator variable after controlling for covariates, (2) specific effects of each mediator variable on each type of dropout after controlling for ethnicity and covariates, and (3) the indirect effect of ethnicity on dropout through each proposed mediator. Parameter estimates and 95% bias-corrected and accelerated confidence intervals for indirect effects were generated based on 50,000 bootstrap resamples (Preacher & Hayes,

2008). Significance of indirect effects was determined by examining confidence intervals. Mediation analyses were conducted using SPSS 24.0 and the publicly available SPSS macro for multiple mediation (http://afhayes.com/spss-sas-and-mplus-macros-and-code.html).

Results

Characterization of Premature Dropout

Latinx patients were overrepresented among patients who did not complete the relapse prevention module; however, the magnitude in the difference between dropout rates was small (58.33% Latinx; 42.02% non-Latinx White). Latinx were also overrepresented among patients who did not complete cognitive restructuring and exposure modules (29.17% Latinx; 11.67% non-Latinx White). It is important to note that patients participating in psychotherapy had the option of also taking medication (combined treatment) or participating in only psychotherapy; Latinx patients were similarly represented in both treatment groups (Table 1).

Group Differences in Demographic Factors and Proposed Mediators

Group differences for demographic factors and hypothesized mediators are presented in Table 1. There were significant group differences for gender (i.e., women were disproportionately overrepresented in the Latinx group when compared to the non-Latinx White group), age (i.e., the Latinx group was younger than the non-Latinx White group), and education (i.e., the Latinx group was disproportionately overrepresented among patients who did not achieve a college education or higher when compared to the non-Latinx White group). Group differences were also examined for predisposing factors (i.e., stigma, beliefs about psychotherapy, and beliefs about medication), enabling factors (i.e., poverty, perceived discrimination, and social support), and need factors (i.e., anxiety, somatization, depression, mental functional impairment, and physical functional impairment).

Predisposing factors.—As shown in Table 1, Latinx patients had higher ratings on a measure of negative beliefs about medication ($t(351) = -3.49$, $p = .001$). Latinx patients also had higher ratings on a measure of negative beliefs about psychotherapy ($t(351) = -1.70$, $p = .09$); however, this difference was marginally significant and positive beliefs were more often endorsed in both groups. Contrary to the study hypothesis, Latinx patients provided higher ratings when asked to estimate the percentage of patients who are helped by psychotherapy ($t(351) = -1.75$, $p = .08$). Other stigma ratings did not significantly differ between Latinx and non-Latinx White patients.

Enabling factors.—Latinx patients endorsed higher rates of perceived discrimination ($t(351) = -7.14$, $p < .001$) and poverty ($t(351) = -3.86$, $p < .001$) than non-Latinx White patients. They also endorsed lower rates of social support than non-Latinx White patients ($t(351) = -2.27$, $p = .02$).

Need factors.—Latinx patients had, on average, more anxiety disorders than non-Latinx White patients ($t(351) = -3.58$, $p < .001$). In addition, there was a group difference on the PCS ($t(351) = 1.60$, $p = .10$), with Latinx indicating higher levels of physical functional

impairment. There was also a significant group difference on the BSI Somatization subscale ($t(351) = -2.35$, $p = .01$), with Latinx endorsing higher rates of somatization; however, there were no significant group differences for psychic anxiety, depression, or mental health functional impairment.

Multiple Mediation Analyses

Model 6 was used to test for multiple mediation (Preacher et al., 2007) predicting premature dropout. Three separate models were used for predisposing, enabling, and need factors for each type of dropout. The mediation models are presented in Figure 1 (RP dropout) and Figure 2 (dosage dropout).

Predisposing factors.—Given the results of the analyses screening for group differences, the proposed multiple mediation models for attitudinal predisposing factors included beliefs about medication and beliefs about psychotherapy. In addition, the models included age, education, treatment type, and site as covariates. Ethnicity was not associated with beliefs about medication or beliefs about psychotherapy, after accounting for demographic factors, treatment type, and site. Neither beliefs about medication, nor beliefs about psychotherapy significantly mediated the relationship between ethnicity and RP dropout (Table 2; Figure 1b) or dosage dropout (Table 2; Figure 2b).

Enabling factors.—Given the results of the analyses screening for group differences, the proposed multiple mediation models for enabling factors included social support, perceived discrimination, and poverty. Again, the models included age, education, treatment type, and site as covariates. Ethnicity was significantly associated with perceived discrimination and social support, but was not associated with poverty, after covarying demographic variables, treatment type, and site (Table 3). Social support, but not perceived discrimination or poverty, was significantly associated with RP dropout after controlling for ethnicity and covariates (Table 4). The bootstrap confidence intervals derived from 50,000 samples indicated that there was a negative indirect effect of social support with Latinx expressing lower social support and higher rates of RP dropout (*95% CI* = 0.01, 0.25; Table 2; Figure 1c). None of the enabling mediators were significantly associated with dosage dropout (Table 2; Figure 2c).

Need factors.—Given the results of the analyses screening for group differences, the proposed multiple mediation models for need factors included the measures for somatization (BSI Somatization), comorbidity (number of disorders), and physical functional impairment (SF-12 PCS subscale). In addition, the model included age, education, treatment type, and site as covariates. Ethnicity was significantly associated with all three mediators—BSI Somatization, number of disorders, and PCS after covarying demographic variables, treatment type, and site (Table 3). Only BSI Somatization was significantly associated with RP dropout after controlling for the covariates (Table 4). The bootstrap confidence intervals indicated that there was a negative indirect effect of BSI Somatization on the relationship between ethnicity and dropout (*95% CI* = .01, 0.30; Table 2; Figure 1d). PCS and number of disorders did not mediate the relationship between ethnicity and dropout (Table 2; Figure

1d). BSI Somatization, number of disorders, and PCS also did not mediate the relationship between ethnicity and dosage dropout (Table 2; Figure 2d).

