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Improving primary care outcomes for Hispanics with anxiety disorders: a randomized clinical trial evaluating the effectiveness of cognitive-behavioral therapy

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IMPROVING PRIMARY CARE OUTCOMES FOR HISPANICS WITH ANXIETY DISORDERS: A RANDOMIZED CLINICAL TRIAL EVALUATING THE EFFECTIVENESS OF COGNITIVE-BEHAVIORAL THERAPY

by

Velma Barrios

A Dissertation Submitted to the University at Albany, State University of New York In Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

College of Arts & Sciences Department of Psychology 2010
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Abstract

The proportion of Hispanics in psychosocial treatment outcome research is limited. To our knowledge, no randomized clinical trials have investigated the effectiveness of cognitive-behavioral therapy in adult Hispanics with anxiety disorders. This is important because Hispanics are among the fastest growing minority group in the U. S., and as a group, they evidence pervasive and persistent anxiety disorders. The growth of the Hispanic population has taken place while social service systems are ill prepared to address the needs of these individuals. In this study, we addressed this gap in the literature by evaluating the difference in clinical effectiveness of cognitive behavioral therapy (CBT) for Hispanic relative to White adults with one or more of the four common anxiety disorders (panic disorder, post-traumatic stress disorder, generalized anxiety disorder, and social anxiety disorder). Participants (N = 279) included treatment seeking patients (Hispanics = 53, Whites = 226) from 13 primary care clinics (each clinic linked to one of the 4 study sites: University of California, Los Angeles; University of California, San Diego; University of Washington; University of Arkansas for Medical Sciences). A particular interest of the present study was to examine differences in treatment response among Hispanics and Whites following CBT for anxiety disorders and to identify predictors of treatment response among Hispanics. A secondary aim was to investigate the relationship between acculturation and mental health in the Hispanic sample and whether this relationship was moderated by levels of social support. Assessed outcomes included symptom-based and physical and mental health functioning measures. Results showed that CBT improved symptom severity (i.e., ASI, BSI, PHQ-9) and mental health functioning (i.e., SF-12) in both samples. Data also suggested that marital
dissatisfaction and lesser social support before receiving CBT treatment for anxiety predicted greater anxiety sensitivity and distress at the 6-month follow-up among Hispanics. Unexpectedly, a limited proportion of significant associations between acculturation and greater symptom severity were found in the Hispanic sample. Outcomes are discussed in terms of addressing the issue of whether empirically supported treatments (in this case, CBT for anxiety disorders) can be generalized for use with Hispanics in the U.S.
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Psychotherapy research in the U.S. has flourished in recent years, with hundreds of psychological treatments being tested on individuals with diverse mental health problems, and resulting in the efficacy of these treatments being documented by reports from the Task Force on Promotion and Dissemination of Psychological Procedures of Division 12 of the American Psychological Association (APA; Chambless et al., 1996, 1998; Task Force on Promotion and Dissemination of Psychological Procedures 1995) and the U.S. Surgeon General (1999). Yet many have questioned whether these evidenced-based treatments are efficacious for individuals who are not White and, given the limited rates of participation by ethnic minorities (either no ethnic minority participants or an extremely small proportion) in efficacy studies (U.S. Department of Health and Human Services, 2001), some have argued that the research generated from existing clinical trials cannot be generalized beyond White samples (e.g., Bernal, Bonilla, & Bellido, 1995; Bernal & Scharron-del-Rio, 2001; Hall, 2001; Sue, 1998). Accordingly, it may be premature to advocate for providing evidence-based treatments for minority groups at this point in time (Miranda et al., 2005).

The lack of research on efficacious treatments for ethnic minorities is of substantial concern to mental health professionals when considering that the U.S. has become a multiethnic and multicultural country. For instance, approximately 29% of the U.S. population is part of an ethnic minority group – 12% black, 12.5% Hispanic, 3.8% Asian/Pacific Islander, and 0.7% American Indian/Alaskan Native (U.S. Census Bureau, 2001). In California, the minority population has already surpassed the non-minority population (e.g., one in every four individuals is foreign-born, 60% speak a language
other than English at home) – a trend that may eventually make its way across the country.

The growth of some of the nation’s minority groups are projected to double over the next half century. For example, the Hispanic and Asian population is projected to nearly double (from 13% to 24%, and 4% to 8%, respectively) while the White population is projected to actually lose population (from 69% to 50%), and the black population growing only slightly (from 13% to 14%; U.S. Census Bureau 2003a). Most notably, while the total U.S. population increased 13% from 1990 to 2000, the Hispanic population increased 58% (U.S. Census Bureau, 2001). This growth has taken place while social service systems are not prepared to address the needs of the culturally pluralistic Hispanic population. A significant gap exists between the need for, and availability of, mental health services for Hispanics, particularly immigrants and those with limited English-language proficiency (Derose, & Baker, 2000; Ku & Matani, 2001). Consequently, it is not surprising that Hispanics are overrepresented in samples of individuals at risk for poor mental health outcomes (Vega et al., 1998; Vega & Rumbaut, 1991).

As it will be described in more detail below, Hispanics in the U.S. experience great difficulties in obtaining adequate access to mental health services (Alegría, et al., 2002; Ginzburg, 1991; Padgett, Patrick, Burns, & Schlesinger, 1994; Ruiz, 1993; Williams & Collins, 1995; Woodward, Dwinell, & Arons, 1992), are underrepresented in mental health settings (Gallo, Marino, Ford, & Anthony, 1995; Hough et al., 1987; Sue, Fujino, Hu, Takeuchi, & Zane, 1991; Vega, Kolody, Aguilar-Gaxiola, & Catalano, 1999; Wells, Golding, Hough, Burnam, & Karno, 1989), and often experience great difficulties
in obtaining adequate care (Bernal & Castro, 1994; Center for Mental Health Service, 2000; Lopez, 1989; Williams & Kohout, 1999). It is reasonable, therefore, to investigate the specific needs that this group may have regarding mental health treatment.

The primary focus of this study is to provide preliminary data examining the clinical effectiveness of CBT for anxiety disorders among Hispanics and Whites in a primary care setting. There are no randomized clinical trials examining whether an evidence-based intervention for anxiety disorders like CBT can be generalized to adult Hispanics. The present investigation seeks to bridge this gap in the literature by comparing the difference in clinical effectiveness of CBT for Hispanics relative to Whites. Further, this study aimed to identify predictors of treatment outcome, which may, in turn, help foster the development of culturally-sensitive interventions, and perhaps increase the utilization of mental health services among the Hispanic population. The secondary focus is to gather data regarding possible moderators of clinical outcome and particularly the role of social support as moderating the relationship between acculturation and mental health in Hispanic individuals. This information may help clarify equivocal findings in the literature regarding the effect of acculturation on clinical outcomes (Escobar et al., 2000; Moyerman & Forman, 1992; Rogler et al., 1991).

Mental Health Among Hispanics in the U.S.

Given the rapid increase of the Hispanic population, attention to their mental health needs is warranted. As an ethnic group, evidence indicates Hispanics in the U.S. are likely to confront many stressful and damaging experiences including decreased academic and career opportunities (Ramirez & de la Cruz, 2003). Approximately 43% of Hispanics do not complete high school, compared to 11% of Whites (Ramirez & de la
Cruz, 2003). The lower educational levels contribute, at least in part, to many Hispanics being employed in service industries or as laborers, earning less than Whites, and being more likely to live in poverty (Ramirez & de la Cruz, 2003). Due to these demographic factors, the Hispanic population faces a unique set of challenges, including limited access to health care.

In recent decades, the U.S. has seen the greatest influx of Hispanic immigrants. Approximately 14 million people immigrated to the U.S. during the 1990’s, more than in any other decade, and about one half of these immigrants were Hispanics (Kaiser Commission on Medicaid and the Uninsured, 2004). Like many other immigrants, Hispanic immigrants likely experience immigration as a stressful process. For example, most Central Americans flee their countries of origin under civil unrest and war-related violence (Leslie & Lietch, 1989). Studies have shown elevated symptom levels of anxiety and depression among this particular population (e.g., Plante, Manuel, Menendez, & Marcotte, 1995). Another study found that the majority of Hispanic immigrants experienced familial, social, and environmental stressors (Perez & Fortuna, 2005). Immigration can lead to separation of family, loss of family support, loss of social status, lack of community, poor living conditions, discrimination, and language barriers and communication difficulties (Aronowitz, 1984; Finch, Kolody, & Vega, 2000; Finch & Vega, 2003; Gil & Vega, 1996; Hovey 2000a, 2000b; Perez & Fortuna, 2005).