Discussion

Consistent with previous studies, findings from this study suggest that Latinx primary care patients dropped out of CBT at higher rates than non-Latinx White patients, using a conventional definition of dropout; however, dropout among both groups was high (58.33% Latinx; 42.02% non-Latinx White). Latinx were also overrepresented among patients who dropped out prior to receiving important elements of cognitive behavioral therapy, including cognitive restructuring and exposure activities (29.17% Latinx; 11.67% non-Latinx White). These findings are concerning given data suggesting that treatment engagement is associated with improvement in clinical outcomes, including anxiety symptom severity and functional impairment (Glenn et al., 2013). While studies have identified factors that increase risk for premature dropout in treatment-seeking samples, few studies have explored variables (inclusive of culturally influenced factors) that may mediate the relationship between ethnicity and premature dropout. Findings from this study suggest that most individual level factors, derived from Andersen's Behavioral Model of Health Service Use, do not explain disparities in dropout between Latinx and non-Latinx White patients, with the exception of perceived social support, and pretreatment somatization symptoms.

Consistent with hypotheses, results indicated that social support, which reflected quality of social support related to various functions, including emotional support (e.g., perceived empathy and love), tangible support (e.g., help with chores), informational support, and social companionship, mediated the relationship between ethnicity and treatment dropout. Latinx individuals reported lower levels of social support than non-Latinx White individuals (albeit effect sizes were small). Lower levels of social support were associated with higher rates of RP dropout. These findings are consistent with previous studies that have found that lower levels of familial social support were associated with an increased likelihood of dropout in a national sample of Latinx who had received mental health services (Chang & Biegel, 2018). These findings also parallel results from other racial/ethnic minority groups, including a study of African American women with substance use problems, which found that low social support was associated with lower treatment retention (Dobkin et al., 2002; Palmer et al., 2009).

Explanations for the association between low social support and premature dropout require further investigation. Previous studies suggest that social support may be an enabling factor because it mitigates potentially important barriers to treatment retention such as lack of transportation and childcare support. This explanation is consistent with results from a qualitative study with CALM providers that found that Latina women experienced issues with treatment engagement when they did not receive necessary support from their families to participate in sessions (Curran et al., 2012). Based on these findings, it would appear that social support, in this study, exerted its influence through the structural and emotional support that patients derive from their families. The number of Latinx men in the study (n = 17) precluded the examination of gender as a moderator of social support. Interestingly, there were more women than men in both the Latinx group and the non-Latinx White

group, a finding that is consistent with broader trends in psychopathology and help-seeking behavior, where women experience higher rates of psychological distress, and are also more proactive in seeking help for this distress (Wang et al., 2005).

With regard to need factors, Latinx patients reported higher rates of somatization, physical functional impairment, and number of disorders than non-Latinx White patients; again, effect sizes were small. Of these variables, only somatization significantly mediated the relationship between ethnicity and RP dropout. Among Latinx individuals, there has been one other study, conducted with a Brazilian sample, that found somatization is a significant predictor of premature treatment dropout (Diniz et al., 2011). In this study, the authors explained that somatization may have been a marker of anxiety chronicity or severity and increased the likelihood of treatment dropout. Overall, findings regarding the relationship between symptom severity and dropout have been somewhat mixed, with some studies supporting an association between high symptom severity and premature dropout (Zivin et al., 2009) and other studies suggesting the opposite, that low initial symptom severity (i.e., anxiety and depressive symptom severity) is associated with dropout (Issakidis & Andrews, 2004; Simon & Ludman, 2010). Interestingly, high levels of initial somatic symptoms were associated with dropout among Latinx in this sample, but there were no ethnic differences in dropout for initial cognitive symptoms of anxiety. Such findings are noteworthy and suggest that somatic and cognitive aspects of psychological distress may have different implications for treatment and should be considered separately, particularly when working with Latinx individuals.

The connection between somatization and premature dropout may be understood by considering how psychological symptoms such as anxiety are conceptualized among non-Latinx White and ethnic minority groups. Results from cross-national and global studies have found that somatic symptoms are a common clinical manifestation of psychological distress and are often associated with varying social, cultural, and familial stressors (Simon et al., 1999). It may be that insufficient discussion of somatic symptoms and the socio-cultural contexts from which these symptoms emerge may lead participants in anxiety-based CBT interventions to disagree with proposed diagnostic formulations and treatment goals, leading to misaligned expectations, and potential dissatisfaction with treatment. This experience may be amplified in groups with cultural concepts of distress that involve somatic symptoms such as Latinx and other racial and ethnic minority groups (Chavira et al., 2020; Igreja et al., 2021; Igreja et al., 2006). The relationship between the endorsement of somatization and satisfaction with treatment or working alliance has not been explicitly studied; given potential implications for treatment, it is an important area for future research. Additionally, the idea that psychological symptoms carry greater stigma in collectivistic societies (e.g., individuals from Asian and Latinx countries; Keyes & Ryff, 2003) has led to the interpretation that patients who present with somatic, rather than psychological symptoms, may be attempting to “deny” psychological symptoms (Kirmayer, 2001). Thus, Latinx patients who report somatic symptoms, may experience anxiety symptomatology and treatment as more stigmatizing, leading to greater dropout. The fact that stigma itself was not a significant mediator in this study lessens the plausibility of this explanation.

It is possible that patients who reported more somatic symptoms had more medical comorbidities that led to premature dropout. Findings from the CALM study do not support this explanation, as Latinx patients had fewer comorbid medical conditions (e.g., diabetes, hypertension) relative to non-Latinx White patients (Niles et al., 2015). It is also possible that the relationship between somatic symptoms and dropout may have been driven by the overlap between the measure of somatization used in this study and the diagnostic criteria for panic disorder (Rubio & López-Ibor, 2007). Indeed, post hoc analyses revealed that panic disorder was common in this sample (approximately 47% of patients); however, there were no differences in panic disorder rates across ethnic groups, and panic disorder itself was not associated with increased rates of dropout. Thus, it would appear that the measurement of somatic symptoms in this study captured distress that was distinct from what constitutes a panic disorder diagnosis, and had a unique effect on treatment dropout.

Contrary to our hypotheses, attitudinal factors, including beliefs about treatment, did not mediate the relationship between ethnicity and premature dropout. While Latinx patients tended to have more negative beliefs about treatment relative to non-Latinx White patients, these differences were small. Instead, beliefs about treatment for both Latinx and non-Latinx White patients were generally positive. Previous research on enculturation and acculturation suggests that higher levels of enculturation (i.e., the process in which one's original or native norms are learned or maintained; e.g., Alamilla et al., 2010) are associated with stigma and preferences for culturally-relevant treatment or no treatment among Mexican Americans (Hirai et al., 2015). It is possible that the present sample lacked sufficient variability in enculturation and acculturation levels to adequately assess the impact of stigmatizing attitudes and beliefs about treatment on premature dropout. Relationships examined in the current study may be better examined in a sample that includes less acculturated individuals, inclusive of more Spanish monolingual and recently immigrated Latinx participants.

Overall, there was little evidence that most individual pretreatment factors explain ethnic disparities in RP dropout between Latinx and non-Latinx White patients. Similarly, these factors did not account for ethnic disparities in dosage dropout (i.e., dropout prior to completion of cognitive restructuring or exposure modules). One possibility for these results is that the proposed mediators in the present study were limited to pretreatment variables. It is possible that factors related to dosage dropout among Latinx are related to events occurring over the course of therapy, rather than individual factors collected at pretreatment. Another possibility is that differing rates of dropout may be explained by factors that were not assessed in this study, such as environmental and provider-related factors. Environmental factors include characteristics of the healthcare delivery system and the patient's community (e.g., the availability of providers; insurance and healthcare policies), while provider-related factors include provider characteristics that interact with patient characteristics to influence healthcare utilization (e.g., the provider's gender, or therapist-patient ethnic match). Further, the CALM study did not include measures of logistic or structural barriers to receiving treatment such as issues related to scheduling (e.g., lack of appointment availability), circumstances that make it difficult to attend treatment (e.g., lack of transportation, lack of childcare, inconvenient location of services, travel distance), financial concerns, and change in circumstances (e.g., schedule changes, moving). Previous research on the relationship between structural barriers and premature dropout using national samples (NCS-R and

WHO World Mental Health) has found that attitudinal factors (e.g., stigma, perceived need) are more often cited as reasons for discontinuation than structural barriers (Andrade et al., 2014; Mojtabai et al., 2011); however, structural barriers are often cited as important factors in determining access to and initiation of treatment among ethnic minority groups (Cabassa et al., 2006). A couple of studies have found that structural barriers may be relevant for minority clients when examining premature dropout (e.g., McCabe, 2002; Wells et al., 2013). Lastly, the cultural fit or lack of fit of the CALM intervention may have affected treatment engagement. Previous studies have found that when cultural elements were considered important but were not discussed in treatment, Asian, Latinx, and African American patients reported being less satisfied with their health care (Cabral & Smith, 2011; Meyer & Zane, 2013). The CALM intervention was not adapted a priori to meet the specific needs and issues of ethnic minority patients; the degree to which there was a cultural mismatch may have affected rates of treatment dropout for Latinx patients.

Limitations

These findings should be interpreted with some limitations in mind. The CALM study focused on the overall effectiveness of a CBT model of treatment delivery for patients with anxiety disorders or post-traumatic stress disorder in primary care; as such, it was not designed to measure constructs that may be relevant to ethnic disparities in treatment dropout such as acculturation, acculturative stress, and cultural values. Along these lines, distal measurements of culture (i.e., ethnic group membership), while commonly used, do not capture important within group variability in racial and ethnic minority groups such as Latinx. Although this is the largest sample of Latinx individuals in a randomized controlled trial for depression or anxiety to date, the number of Latinx patients in the study who participated in psychotherapy ($n = 96$) did not allow for more nuanced analyses, such as the effect of gender as a moderator of the relationship between social support and premature dropout. Similarly, only 11 patients opted to receive the intervention in Spanish, and only a small number of individuals were born outside the US, which limited our ability to conduct analyses with these potential moderators. Relatedly, the difference in the sample size between the Latinx ($n = 96$) and non-Latinx White ($n = 257$) groups is notable. This difference does not allow for robust conclusions about the factors explaining ethnic discrepancies in premature dropout. Additionally, although analyses in this study controlled for treatment site, site and therapist factors were not included in multilevel analyses, given that small sample sizes ($n_{site} = 4$; $n_{therapist} = 17$) would have led to biased estimates of standard errors (Maas & Hox, 2005). Lastly, participants were drawn from primary care settings, a group of individuals with access to medical and mental health care. As such, these individuals may not have been representative of the larger Latinx community, which may have contributed to the nonsignificant ethnic group differences in stigma and beliefs about treatment. Despite this issue of generalizability, the primary care setting can be considered a strength of the study, given it has been described as a de facto mental health service system for Latinx, who are more likely to seek mental health treatment from primary care than specialty mental health clinics (Alegría et al., 2002).