Although there are many reasons why immigrants choose to emigrate from their countries of origin, a significant number of Hispanics immigrate to the U.S. because of economic hardships or violence resulting from political oppression (Gonsalves, 1990). Consequently, this population endures psychological issues related to trauma, loss, and
the stress of acculturation and poverty, as well as the distress associated with the geographical distance from their country of origin (Organista & Muñoz, 1996). Because such negative life events are linked to poor psychological adjustment (Hiott, Grzywacz, Arcury, & Quandt, 2006; Perez & Fortuna, 2005; Portes & Rumbaut, 2006; Salgado de Snyder, Cervantes, & Padilla, 1990), this particular group is likely to be at risk for developing psychiatric disorders – particularly depression, anxiety, and substance abuse.

Indeed, evidence suggests that Hispanics tend to have high prevalence rates of anxiety and affective disorders, and comorbidity (Burnam, Hough, Karno, Escobar, & Telles, 1987; Karno et al., 1989; Karno et al., 1987; Kessler et al., 1994). When compared to other ethnic groups, some evidence suggests that Hispanics have greater rates of anxiety and mood-related disorders (Ginsburg & Silverman, 1996; Minsky, Vega, Miskimen, Gara, & Escobar, 2003; Roberts, Roberts, & Chen, 1997). Though not statistically different, epidemiological data shows Hispanics have greater levels of symptom severity, greater 12-month prevalence rates of anxiety disorders compared to Whites (21.4% vs. 18.9%), and 12-month prevalence rates of anxiety disorders among lifetime cases compared to whites (46.6% vs. 36.4%; Breslau, Kendler, Su, Gaxiola-Aguilar, & Kessler, 2005; Kessler, Chiu, et al., 2005). In other words, Hispanics are at great risk for developing anxiety disorders and, once acquired, such problems tend to be persistent if left untreated. Persistence of psychiatric disorders is an important issue because persistent course can potentially be addressed by improving the quality, availability, and accessibility of mental health care (Breslau et al., 2005; Miranda, McGuire, Williams, & Wang, 2008).
Further, immigration trends suggesting an increase in the Hispanic population in the U.S., point to the need to diminish general health and mental health disparities by minority status. For instance, the U.S. Department of Health and Human Services (2000) has emphasized the need to provide culturally sensitive care (e.g., demonstrating familiarity and sensitivity to cultural norms) and improve health literacy among non-English speaking populations. Consequently, clinical scientists have begun to investigate factors that may contribute to the mental health of Hispanics, including immigration and acculturation (e.g., Beck, Froman, and Bernal, 2005; Barron, Hunter, Mayo, & Willoughby, 2004). Indeed, understanding issues related to Hispanic culture may help better serve this underserved population (Miranda, Lawson, & Escobar, 2002).

Factors contributing to the mental health of Hispanics. Interestingly, despite Hispanics being more likely to experience significant lower quality of mental health care (Bernal & Castro, 1994; Lopez, 1989; U.S. Surgeon General, 1999), prevalence rates for psychiatric disorders, though elevated, are generally not significantly greater compared to Whites (Breslau et al., 2005). Empirical research shows that one of the best predictors for the prevalence rates of psychiatric disorders among Hispanics and other ethnic groups is social support. Evidence has also suggested that social and family support may serve as protective factors against mental illness (Crockett et al., 2007; Finch & Vega, 2003; Hernandez, Plant, Sachs-Ericsson, & Joiner, 2005; Plant & Sachs-Ericsson, 2004; Rousseau, Drapeau, & Corin, 1997). Acculturation, the psychological changes and adjustments occurring in individuals that result from intercultural contact with a new culture (Berry & Kim, 1986; Rosenthal & Feldman, 1990), has also been found to be an
important determinant of psychological dysfunction among Hispanics (Crockett et al., 2007; Grant et al., 2004); a topic that will be addressed shortly.

Additionally, studies have found that time spent living in the U.S. is a good predictor of mental illness in a Hispanic population (Canino et al., 1987; Caraveo-Anduaga, Colmenares Bermudez, & Saldívar Hernández, 1999; Ortega, Rosenheck, Alegría, & Desai, 2000; Vega et al., 1998; Vega, Sribney, Aguilar-Gaxiola, & Kolody, 2004). More specifically, the longer individuals of Hispanic descent live in the U.S., the greater the likelihood they may suffer from a psychiatric disorder (Vega et al., 1998). Further, evidence suggests that Hispanic immigrants report lower levels of psychiatric disorders than U.S.-born Hispanic and White individuals (Alegría et al., 2008; Grant et al., 2004; Vega, Alderete, Kolody, & Aguilar-Gaxiola, 1998). Some investigators have proposed that taken together these findings may suggest that acculturation leads to an increased risk of psychiatric disorders (e.g., Escobar, Hoyos Nervi, & Gara, 2000).

However, the process through which acculturation is associated with worsened clinical course and outcome has not been well documented. Research on this topic is therefore of considerable importance, especially among Hispanics who represent the largest and most rapidly growing ethnic minority group living in the U.S. (U.S. Census Bureau 2003a).

Acculturation. As a construct, acculturation involves dimensions such as place of birth, years lived in the U.S., ethnic identity (i.e., extent to which one identifies with a particular ethnic group) and language use (Berry & Sam, 1997). Further, its value for culturally competent mental health care (i.e., culturally acceptable services consistent with patient’s cultural needs and expectations) has been underscored given substantial evidence documenting its contribution to mental health outcomes (Betancourt & Lopez,
Hispanics’ levels of acculturation within mainstream American culture have been associated with an increase of substance abuse, mood, and anxiety disorders (Alderete, Vega, Kolody, & Aguilar-Gaxiola, 2000; Burnam et al., 1987; Grant et al., 2004; Ortega et al., 2000; Vega et al., 1998; Vega et al., 2004).

Though the relationship between mental health and acculturation has been extensively studied, this relationship remains poorly understood. In fact, three differing relationships between acculturation and mental health have been suggested by evidence thus far (Escobar et al., 2000; Moyerman & Forman, 1992; Rogler et al., 1991). First, some evidence suggests a negative relationship between acculturation and psychological adjustment, with less acculturated individuals having greater levels of mental health problems (Escobar, Randolph, & Hill, 1986; Miranda & Matheny, 2000; Salgado-de Snyder, 1987; Torres-Matrullo, 1976). This body of work has suggested that less acculturated individuals have elevated scores in the direction of greater psychological dysfunction (Cuellar, 2000).

Second, there may be a positive relationship between mental health and acculturation, with more acculturated individuals having greater levels of mental health problems. For instance, results from a study in California showed that individuals of Hispanic descent were at increased risk for psychiatric disorders than less acculturated Hispanics (Vega et al., 1998). Similarly, Ortega and colleagues (2000) found a significant relationship between lower lifetime psychiatric disorders and less acculturation in a national sample of Hispanics. In another study, foreign-born Mexican Americans were at lower risk of mood and anxiety disorders than U.S.-born Mexican Americans (Grant et al., 2004). These results suggest that traditional Hispanic culture may have protective
effects, whereas acculturation to mainstream American culture may increase the likelihood of psychiatric morbidity. Interestingly, some studies have shown that cultural assimilation (a gradual process by which members of a cultural group are integrated into the dominant culture; Encyclopedia Britannica, 1997) into the mainstream culture may weaken protective factors used to cope with psychological distress, such as family composition, stability, and cohesiveness (Vega & Gil, 1998; Vega & Sribney, 2003). It may be that mental illness in more acculturated individuals with less cohesive and less stable family networks results from internalization of damaging stereotypes and discrimination within the mainstream culture (Escobar & Vega, 2000; Rogler et al., 1991).

Lastly, some studies have proposed a curvilinear relationship between acculturation and mental health, with the two ends of the acculturation continuum correlating with poor mental health and an acculturation midpoint associated with good mental health (Gamst et al., 2002; Ritsner, Ponizovsky, & Ginath, 1997). For example, major changes in lifestyle can cause distress to recent immigrants and family difficulties can be exacerbated after years of resettlement (Tai-Ann Cheng & Chang, 1999). Overall, despite considerable research on the relationship between mental illness and acculturation, findings remain equivocal.

**Social and family support.** As noted earlier, there is no consensus regarding how acculturation influences psychiatric disorders. One possible explanation for the contradictory findings may be that the relations between acculturation and psychological adjustment are moderated by contextual factors. Accordingly, a potential moderator may be social and family support, particularly the extent to which an individual has a
cohesive, supportive, and satisfying social and family life. Although social support is
highly valued by different cultures, having strong family and social support may be
particularly critical to the Hispanic individual with respect to psychological adjustment
(Hiott, et al., 2006; Perez & Fortuna, 2005; Portes & Rumbaut, 2006; Salgado de Snyder
et al., 1990).

Often Hispanic communities traditionally rely heavily on extended families and
other social networks that offer a great deal of support (Cowan et al., 2008; Escobar &
Randolph, 1982). Loss of social support may be particularly acute for many Hispanics
because of the cultural significance of collectiveness (Hovey 2000a, 2000b; Sullivan &
Rehm, 2005; Zuniga, 2002). Whereas Hispanics’ cultural background originates from
countries in which interdependence or collectivism are highly valued (Escobar &
Randolph, 1982; Sabogal, Marin, Otero-Sabogal, Marin, & Perez-Stable, 1987), Whites
in the U.S. tend to value independence or individualism. Interdependent cultures tend to
view an individual as inherently connected to his or her family and collective
achievement goals are of great significance, whereas independent cultures tend to focus
on the individual and his or her personal goals (Markus & Kitayama, 1991; Noh &
Kasper, 2003). Extensive research has led Escobar and colleagues (1993) to theorize that
acculturation to the mainstream White culture affects the mental health of Hispanics
adversely, as it may lead to the deterioration of traditional family networks. Further, the
traditional Hispanic culture may work as a protective factor against mental illness
(Escobar 1998; Escobar et al., 1983). The preservation of Hispanic culture and culturally
specific resources such as familism and collectivism may be the most critical buffers
against negative mental health outcomes in this population.
Indeed, research to date has reliably documented that family support functions as a protective factor against psychological dysfunction among Hispanics (Crockett et al., 2007; Finch & Vega, 2003; Hernandez, et al., 2005; Hovey, 1999, 2000a, 2000b; Hovey & Magaña, 2000, 2002; Plant & Sachs-Ericsson, 2004; Rousseau et al., 1997). In addition, Hispanics have a greater number of two-parent families and lower rates of divorce (Frisbie & Bean, 1995), which may have a protective effect on psychological adjustment. Moreover, the family may contribute to protect individuals from psychiatric disorders through increased support and strong relationships with close kin or extended family networks (Tai-Ann Cheng & Chang, 1999).

Research on moderating variables, such as social support, that may be involved in the relationship between acculturation and mental health is limited. However, such research could play an important role in clarifying our understanding of the nature of this relationship, in addition to providing valuable information that could potentially be used to develop more culturally-competent mental health care. This knowledge, in turn, may help increase the utilization of mental health services among the Hispanic population. The latter point is an important one to consider in view of the significant number of Latin American Hispanics who continue to immigrate to the United States and their relatively high levels of mental health problems and unmet mental health needs (Burnam, et al., 1987; Karno et al., 1989; Karno et al., 1987; Kessler et al., 1994).

**Underutilization of Mental Health Services Among Hispanics**

The U.S. Surgeon General (2001) has called attention to the significant disparities in access to, and the quality of, mental health care received by Hispanics as well as other ethnic minority groups. For example, data from the National Comorbidity Survey
Replication (NCS-R) showed that Hispanics were significantly less likely than Whites to seek mental health treatment (Kessler, Demler, et al., 2005). A robust finding of much of the research indicates that when compared to Whites, Hispanics are less likely to seek mental health services for psychological problems despite the need for mental health services (Alegría et al., 2002; Griffith & Villavicencio, 1985; Hough et al., 1987; Hu, Snowden, Jerrell, & Nguyen, 1991; Padgett, et al., 1994; Roberts, 1981; Vega & Lopez, 2001; Vega et al., 1999; Sue et al., 1991; Wang et al., 2005). For example, only 11% of Hispanic patients suffering from major depression used mental health services compared to 22% of Whites (Hough et al., 1987).

Underutilization of psychological services may be restricted to Hispanics (and other ethnic minority groups) for a variety of reasons, including lack of service availability, accessibility, and cultural acceptability. Findings from one study among Puerto Ricans living in low-income areas showed that those with low economic strain (e.g., living in high-income areas) were more likely to receive mental health care compared with those with high economic strain (e.g., living in low-income areas). These data suggest that economic difficulties, which are more likely experienced by minority groups including Hispanics, may contribute to low utilization of mental health care (Vera et al., 1998).

Relatedly, access to specialty mental health care is poor among Hispanics compared to Whites (Alegría et al., 2002; Padgett et al., 1994; Williams & Collins, 1995). For example, Hispanics are less likely to obtain treatment for mood or anxiety disorders than Whites (Skaer, Sclar, Robison, & Galin, 2000). The reasons for inadequate access to mental health care are complex but may have to do with barriers when trying to obtain
mental health services (Woodward et al., 1992). For example, a significant percentage of the Hispanic population (37%) in the U.S. is not covered by health insurance, limiting their access to mental health care (Padgett et al., 1994). Hispanics are more likely to be uninsured than other ethnic groups (e.g., 24% of blacks, 15% of Whites; Brown et al., 2000; Kaiser Commission, 2000). However, it is important to recognize that having insurance does not necessarily predict whether an individual will seek or receive appropriate mental health care as other barriers, including willingness to accept care, limited English proficiency, limited access to specialty services in Hispanic neighborhoods, inadequate culturally sensitive care (e.g., limited number of clinicians with appropriate Spanish language fluency, lack of clinicians with adequate knowledge of Hispanic culture), and/or clinicians’ limited knowledge regarding effective treatments, may further impede mental health care access (Alegría et al., 2002; Young, Klap, Sherbourne, & Wells, 2001).

To summarize, Hispanics (like other minority groups) experience limited access to mental health care relative to Whites. Further, among the small percentage of Hispanics who do seek mental health services, inappropriate care is another impediment to adequate mental health care, which may, in turn, result in poor treatment adherence, premature treatment termination, and poor outcomes (Sue et al., 1991). Clearly, examining ways to improve mental health care access for this particularly underserved population deserves more attention from clinical research.

Quality of Mental Health Care Received by Hispanics with Anxiety and Mood Disorders

Most patients who do receive mental health treatment receive it in primary care settings (Ford, Kamerow, & Thompson, 1988; Kessler, Demler, et al., 2005). However, a
recent report from the U.S. Surgeon General (2001) highlighted the fact that although Hispanics, like other groups, underutilize psychiatric services, Hispanics, unlike other groups, overutilize primary health services and are twice as likely to seek treatment for psychological disorders in publicly funded primary care settings rather than mental health specialty settings. For example, rates of current depression are as high as 25% in Spanish-speaking primary care patients, which is more than double the rate in the general population (Kessler, Chiu, et al., 2005; Muñoz & Ying, 1993). Given the stigma some Hispanics associate with visiting a mental health professional (Alvidrez, 1999; Azocar, Areán, Miranda, & Muñoz, 2001), they are more likely to see primary care physicians than mental health professionals for mental health issues (Vega, Kolody, Aguilar-Gaxiola, & Catalano, 1999).

Currently, the most prevalent mental health problems presenting to primary care settings are anxiety disorders (Kessler, Chiu, et al., 2005; Kessler et al., 1994). Evidence has shown that anxiety disorders have a lifetime prevalence rate of about 29% and a 12-month prevalence rate of about 18% and in the general population (Kessler, Chiu, et al., 2005) – 21.4% in Hispanics, 18.7% in blacks, and 18.9% in Whites (Breslau et al., 2005), as well as high rates of comorbidity with other psychiatric disorders and medical illnesses, and tend to have a chronic course if untreated.

Despite the availability of evidenced-based treatments for the anxiety disorders (i.e., CBT; Barlow, 2002; Chambless et al., 1998; Chambless & Ollendick, 2001; Craske, 1999), data from the NCS-R showed that only 22% of the general population with an anxiety disorder sought the care of a mental health provider (Kessler, Demler, et al., 2005). Indeed, as mentioned earlier, the majority of the general population
(approximately 37%) suffering from psychiatric disorders tends to seek mental health treatment in general health care settings. This is alarming because the quality of care for psychiatric disorders in primary care settings is generally inadequate (Wang, Berglund, & Kessler, 2000; Young et al., 2001). Young and colleagues (2001) found that although a high percentage (80.8%) of individuals with anxiety or depressive disorders visited their primary care physicians, only 30.4% of them received appropriate treatment (e.g., CBT). More specifically, despite the significant number of patients with diagnosable anxiety disorders, anxiety is less readily recognized by primary care physicians. Moreover, when anxiety is recognized, evidence-based psychological interventions are rarely used, and are particularly unlikely to be used when treating Hispanics (Young et al., 2001).