Conclusion

In this study, Latinx patients dropped out of treatment more often than non-Latinx White patients, resulting in roughly one-third of Latinx patients failing to receive treatment that included important therapy elements for anxiety such as cognitive restructuring and exposure. Findings from this study begin to explain why dropout may be more common in Latinx patients compared to non-Latinx White patients, highlighting the importance of social support and somatization; however, much work remains in this regard. Future research focusing on environmental and provider-related factors as well as variables that occur throughout the therapy process are worthwhile directions for research in order to better understand ethnic group disparities in treatment engagement.

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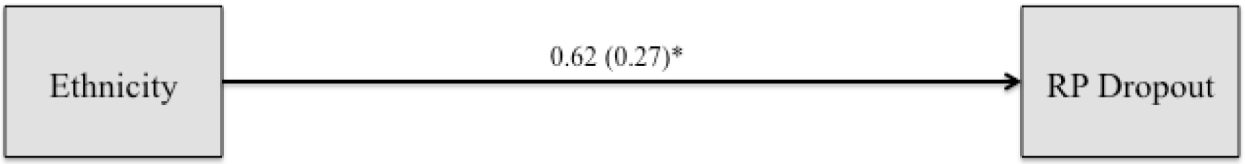

Figure 1a.

Total effect of ethnicity (non-Latinx White coded as 0; Latinx coded as 1) on relapse prevention (RP) dropout (remained in study coded as 0; dropped out coded as 1), after accounting for covariates age, education, treatment type, and site.

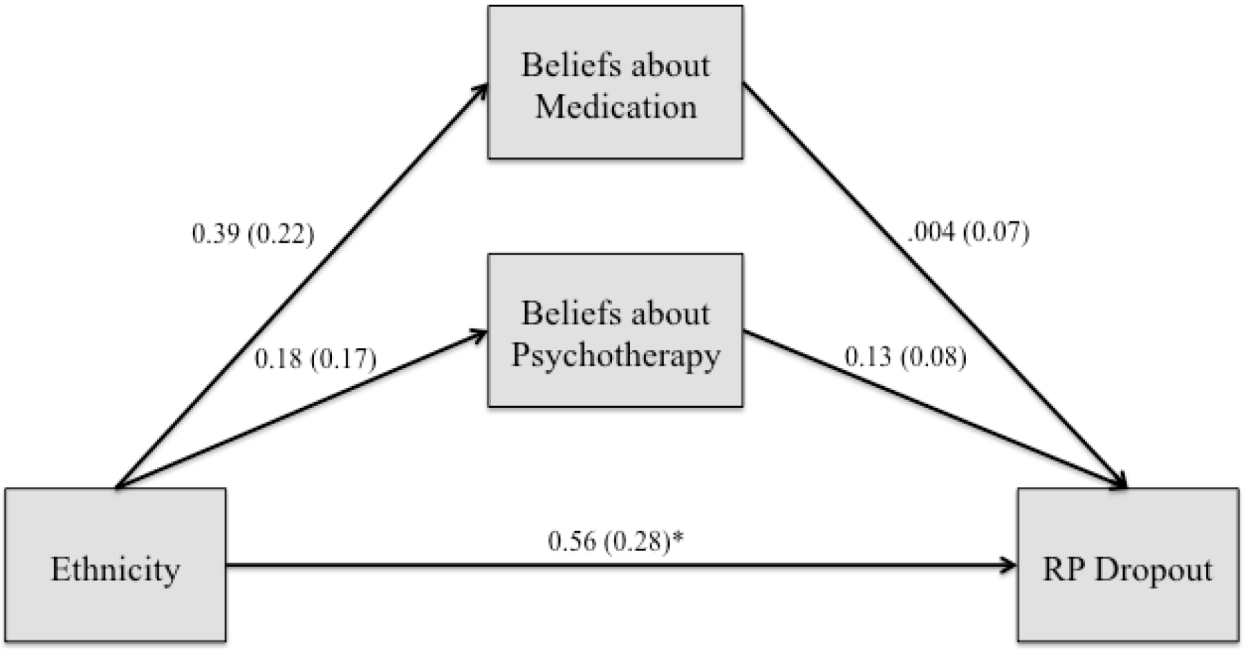

Figure 1b.
Multiple mediation model of predisposing factors predicting relapse prevention (RP) dropout