Cognitive-Behavioral Therapy for Anxiety Disorders in Hispanics

Another critical issue to consider is the growing concern regarding the validity of CBT for Hispanics with anxiety disorders given the apparent absence of efficacy and effectiveness studies with Hispanic samples (U.S. Department of Health and Human Services, 2001). Briefly, CBT involves systematic exposure to feared stimuli in order to reverse patterns of avoidance as well as cognitive restructuring to alter irrational thoughts and beliefs. More specifically, over the course of treatment, individuals learn through direct experience (i.e., exposure) that fear, anxiety, and the associated stimuli and contexts are not harmful; this learning is facilitated by discussion and verbal processing (i.e., cognitive restructuring; Craske, 1999). To date, only one (naturalistic) treatment outcome study has examined the efficacy of CBT for obsessive-compulsive disorder and found that Caribbean-Americans were equally likely to benefit from treatment as their White counterparts (Friedman et al., 2001). Findings from this study, albeit preliminary,
suggest that CBT interventions for anxiety are similarly efficacious for Hispanic and White adults. Although the literature on the impact of CBT for anxiety disorders in Hispanics is limited, there are several studies that have demonstrated that CBT for other psychiatric disorders, including depression, improves outcomes in this population, and that treatment efficacy is equivalent for Hispanics and Whites (e.g., Comas-Diaz, 1981; Markowitz, Speilman, Sullivan, &Fishman, 2000; Miranda, Azocar, Organista, Valdes Dwyer, Y Areán, 2003). This growing literature suggests that CBT is a promising therapeutic approach for Hispanics.

Additionally, there may be aspects of CBT that are consistent with some of the traditional cultural aspects and social experiences of Hispanic individuals. For example, a traditionally-oriented Hispanic patient likely expects immediate symptom relief, a problem-centered approach, guidance and advice, and a directive approach (Miranda, 1976). Thus, the problem solving emphasis of CBT can potentially help Hispanics with limited resources and frequent crises (Organista, 2006). CBT can directly target environmental stressors faced by Hispanic patients, particularly patients affected by poverty, while simultaneously helping them cope with anxiety. Targeting multiple stressors in the context of specific values and beliefs relevant to the patient is an essential element of CBT (Organista, 2006).

The directive approach of a CBT therapist is consistent with traditionally-oriented Hispanics’ expectations of professionals to prescribe a course of action to improve their lives. Professionals are viewed as authority figures who teach patients about their illness and how best to treat it, offering concrete strategies to change specific behaviors. Further, the educational approach of CBT can help patients learn what to expect from
psychotherapy, thus improving treatment compliance and decreasing the likelihood of premature dropout (Organista, 2006).

Many Hispanic individuals are unfamiliar with the process of psychotherapy. In fact, receiving mental health care is very much stigmatized in this particular population and many traditionally-oriented Hispanics, particularly immigrants, hold the view that psychiatric care is reserved only for those with severe mental illness. CBT’s use of homework assignments can help Hispanics patients view psychotherapy as a classroom experience, consequently reducing the stigma often associated with seeking mental health treatment.

It is important to evaluate the efficacy and effectiveness of evidence-based treatments before advocating the provision of evidence-based care for this particular minority group (Miranda et al., 2005). This information is essential for tailoring treatment interventions for the underserved Hispanic population effectively and examining whether modifications to evidenced-based interventions are necessary (Miranda et al., 2002). Additionally, there is an urgent need for effective, disseminable treatment for anxiety disorders in primary care settings because, as mentioned earlier, the quality of mental health care in general health care settings is in dire need of improvement (Wang et al., 2000; Young et al., 2001). Thus, closely examining the effectiveness of evidence-based treatments for anxiety disorders among Hispanics in primary care settings is of considerable public health significance, especially since this particular population is the fastest-growing and second largest minority group in the U.S. Thus, evaluating the impact of CBT in Hispanics with anxiety disorders seems warranted (Burnam et al.,
In summary, previous findings suggest that similar to other groups, Hispanics in the U.S. have a high occurrence of anxiety disorders (Burnam et al., 1987; Ginsburg & Silverman, 1996; Karno et al., 1989; Karno et al., 1987; Kessler et al., 1994; Minsky et al., 2003; Roberts et al., 1997) and these psychiatric disorders tend to take a more chronic form (Breslau et al., 2005). Furthermore, research indicates that acculturation and social support may play a central role in the clinical course and outcome of anxiety disorders among Hispanics. In fact, greater levels of acculturation have been linked with greater prevalence rates of anxiety disorders (e.g., Grant et al., 2004; Ortega et al., 2000). Understanding the relationship between mental health, acculturation, and social support may have significant implications for clarifying their contribution to the course and outcome of anxiety in the Hispanic population.

Further, the U.S. Surgeon General’s report (2001) concluded that it is essential for the general health care sector to improve recognition of psychological dysfunction (including anxiety disorders) among Hispanics given that the majority of those who seek psychological care do so in primary care settings. Additionally, research indicates that a significant number of these individuals face barriers such as inadequate access to specialty mental health care (Alegría et al., 2002; Padgett et al., 1994; Williams & Collins, 1995), poor quality of care for psychiatric disorders in primary care settings (Wang et al., 2000; Young et al., 2001), and limited availability of evidenced-based and culturally competent care (Alegría et al., 2002; Lopez, 1989).
The primary aim of the present study was to report preliminary analyses examining the clinical effectiveness of CBT for four common anxiety disorders (panic disorder, post-traumatic stress disorder, generalized anxiety disorder, and social anxiety disorder) among Hispanic \( (n = 53) \) compared with White \( (n = 226) \) samples from 13 primary care clinics (each clinic is administratively linked to one of the 4 study sites: University of California, Los Angeles; University of California, San Diego; University of Washington; University of Arkansas for Medical Sciences). Improving the quality of mental health care requires continued efforts to investigate whether clinical interventions known to be effective for White individuals are also effective in minority individuals, before advocating for providing these interventions to these groups. The current investigation therefore was particularly interested in examining differences in treatment response between Hispanic and White samples following CBT for anxiety disorders.

Specifically, differences in anxiety- and depression-related distress and overall functioning between Hispanic and White participants were examined from pre- to 6- and 12-month follow-ups. The present study also sought to identify predictors of treatment response. It was anticipated that cultural factors (i.e., acculturation, stigma about visiting mental health professionals, marital satisfaction, social support) would predict treatment outcome among Hispanics at 6- and 12-month follow-up. This study attempted to validate the importance of these cultural variables, found previously to be predictive of psychological dysfunction in epidemiological studies with Hispanic populations (e.g., Crockett et al., 2007; Finch & Vega, 2003; Grant et al., 2004; Hernandez et al., 2005; Plant & Sachs-Ericsson, 2004; Rousseau et al., 1997), in evaluating the effectiveness of CBT for anxiety among the Hispanic sample.
A secondary aim was to examine the relationship between the mental health of Hispanics \((n = 53)\) and relevant cultural factors. Examining the association between Hispanic ethnicity and psychiatric disorders is increasingly important, as Hispanics are rapidly becoming the largest minority group in the U.S. (U.S. Census Bureau 2003a) and they are at high risk for poor psychological adjustment (Vega et al., 1998; Vega & Rumbaut, 1991). Many studies that have investigated the relationship between Hispanic ethnicity and psychiatric disorders have not studied important factors such as acculturation, family and social support. As noted earlier, there are countless epidemiological studies that have documented the relationship between acculturation and psychiatric disorders, yet inconsistent relationships between these variables have been suggested (Escobar et al., 2000; Moyerman & Forman, 1992; Rogler et al., 1991). In addition, there is some research suggesting that factors relating to acculturation (e.g., language use, place of birth) serve a protective function against mental illness (e.g., Ortega et al., 2000; Vega et al., 1998) indicating that poorer mental health may be due to psychological distress resulting from weakening of protective factors such as family cohesiveness and social support for more acculturated individuals (Vega & Gil, 1998; Vega & Scribney, 2003).

Taken together, the available research suggests a moderational model in which social support may serve as a moderator for the relationship between levels of acculturation and psychological dysfunction. As Baron and Kenny (1986) stipulate, a moderator is a variable that affects the direction and/or strength of the relationship between the independent and dependent variables. To date, a moderation model has yet to be evaluated in a Hispanic anxious sample with regard to the moderating role of social support on the relationship between acculturation and mental health. Thus, the current
investigation aimed to fill this gap by examining the relationship among acculturation and social support with symptom severity outcome. It was anticipated that participants’ increased levels of acculturation, as indexed by the number of years lived in the U.S., place of birth, and language preference would predict increased anxiety and depressive distress, but that such relations would be significantly moderated by levels of social support. That is, preliminary data regarding possible moderating effects of social support on the relationship between acculturation and outcome variables was examined.

**Hypotheses**

*Pre-treatment differences between Hispanic and White samples.* Although previous research has suggested greater symptom severity and prevalence of anxiety disorders in Hispanics compared to Whites (Breslau et al., 2005), these differences are not reliably different. Based on this research, it was hypothesized that Hispanics and Whites would not differ in terms of anxiety and related affective symptom severity or in overall functioning prior to treatment.