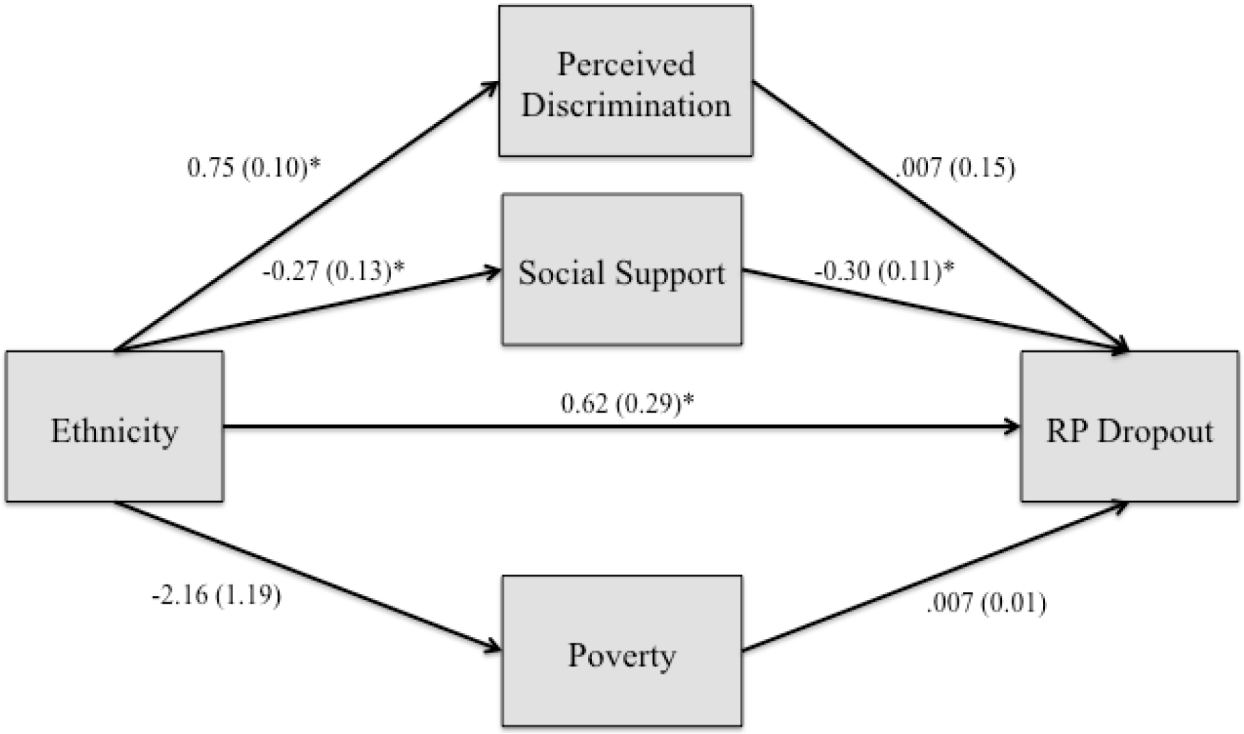

Figure 1c.
Multiple mediation model of enabling factors predicting RP dropout

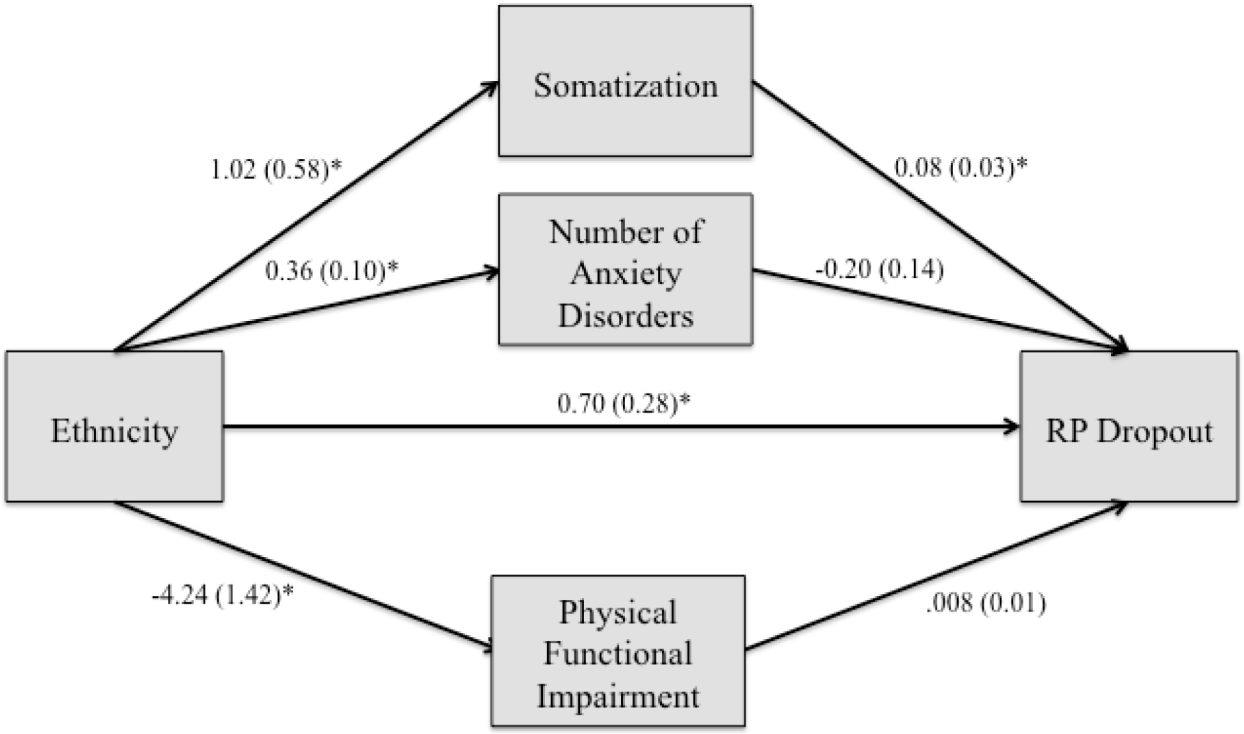

Figure 1d.
Multiple mediation model of need factors predicting RP dropout

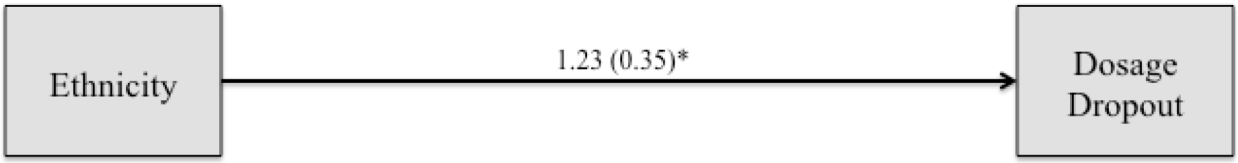

Figure 2a.

Total effect of ethnicity (non-Latinx White coded as 0; Latinx coded as 1) on dosage dropout (remained in study coded as 0; dropped out coded as 1), after accounting for covariates age, education, treatment type, and site.

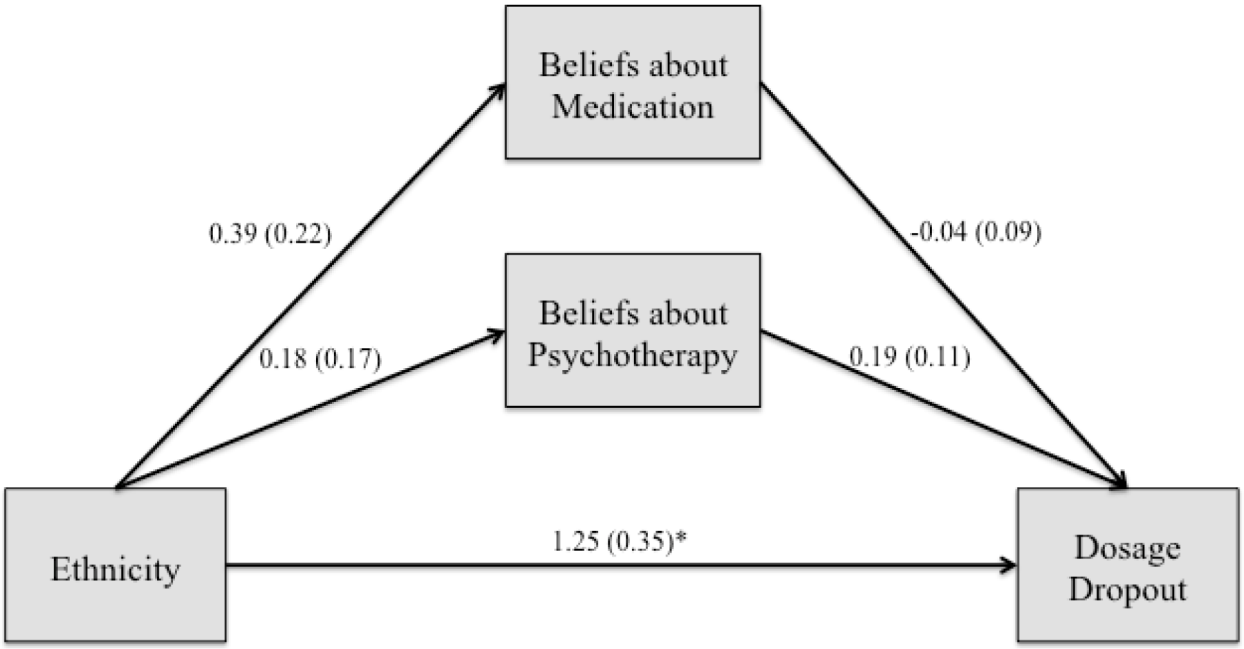

Figure 2b.
Multiple mediation model of predisposing factors predicting dosage dropout