*Impact of CBT in Hispanic and White samples.* Given the lack of research specifically investigating the effectiveness of CBT for anxiety disorders among adult Hispanics, the current study presents preliminary data examining differences in the effectiveness of CBT for four common anxiety disorders (panic disorder, post-traumatic stress disorder, generalized anxiety disorder, and social anxiety disorder) among Hispanics \( n = 53 \) compared to Whites \( n = 226 \) in 13 primary care clinics. Although the literature has not directly studied possible differences and/or similarities in effectiveness of CBT for anxiety between Hispanics and Whites, it was hypothesized that CBT for anxiety disorders would be equally effective for Hispanics and Whites, given that various
elements of CBT seem to be consistent with many Hispanics’ cultural characteristics and social experiences and that CBT is an evidently potent intervention that may likely override any cultural differences. However, because the treatment protocol utilized in this study was not specifically designed to be culturally-sensitive to the Hispanic population, it was also hypothesized that CBT would show greater effectiveness for Whites compared to Hispanics. That is, it was hypothesized that Whites would show significantly greater improvement in symptom severity (i.e., ASI, BSI, PHQ-9) as evident in the 6- and 12-month follow-up assessments.

*Treatment outcome predictors among Hispanics.* Despite the extensive epidemiological research on the relationship between acculturation and mental health in general, and anxiety disorders in particular, very little is known regarding how acculturation levels may influence the effectiveness of treatment for anxiety disorders in a Hispanic population. Based on findings from epidemiological studies showing relations between cultural factors and presence of psychiatric disorders (Canino et al., 1987; Caraveo-Anduaga et al., 1999; Crockett et al., 2007; Finch & Vega, 2003; Grant et al., 2004; Hernandez et al., 2005; Ortega et al., 2000; Plant & Sachs-Ericsson, 2004; Rousseau et al., 1997; Vega et al., 1998; Vega et al., 2004), it was hypothesized that following the CBT intervention, decreased symptom severity outcomes in Hispanic participants would be predicted by cultural factors thought to play an important role in the mental health of this particular population (i.e., acculturation, social support, family satisfaction, stigma about visiting mental health professionals) above and beyond participants’ initial distress. That is, cultural variables would predict treatment response
while controlling for variables that might predict treatment response (i.e., pre-treatment outcome scores).

*The moderating role of social support on the relationship between acculturation and mental health among Hispanics.* Overall, epidemiological research has demonstrated differences in the rate of psychiatric disorders based on acculturation levels (Escobar et al., 1986; Escobar & Vega, 2000; Grant et al., 2004; Malzberg, 1964; Miranda & Matheny, 2000; Ortega et al., 2000; Ritsner et al., 1997; Rogler et al., 1991; Vega & Gil, 1998; Vega & Sribney, 2003; Vega et al., 1998), but findings differ across studies regarding the issue of how acculturation may be related to clinical outcomes. Further, high occurrence of anxiety disorders has been linked to greater levels of acculturation, yet for whom or when this is more likely to be the case is unknown. It was hypothesized that greater levels of acculturation would predict increased anxiety and depressive distress in the Hispanic sample and that these relationships would be significantly moderated by levels of social support at pre-treatment.

Using a moderational model proposed by Baron and Kenny (1986), our model illustrated in Figure 1 shows three causal paths to the outcome variables: (1) the effect of acculturation as a predictor (path a), (2) the effect of social support as a moderator (path b), and (3) the interaction of these two, the predictor and the moderator (i.e., acculturation and social support; path c). To support the moderator hypothesis, the interaction (path c) must be significant (Baron & Kenny, 1986).
Thus, the first series of analyses focuses on relationships between acculturation and the symptom outcomes. Zero-order correlations were computed between predictor (i.e., acculturation) and dependent variables (i.e., ASI, BSI, PHQ-9). It is expected that levels of acculturation will be associated with greater symptom severity. However, the direction of this relationship cannot be predicted given the inconsistent findings in the literature thus far. The second series of regression analyses were structured as follows: (1) symptom severity measures (i.e., ASI, BSI, PHQ-9) were entered as the dependent variables, (2) acculturation was entered as a predictor in the first block, (3) social support as a predictor in the second block, and (4) the interaction of acculturation and social support.
support as a predictor in the third block. There is considerable evidence relating family relationships (e.g., Hovey & King, 1996; Rivera et al., 2008; Salgado de Snyder, 1987) and social support to lower levels of psychological distress (e.g., Cohen & Willis, 1985; Rivera, 2007; Turner, 1981; Vega, Kolody, Valle, & Weir, 1991). Therefore, lower rates of social support were hypothesized to be associated with greater psychological distress. Finally, a statistically significant interaction between the predictor (i.e., acculturation) and the moderator (i.e., social support) would demonstrate moderation. Thus, the expectation was that greater levels of acculturation would predict increased anxiety and depressive distress in the Hispanic sample, when social support levels were low. On the other hand, when levels of social support were high, greater levels of acculturation would predict decreased anxiety and depressive distress. Social support was of special interest to the proposed moderation model because social relationships have been found to serve an important protective function in the psychological adjustment of Hispanics individuals given the importance of traditional family values in this group (Hovey & King, 1996; Salgado de Snyder, 1987).

Research Design and Methods

Participants

The present study used data from a larger study, “Coordinated Anxiety Learning and Management (CALM): Improving Primary Care Anxiety Outcomes” (principal investigators: Michelle G. Craske, Ph.D., Peter Roy-Byrne, Ph.D., Murray Stein, M.D., Ph.D., Greer Sullivan, M.D., and Cathy Sherbourne, Ph.D.). That study (herein referred to as the “CALM study”) sought to examine the clinical effectiveness of a model of delivering evidence-based treatments for anxiety versus treatment as usual for four
common anxiety disorders (panic disorder, generalized anxiety disorder, post-traumatic stress disorder, and social anxiety disorder) among a heterogeneous primary care population \((N = 1004)\). Thus, in order to more fully evaluate the nature of the present study, the methodology used in the CALM study is described succinctly below.

The CALM study intentionally sought a sample wherein Hispanics (and members of other minority groups) were over-represented. Therefore, a diverse group of primary care clinics was assembled that serve a high proportion of this population. Participants were recruited for this study from across 4 sites, which included private and public primary care clinics in various geographic settings (Los Angeles, San Diego, Seattle, and Arkansas). In total, 13 clinics participated in this study, each administratively linked to one of the 4 clinical sites (University of California, Los Angeles; University of California, San Diego; University of Washington; University of Arkansas for Medical Sciences). RAND was heavily involved in the protocol across all sites, since personnel from RAND’s Survey Research Group (SRG) were responsible for pre- and post-treatment assessments of all participants. Further, participants that were monolingual Spanish speakers were included. Study participants received payment for pre-treatment, and 6- and 12-month follow-up assessments (i.e., $50 for each of the three assessments and a bonus of $25 for completing the final assessment).

Study candidates had to meet the following inclusion criteria:

(a) age of 18 – 75 years;

(b) primary diagnosis of one of four anxiety disorders (panic disorder, generalized anxiety disorder, post-traumatic stress disorder, and social anxiety disorder) based on criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV;
American Psychiatric Association, 2000) criteria. Diagnostic status was determined using the Mini International Neuropsychiatric Inventory (MINI; Sheehan et al., 1998). The MINI was selected because of its ease of administration, the relatively brief training needed for its use, its broad coverage, and its quick administration time. Psychometric examination of the MINI shows acceptable test-retest and inter-rater reliability (Lecrubier et al., 1997);

(c) a score of 8 or higher on the Overall Anxiety Severity and Impairment Scale (OASIS; Norman, Shadha, Means-Christensen, & Stein, 2006). The OASIS is a 5-item questionnaire that assesses impairment and severity of anxiety symptoms. The OASIS is designed to be used as a continuous measure of anxiety-related severity and impairment across anxiety disorders, regardless of whether a person meets criteria for single or multiple co-occurring anxiety disorders. The test-retest reliability over a month period and validity of the measure has been found to be adequate (Campbell-Sills et al., 2009; Norman et al., 2006);

(d) ability to provide informed, written consent (either in English or Spanish);

(e) access to a telephone; and

(f) speak either English or Spanish.

Study candidates were excluded if they met one or more of the following:

(a) a life threatening condition (acute suicidal or homicidal/dangerous behavior); medical illness that would render inclusion unsafe such as end-stage renal disease, end-stage HIV disease, debilitating cardiac disease);

(b) were less likely to participate reliably in the intervention protocol because there was evidence of current psychosis, dementia, or had been diagnosed with Bipolar I;
(c) evidenced current substance abuse/dependence (alcohol and marijuana abuse was allowed, but referrals for additional treatment were made). Candidates who reported evidence of heroin and crack cocaine users were excluded. Frequent powder cocaine or pill opiate use (more than once a week) was another reason for exclusion. All other illicit substance dependence and abuse were excluded. Methadone maintenance regimen for opiate addiction was an exclusion criterion as well. These conditions were diagnosed using the Mini International Neuropsychiatric Inventory (MINI; Sheehan et al., 1998) and a series of questions about drug and alcohol use frequency and amount (Alcohol Use Disorders Identification Test – AUDIT; Bohn, Babor, & Kranzler, 1995). A total of 66 study candidates were excluded because of substance use disorders;

(d) significant cognitive impairment. For patients 65-75 of age, the Mini Mental Status Examination (Folstein, Folstein, & McHugh, 1975; Schutte, 1995) was administered to rule out those with such impairment;

(e) participants were also excluded if they were receiving medication for mental health problems from someone other than the primary care provider (PCP), or receiving CBT for anxiety. Other individual therapy, marital therapy and group therapy was permitted; and

(f) lastly, the presence of another predominant psychological disorder (aside from SAD, GAD, PTSD, or PD).

Study participants for the present study were Hispanic \(n = 53\) and White \(n = 226\) participants from the CALM study.

*Primary Outcome Measures*
A battery of well-established and psychometrically sound measures were administered before and after treatment (see Appendix A for all measures). This battery included the following measures:

*Anxiety Sensitivity Index* (ASI; Blais, Otto, Zucker, 2001; Peterson & Reiss, 1993; Reiss, Peterson, Gursky, & McNally, 1986), is a 16-item questionnaire designed to assess fear of anxiety-related symptoms. Each item is rated on a 5-point scale of 0 = very little to 4 = very much. Among clinical and non-clinical White samples, the ASI has a high degree of internal consistency (range of coefficients: .79–.90; Peterson & Reiss, 1993; Reiss et al., 1986) and stable test-retest reliability over a three-year period (r = .75; Maller & Reiss, 1992; Reiss et al., 1986). Among Hispanic American samples, the ASI has been demonstrated to have good internal consistency (coefficient: .93; Novy, Stanley, Averill, & Daza, 2001) and good convergent validity with other anxiety symptom measures, Pearson r correlation coefficients ranging from .47 to .67 (Novy et al., 2001).

*Brief Symptom Inventory* (BSI; Derogatis, 1993) is the short version of the SCL-R-90 (Derogatis, 1975, 1977) and consists of a 12-item inventory (shortened form of the BSI-18) assessing psychological distress. The BSI-12 yields two subscales scores: anxiety (feelings of fear, general nervousness, and panic) and somatization (discomfort produced by the perception of corporal problems, including cardiovascular, stomach, and muscular problems) as well as a Global Severity Index score. Items are rated on a 5-point Likert scale (0 = not at all to 4 = extremely). Lower scores indicate less distress. The test-retest reliability ranges from .68 to .90, the construct and predictive validity are reported to be high, and the internal consistency is good, ranging from .74 to .84 (Derogatis, 2000). Among Latin American immigrants, the BSI has been demonstrated to have high
internal consistency, with estimates ranging from .81 to .91 (Asner-Self, Schreiber, and Marotta, 2006). Moreover, Latin American women scored on average one standard deviation above women in community samples on somatization, whereas Latin American men score on average one standard deviation above the men in the community sample on depression (Asner-Self et al., 2006). This work suggests that Latin American immigrants may present with different profiles than the community sample for the BSI-12. Thus, it has been suggested that the BSI-12 is best used to assess for general psychological distress through the Global Severity Index among the Hispanic population (Asner et al., 2006).

*Patient Health Questionnaire Depression Scale* (PHQ-9; Kroenke, Spitzer, & Williams, 2001) is a 9-item measure that assesses the frequency of depressive symptoms in the past 2 weeks. Items come directly from the nine signs and symptoms of major depression delineated in the DSM-IV-TR (e.g., feeling down or depressed, feeling tired or having little energy; American Psychiatric Association, 2000). PHQ-9 scores range from 0 to 27. Cutoff points of 5, 10, 15, and 20 represent the thresholds for *Mild, Moderate, Moderately Severe,* and *Severe* depression, respectively. For a single screening cutpoint, a PHQ-9 score of 10 or greater is recommended (Kroenke et al., 2001). Internal consistency (α ranging from .86 to .89) and test-retest reliability (correlations ranging from .81 to .96) of the PHQ-9 have been found to be adequate (Kroenke et al., 2001). Among Hispanics, the PHQ-9 has been shown to have adequate internal consistency (α .80) and has been demonstrated to be an effective measure of depressive symptoms among Hispanics (Huang, Chung, Kroenke, Delucchi, & Spitzer, 2006). Mean PHQ-9 scores have been shown to be similar among Hispanics and Whites, suggesting that there
is no need to adjust PHQ-9 threshold scores for depression in patients from Hispanic backgrounds (Huang, et al., 2006; Huang, Chung, Kroenke, & Spitzer. 2006).

General Health Survey Short Form 12 (SF-12; Ware, Kosinski, & Keller, 1995) is the short version of the SF-36 (Ware & Sherbourne, 1992) and consists of 12-item questionnaire assessing physical and mental health functioning. High scores on the SF-12 are indicative of greater physical and mental health functioning. The SF–12 has been shown to be a valid measure of physical and mental health functioning in U.S. adult populations and other populations across the world, including Hispanics (Gandek et al., 1998). Test-retest reliability (correlations of .89 for the physical health component and .76 for the mental health component) of the SF-12 has been found to be adequate (Resnick & Parker, 2001; Salyers Bosworth, Swanson, Lamb-Pagone, Osher, 2000; Ware, Kosinski, & Keller, 1996). The construct validity (correlations of .91 for the physical health component and .92 for the mental health component) of the SF-12 has been found to be excellent (Ware et al., 1996).

Potential Predictors and Moderators of Treatment

A battery of measures designed to assess cultural variables found previously to be predictive of psychological dysfunction in Hispanics were administered before treatment (see Appendix A).

Acculturation was measured by 4 items designed to assess participants’ level of acculturation to the mainstream American culture. Most studies have relied on methods to assess acculturation such as preferences for language, nativity (i.e., place of birth), and nationality (Burnam et al., 1987; Ortega & Rosenheck, 2000; Rogler et al., 1991; Solis, Marks, Garcia, Shelton, 1990; Vega et al., 1998). When such historical indicators (e.g.,
preferred language, place of birth, years in the U.S.) have been used as independent variables, consistent main effects on dependent variables such as drug use and psychiatric disorders have been found (Escobar & Vega, 2000). Further, it is important to note that when multidimensional scales of acculturation have been used to predict outcomes, language, place of birth, and years lived in the U.S. have been found to be stronger predictors than other cultural factors nested in these scales (Cobas, Balcazar, Benin, Keith, & Chong, 1996; Escobar & Vega, 2000). Accordingly, nativity, years lived in the U.S., or language preference is often used as proxies for acculturation even though these variables may fail to meet the heuristic assumptions of acculturation (Escobar & Vega, 2000). In the present study, acculturation was assessed with three items measuring participants’ nativity, language preference, and number of years lived in the U.S. (if not born in the U.S.).

Medical Outcomes Study (MOS) social support survey (Sherbourne & Stewart, 1991) is a 4-item measure (shortened form of the original 19-item MOS social support survey) that assesses the perceptions of the availability of four different functional aspects of support: informational support (i.e., provisions of advice, information, guidance or feedback); tangible support (i.e., offering of material aid or behavioral assistance); affectionate support (i.e., expressions of love and affection); and positive social interaction (i.e., availability of other persons to do fun things with). For each item, the respondent is asked to indicate how often each support is available to them if needed. All items are rated on a 5-point Likert scale (1 = none of the time to 5 = all of the time); with greater scores indicating better perception of social support. The MOS social support survey has a high degree of internal consistency (range of coefficients: .91 - .97)
and stable test-retest reliability over a one-year period (range of coefficients: .72 - .78; Sherbourne & Stewart, 1991). The reliability and validity of the measure in an American and Hispanic population of adults with chronic illness has been established (Costa Requena, Salamero, & Gil, 2007; Sherbourne & Stewart, 1991).

_Treatment Stigma_ was assessed by items taken from the National Comorbidity Survey – Replication study (NCS-R; Kessler & Merikangs, 2004). The NCS-R interview schedule was the version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI) that was developed for the WHO World Mental Health (WMH) Survey Initiative. This survey, known as the WMH-CIDI, was designed to obtain valid information about the prevalence and correlates of psychiatric disorders, unmet need for treatment of psychiatric disorders, treatment adequacy among patients in treatment for psychiatric disorders, and the societal burden of psychiatric disorders. The WMH-CIDI has been found to have stable test-retest reliability (Kessler & Üstün, 2004). Treatment stigma was assessed by 5 items (e.g., how comfortable would you feel talking about personal problems with a professional?). Three items are rated on a 4-point Likert scale (1 = very to 4 = not at all). Higher scores represent feeling more stigma toward treatment for emotional problems. The other two items asked respondents to estimate the percentage of people they think are helped by treatment and a percentage of people they think get better even though they do not seek out professional help.