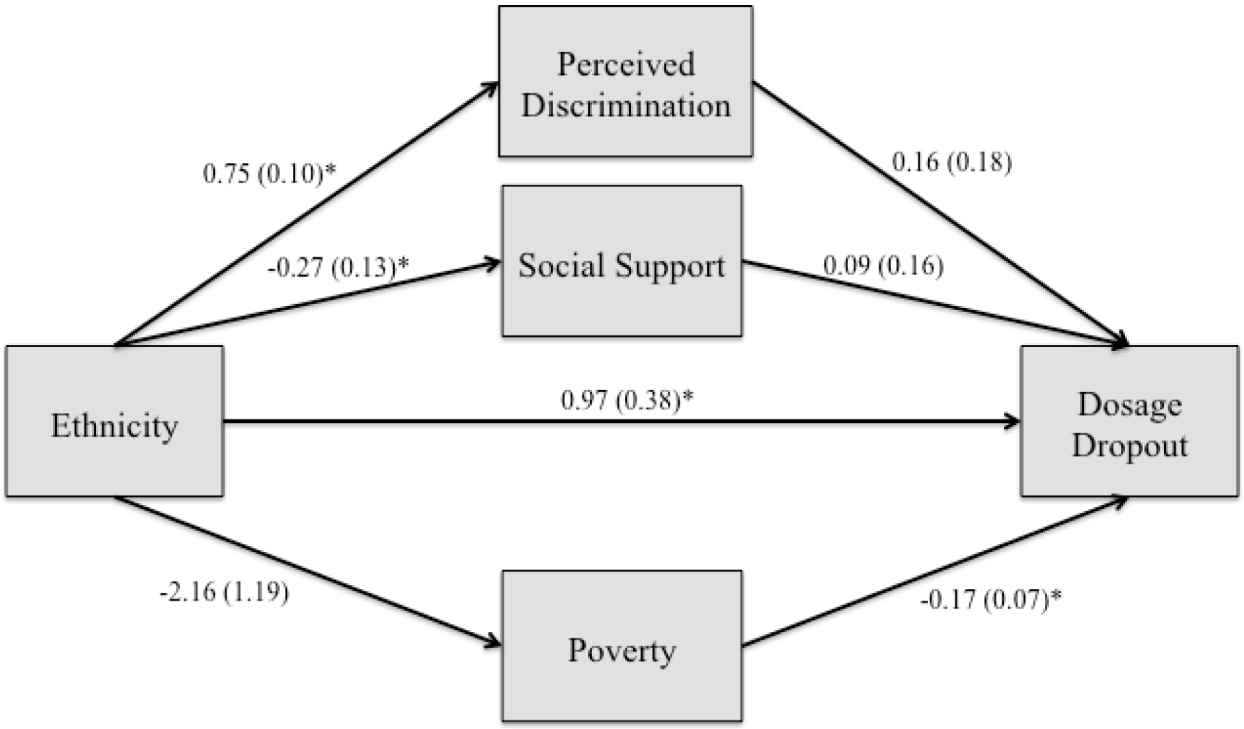

Figure 2c.
Multiple mediation model of enabling factors predicting dosage dropout

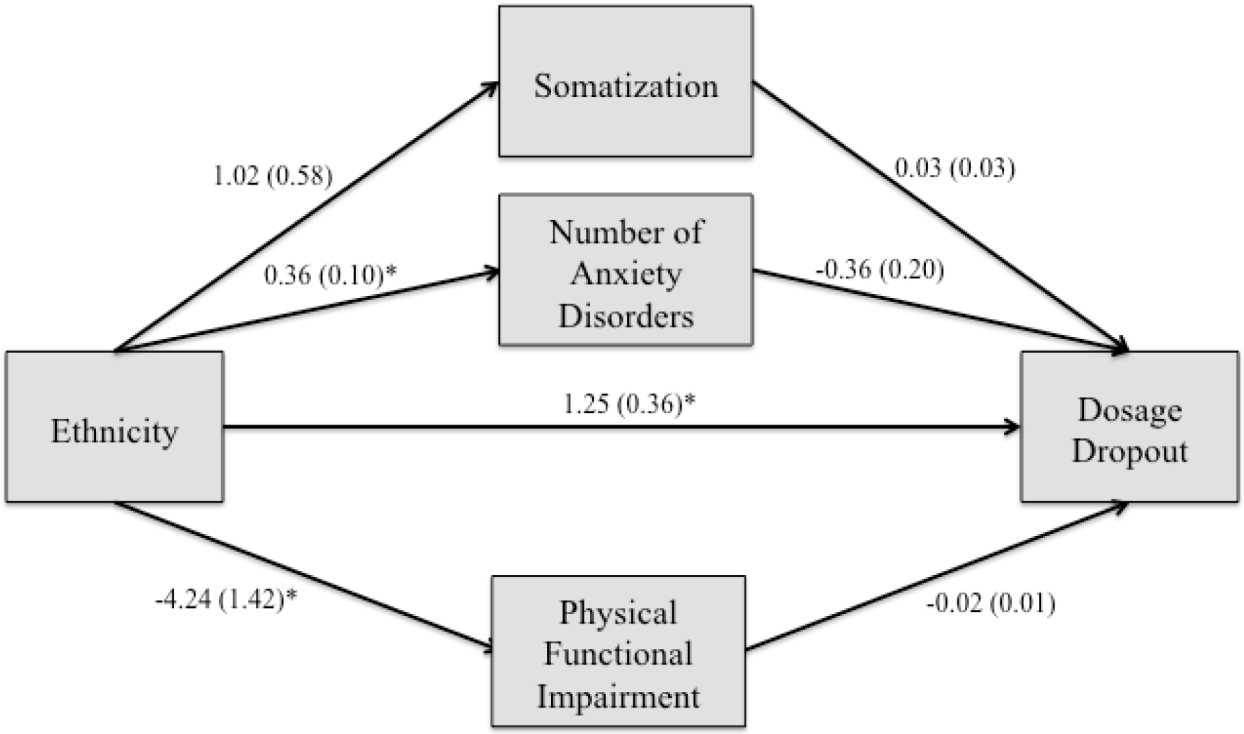

Figure 2d.
Multiple mediation model of need factors predicting dosage dropout.

Table 1.

Group differences in demographic variables and hypothesized mediators

Variables			Latinx	Non-Latinx White
	χ^2	*p*	*N* (%)	*N* (%)
Treatment Type (Combined)	0.63	0.43	48 (56.47%)	154 (61.35%)
Gender (Women)	9.14*	.002	79 (82.29%)	169 (65.76%)
Education (College level or higher)	6.80	.009	67 (69.79%)	212 (82.49%)
Marital Status (Married or living together)	3.95	0.05	65 (67.71%)	144 (56.03%)
Insurance (Consistent health insurance in the past 6 months)	0.09	0.76	66 (90.41%)	197 (89.14%)
	t	*p*	*M* (*SD*)	*M* (*SD*)
Age	2.71*	.007	40.18 (13.34)	44.49 (13.31)
Stigma	−0.36	0.72	5.44 (1.58)	5.36 (1.67)
Estimate of percentage of patients who are helped	−1.75	0.08	66.14 (19.97)	62.02 (19.26)
Estimate of percentage of patients who get better without professional help	−1.00	0.31	24.25 (21.08)	22.09 (16.17)
Beliefs about Psychotherapy	−1.70	0.09	1.67 (1.39)	1.27 (0.08)
Beliefs about Medication	−3.49**	.001	3.44 (1.61)	2.75 (1.73)
Perceived Discrimination	−7.14**	< .001	1.99 (0.92)	1.33 (0.69)
Poverty	−3.86**	< .001	3.35 (2.45)	5.52 (10.63)
Social Support	−2.27*	0.02	3.08 (0.92)	3.27 (1.07)
BSI Anxiety	−0.60	0.55	10.24 (5.31)	9.87 (5.13)
BSI Somatization	−2.35*	0.01	6.91 (4.65)	5.65 (4.36)
Number of Anxiety Disorders	−3.58***	< .001	2.17 (0.97)	1.72 (0.75)
PHQ-9 (Depression)	0.29	0.98	12.42 (6.58)	12.44 (6.57)
SF-12 (Functional Impairment)				
Mental Functional Impairment	1.12	0.26	31.30 (10.32)	32.66 (10.04)
Physical Functional Impairment	1.60	0.10	48.01 (10.31)	50.19 (11.72)