_Overview of the CBT Treatment Protocol_

Treatment was delivered by a team at each site that included the patient’s regular PCP, a study psychologist, and an Anxiety Clinical Specialist (ACS). The ACS served as a care manager, and coordinated communication between the PCP and a primary care
physician liaison at the clinic. CBT was delivered only by the ACS and all ACSs were licensed care providers (MSWs, MFTs, RNs, MAs, etc.) with experience working in primary care settings and little or no experience with evidenced-based treatments for anxiety. The CBT intervention was intended to be completed between six to eight visits. However, flexibility was allowed in the time taken to complete and more advanced treatment modules were available if additional care was needed. The psychologist and ACS conferred weekly to discuss new and ongoing intervention patients.

Expert support. CBT was continually supported by expert advice (weekly supervision by the study psychologist). Treatment response was assessed every six weeks by the ACS until patients remitted from their disorder. Patients not responding, or only partially responding, were evaluated in person by the team psychologist, and a plan was collaboratively developed for further treatment. This “stepped care” approach allowed the addition of the alternative, not initially chosen modality (i.e., pharmacotherapy) or augmentation of the originally chosen modality. After an additional six weeks and another assessment by the ACS, further psychiatric consultation and treatment tailoring was available for patients with sub-optimal response. The CALM study was designed to end treatment after one year, allowing opportunities for further steps of care (or perhaps specialty mental health care referral in severely treatment-refractory patients) in the patients still not responding.

Patient activation. The intervention included the patient as an active collaborator in his/her treatment. During the initial assessment and first visit, the ACS discussed with the patient his/her perceived barriers to treatment and strategies for overcoming barriers, educated the patient about treatment options in sufficient detail that the patient could
make an informed treatment choice, familiarized the patient with the treatment process, and addressed the patient’s outcome and self-efficacy expectations. Educational brochures and/or videotape were provided to the patient during the initial session along with a personalized workbook created for this study and designed to be used in ongoing self-management and treatment activation. Ongoing monitoring of patient attendance and involvement throughout the course of treatment enabled “as needed” targeting of perceived barriers, treatment expectation disparities and outcome, and self-efficacy expectancies.

**CBT Treatment.** CBT approaches are empirically supported for each of the four anxiety disorders that were the focus of the study. The ACS delivered CBT using both computerized educational material and 1:1 sessions (to individualize and apply the material). The ACS received supervision weekly from the site supervising psychologist. CBT taught cognitive-behavioral strategies for controlling anxiety and phobic avoidance. Specific strategies included psychoeducation, self monitoring, cognitive therapy, corrective breathing, and exposure to feared internal cues and external situations. There were up to 6, 45-minute treatment sessions conducted over the initial 6 weeks, using a treatment manual that presented CBT strategies relevant to anxiety disorders in general, and facilitated application tailored to each patient’s principal anxiety disorder.

The CBT intervention was adapted to combine the computerized and ACS-administered program, thus providing more structure and support for the ACS. Empirical data demonstrate that computerized versions of CBT are acceptable to patients (Selmi, Klein, Greist, Sorrell, & Erdan, 1990), and that computerized therapy as well as therapist-assisted computerized therapy is effective for mood and anxiety disorders (Carlbring,
Ekselius, & Anderson, 2003; Ghosh & Marks, 1987; Proudfoot et al., 2003; Richards, Klein, & Carlbring, 2003). Patients did not need to have any familiarity with or knowledge of computers; the computer was solely used in session with the ACS to help guide and focus treatment. Although the CBT treatment was administered in a computerized modality, the ACS was central to its application, and directed the patient in which sections to read, inquired about and facilitated the patient’s understanding of the presented material, and applied CBT principles to the patient’s idiosyncratic patterns of thinking and behaving (e.g., helped the patient identify anxiety provoking thoughts; generated alternative more constructive thoughts; conducted in-session exposure exercises; assisted in designing the most effective in vivo exposure assignments). All patients also received a patient-oriented CBT workbook.

The ACS was trained via workshop training and written guidelines in how to tailor CBT strategies to each of the four targeted anxiety disorders. In addition to applying each aspect of CBT to the patient’s principal anxiety disorder, the ACS was prompted by the computerized version to (a) assess patient motivation and engagement, (b) design and review patient homework, and (c) assess the status of comorbid conditions and if necessary implement therapeutic strategies for comorbid depression and anxiety disorders (also computerized). In addition, the ACS recorded patient’s attendance, homework completion, symptom ratings and motivation/engagement ratings, and activities completed during each visit (psychoeducation, cognitive restructuring, breathing retraining, and exposure).

*Web-Based Data Management System*
A web-based data management system, developed by Dr. Jurgen Unutzer (at the University of Washington) for Project IMPACT (a large, primary care depression treatment study; Unutzer et al., 2002) was modified to improve care for patients in the present study. The web-based program allowed for 24-hour access by study staff and clinicians. This web-based system allowed for monitoring of the patient’s clinical status and course of treatment in “real time” and provided opportunities to make changes. The ACS was able to view and edit data on their own patients. The system prompted the ACS about intervention patients who were due for appointments or whose treatment plans were ineffective, thereby fostering adherence to the treatment plan. Advantages of the web-based system included: availability of information to study staff in real time, minimization of data entry errors, and facilitation of treatment according to the protocol with increased likelihood of follow-up assessments completed by study patients associated with reminder systems.

Procedure

A schematic of the procedure is illustrated in Figure 2.

Referral by PCP. Study recruitment was done entirely by PCP referral. This referral relied either on the clinical judgment of the PCP or was facilitated by a five question screening measure (see Appendix A) designed to help the PCP better identify anxiety disorders in their patients. If the screener questionnaire was used, it was administered to the study candidate in the privacy of an examination room to help protect confidentiality. Study candidates who completed the screener were read a brief explanation of the purpose of the screener and the study, and were given the option to not answer any questions they did not want to answer.
Figure 2. A Schematic of Study Procedures
At that point, if eligible, the PCP asked the patient if they were interested in learning more about the treatment study. If interested, an attempt was made to schedule the patient with the ACS during the same visit to the clinic. If the ACS was not immediately available, after obtaining written permission, the PCP passed on the patient’s contact information to the ACS. Alternatively, if the patient preferred, they contacted the ACS on their own. In either of the latter two scenarios, the patient and ACS arranged to meet in person on a later occasion, which was agreed upon via telephone.

Pre-screening. The ACS or a UCLA research coordinator asked study candidates pre-screening questions containing a group of 5 initial eligibility questions. The purpose of these questions was to pre-screen study candidates prior to setting up the initial eligibility interview. These questions addressed age, telephone access, current specialized mental health treatment with a psychiatrist or psychologist, serious medical condition that would prevent participation in longitudinal study, and current methadone treatment. Pre-screening was intended to rule out clearly ineligible candidates from the study.

Given the sensitive nature of some of the questions, these were grouped together and presented as a whole to the study candidate, who was asked to provide one answer (yes or no) to the group of questions, therefore making it impossible to know which individual question they were responding to. To further protect study candidates’ confidentiality, it was made clear to them that answering the pre-screening questions at that point was optional. If they answered them, they were immediately informed whether or not they met initial study criteria. If they chose to not answer the screening questions in advance, they were informed that they could choose to not participate in the study or that a full eligibility interview could be scheduled with the understanding that the pre-
screening questions they did not answer previously, would be asked first (after informed consent for the eligibility interview was obtained). If they were deemed ineligible after the pre-screening questions, the eligibility interview did not proceed and their involvement with the study ended at that point. These study candidates were advised to see their PCP for treatment options. As the procedure outlined above poses minimal risk, and initial eligibility data was not be collected, informed consent was not obtained at that point.

**Eligibility interview.** Following pre-screening, study candidates, after providing written consent to be assessed for the study, underwent a diagnostic interview (MINI; Sheehan et al., 1998) to confirm symptomatic eligibility. The MINI was administered by trained staff (the ACS or research coordinator) and took approximately 30 minutes to complete, depending on the number of symptoms present. Those who met DSM-IV criteria for one of the four anxiety disorders (panic disorder, post-traumatic stress disorder, generalized anxiety disorder, social anxiety disorder), who had a score of 8 or higher on the OASIS, and who met inclusion criteria, were offered participation in the study. At this point, the ACS or research coordinator added the participant’s name and contact information to the restricted web-based system.