Table 2.

Tests of indirect effects for each type of dropout (covariates not shown)

	Coefficient (*SE*)	95% CI (lower limit)	95% CI (upper limit)
Outcome: RP Dropout			
Predisposing Factors			
Beliefs about medication	0.01 (0.03)	−0.06	0.08
Beliefs about psychotherapy	0.02 (0.03)	−0.01	0.13
Enabling Factors			
Perceived discrimination	.005 (0.12)	−0.22	0.26
Social support	0.09 (0.05)	0.01	0.25
Poverty	−0.02 (0.09)	−0.11	0.23
Need Factors			
BSI Somatization	0.12 (0.07)	0.01	0.30
Number of anxiety disorders	−0.07 (0.06)	−0.22	0.02
SF-12 Physical functional impairment	−0.04 (0.06)	−0.18	0.06
Outcome: Dosage Dropout			
Predisposing Factors			
Beliefs about medication	−0.01 (0.05)	−0.16	0.06
Beliefs about psychotherapy	0.04 (0.04)	−0.02	0.17
Enabling Factors			
Perceived discrimination	0.12 (0.15)	−0.16	0.43
Social support	−0.02 (0.05)	−0.16	0.05
Poverty	0.36 (0.21)	0.09	0.98
Need Factors			
BSI Somatization	0.03 (0.05)	−0.03	0.18
Number of anxiety disorders	−0.13 (0.09)	−0.36	−.004
SF-12 Physical functional impairment	0.11 (0.08)	−0.02	0.31

Table 3.

Associations between ethnicity and mediators (*a paths*) after covarying sociodemographic factors, treatment type, and site (covariates not shown)

	Coefficient (*SE*)	95% CI (lower limit)	95% CI (upper limit)
Predisposing Factors			
Beliefs about medication	0.39 (0.22)	−0.05	0.83
Beliefs about psychotherapy	0.18 (0.17)	−0.16	0.53
Enabling Factors			
Perceived discrimination	0.75 (0.10)	0.55	0.95
Social support	−0.27 (0.13)	−0.53	−.003
Poverty	−2.16 (1.19)	−4.50	0.18
Need Factors			
BSI Somatization	1.02 (0.58)	0.12	2.16
Number of anxiety disorders	0.36 (0.10)	0.16	0.57
SF- 12 Physical functional impairment	−4.24 (1.42)	−7.04	−1.44

Table 4.

Association of mediators and ethnicity to each type of dropout (*b and c' paths*) after covarying sociodemographic factors, treatment type, and site (covariates not shown)

	Coefficient (*SE*)	OR	95% CI (lower limit)	95% CI (upper limit)
Outcome: RP Dropout				
Predisposing Factors				
Ethnicity (direct effect)	0.56 (0.28)	1.75	0.02	1.11
Beliefs about medication	.004 (0.07)	1.00	−0.13	0.14
Beliefs about psychotherapy	0.13 (0.08)	1.33	−0.04	0.29
Enabling Factors				
Ethnicity (direct effect)	0.62 (0.29)	1.86	0.04	1.20
Perceived discrimination	.007 (0.15)	1.01	−0.28	0.29
Social support	−0.30 (0.11)	0.74	−0.53	−0.08
Poverty	.007 (0.01)	1.00	−0.01	0.03
Need Factors				
Ethnicity (direct effect)	0.70 (0.28)	2.01	0.14	1.25
BSI Somatization	0.08 (0.03)	1.09	0.03	0.14
Number of anxiety disorders	−0.20 (0.14)	0.81	−0.49	0.08
SF-12 Physical functional impairment	.008 (0.01)	1.01	−0.01	0.03
Outcome: Dosage Dropout				
Predisposing Factors				
Ethnicity (direct effect)	1.25 (0.35)	3.49	0.55	1.95
Beliefs about medication	−0.04 (0.09)	0.96	−0.22	0.14
Beliefs about psychotherapy	0.19 (0.11)	1.21	−0.03	0.41
Enabling Factors				
Ethnicity (direct effect)	0.97 (0.38)	2.65	0.22	1.72
Perceived discrimination	0.16 (0.18)	1.17	−0.20	0.52
Social support	0.09 (0.16)	1.09	−0.22	0.40
Poverty	−0.17 (0.07)	0.84	−0.30	−0.03
Need Factors				
Ethnicity (direct effect)	1.25 (0.36)	3.49	0.53	1.97
BSI Somatization	0.03 (0.03)	1.03	−0.04	0.10
Number of anxiety disorders	−0.36 (0.20)	0.69	−0.76	0.04
SF-12 Physical functional impairment	−0.02 (0.01)	0.97	−0.05	.004