Study candidates between the ages of 65 and 75 were administered the Mini Mental Status Exam (MMSE; Folstein et al., 1975; Schutte, 1995) to rule out significant cognitive impairment. If, over the course of the interview, the ACS or research coordinator found indications of psychiatric difficulties but the patient was found not to be eligible for the study (i.e., meets criteria for an exclusionary diagnosis or condition), the ACS referred the patient back to their PCP. In the event that the patient endorsed
suicidal thoughts on the MINI, the ACS or research coordinator initiated a suicide risk assessment protocol (see Appendix A) that has been successfully used in past projects and is recommended by National Institutes of Health (NIH). In all such cases the study psychiatrist and psychologist was alerted and informed about the steps that were taken. The patient’s PCP was also alerted to the situation.

*Pre-treatment assessment*. RAND’s SRG accessed the web-based system daily and contacted patients who had consented to participate for a pre-treatment telephone assessment. Participants then completed a telephone assessment administered by RAND’s SRG that consisted of a battery of measures assessing: (1) global symptom severity, (2) anxiety- and depression-related symptom severity, (3) adaptive functioning, and (4) other relevant domains (e.g., beliefs about therapy, and therapy satisfaction). This assessment took 45-60 minutes to complete, and interviewers, all of whom were highly experienced, were trained specifically to administer the telephone assessment. Participants were informed that they could refuse to answer any question they did not wish to answer, and were encouraged to ask questions if they were unclear about any portion of the interview.

*Randomization*. After the pre-treatment assessment, RAND updated the participant’s information in the web-based system, and then randomized the participant to either CBT or treatment-as-usual (TAU). TAU was the treatment the provider would use in his/her usual practice (e.g., pharmacotherapy, referral to outpatient mental health care). When the ACS learned of a participant’s study condition from the web-based data management system, s/he passed the information on to the participant via telephone. If the participant was dissatisfied with their assignment, they were referred back to the
consent form, and were re-informed that participation is not compulsory, and that they were free to decline at any time.

**Stepped care (if needed).** For patients not showing evidence of remission of the target anxiety disorder (i.e. they either had only partially responded or not responded at all) on various symptom inventories (e.g. OASIS, BSI, etc.) an in-person consultation was arranged, followed by a team review of the case. Stepped care options included repetition of CBT targeted toward the same disorder, further CBT targeting additional anxiety disorders which were not the initial focus of CBT, or the addition of medications. Additional treatment was offered, as needed, for up to one year from study enrollment. Continued poor response at the next step prompted strong encouragement to pursue dual modality treatment. Once patients responded, the ACS followed them with monthly telephone calls, or emails. If, during a monthly check up, the ACS discovered that symptoms have re-emerged, the ACS referred the patient “back” to the next step of care, although the active phase of the study terminated at one year.

**Follow-up assessments (6 & 12 months).** Each patient participating in the study completed telephone assessments conducted by RAND’s SRG, with assessments in Spanish as required. Follow-up assessments were completed 6 and 12 months after study entry and these assessments consisted of measures of: (1) global symptom severity, (2) anxiety- and depression-related symptom severity, (3) adaptive functioning, and (4) other relevant domains (e.g., beliefs about therapy, and therapy satisfaction). Participants were compensated for completing the telephone assessments ($50.00 per assessment, with a $75.00 incentive for completing the final assessment). To eliminate inappropriate wording and assure that instruments met the highest possible research standards for a
cross-cultural, multi-ethnic study, all assessments were reviewed and approved by the Ethnic Advisory Board and by Jeanne Miranda, Ph.D. Dr. Miranda is a Professor in the Department of Psychiatry and Biobehavioral Sciences at UCLA and a researcher whose work and contributions have focused on evaluating the impact of mental health care for ethnic minority communities.

Attrition

Given the longitudinal nature of the study, the risk of attrition is great. For this reason, there was a person responsible for monitoring recruitment, enrollment, and attrition across the study as a whole. In the start up phase of the present study, Dana Perry, M.A. worked closely with all sites, including on-site visits to San Diego and Los Angeles, to advise about data collection methods, with specific focus on enrollment strategies. She served as on-going consultant across all sites throughout the data collection effort to remedy sample accrual issues. In addition, participants received a stipend of $50 for each of the four interviews, and a bonus of $75 for completing the final interview.

Results

Statistical Analyses

All data analyses were conducted using SPSS version 18.0. A power analysis, using guidelines suggested by Cohen (1998) was conducted to determine the number of participants needed to detect effects for the study’s primary hypotheses using repeated measures ANOVA. Similar analyses in the literature have produced consistent large effect sizes for interaction effects and planned contrasts (Fox et al., 2001; Waters et al., 2007). A large effect size ($d = .40$), a power of 0.80, $\alpha = 0.05$, were deemed appropriate
for the present study. Main effects (Time; Group), two-way interactions (Time x Group), and the highest order three-way interaction (Time x Group x Cultural variable) required a total sample size of 60 (5 per cell). Prior to testing the study’s hypotheses, the normality, skewness, and kurtosis were examined for all variables. Distributional properties for all independent self-report measures approximated normal distribution.

Demographic, diagnostic, and self-report differences between groups were analyzed using Pearson chi-square tests for discrete variables and t-tests for continuous variables.

To compare the patterns of change in outcome over time between Hispanics ($n = 53$) and Whites ($n = 226$) on each of the symptom severity and functioning measures, repeated measures analyses of variance (ANOVAs) were conducted, followed by repeated within subject contrasts to evaluate patterns of change from baseline, to 6- and to 12-month follow-up between the two groups. When appropriate, the Geisser-
Greenhouse degrees of freedom adjustment procedure ($\varepsilon = \text{epsilon}$) was applied to the repeated measures trials factor to correct for violations of sphericity that often occur with repeated measure ANOVAs. Following the recommendation of Cohen (1988), partial eta squared ($\eta_p^2$) was adopted as an index of effect size to provide an approximation of the proportion of variance accounted for by the experimental manipulations: large effects, $\eta_p^2 > .14$; medium effects, $\eta_p^2 = .06$; and small effects, $\eta_p^2 = .01$. When appropriate, significant effects were followed by either examination of simple effects or mean comparisons using a $t$-statistic. To control for familywise error rate, particularly in cases involving exploratory comparisons, reported alpha levels were adjusted using the Holm’s modified Bonferroni procedure.
Intent-to-treat analyses were also carried out to examine the patterns of change in outcome over time. Such strict analytical approach can be useful in understanding the effect of the treatment in participants who receive and stay in treatment. Intent-to-treat analysis is a pragmatic method to avoid bias in estimating the effect of treatment when missing values and dropout issues arise. Omitting cases with missing values at any measurement occasion can result in a substantial loss of information, which has a negative impact on precision and power (Unnebrink & Windeler, 2001). Fixed-value imputation methods, such as last observation carried forward (LOCF), substitute each missing or dropout value with a fixed value that is generated by one of the ad hoc strategies. LOCF is one of the most common techniques used in the practice in handling missing data (especially for continuous variables). This approach is generally regarded as a conservative approach because it tends to underestimate treatment effects (Mallinckrodt, Lane, Schnell, Peng, & Mancuso, 2008). LOCF is also less biased than an analysis of completing participants only, which potentially counteracts biases resulting from differential timing, rates, and reasons for dropouts (Mallinckrodt et al., 2008). In LOCF, missing or dropout values are filled with the last available non-missing values of the same participant (Unnebrink & Windeler, 2001).

Overall, studies suggest an important association between cultural factors and psychological distress among Hispanic individuals (Canino et al., 1987; Caraveo-Anduaga et al., 1999; Crockett et al., 2007; Finch & Vega, 2003; Grant et al., 2004; Hernandez et al., 2005; Ortega et al., 2000; Plant & Sachs-Ericsson, 2004; Rousseau et al., 1997; Vega et al., 1998; Vega et al., 2004). Therefore, the current study hypothesized that following the CBT intervention, decreased symptom severity outcomes in Hispanic
participants would be predicted at 6- and 12-month follow-ups by cultural factors (i.e., acculturation, social support, and treatment stigma) known to be relevant to Hispanics. To examine the impact of cultural variables on treatment outcome among Hispanics who completed CBT treatment \((n = 53)\), separate hierarchical linear regression analyses were conducted. First, zero-order correlations were computed between each set of predictor variable(s) and the dependent variable to determine the relationship among variables. Secondly, in each regression analysis, the 6- or 12-month follow-up outcome measure was entered as the dependent variable. Thirdly, pre-treatment scores for each outcome measure were entered in the first block in each analysis; such procedure allows the outcome measure to be used as an indicator of improvement in the regression analysis. Finally, cultural variables, thought to play a central role in the emotional adjustment of Hispanics and thus, hypothesized to influence the effectiveness of anxiety disorders treatment, were entered in the second block. The three sets of predictor variables included pre-treatment scores of: (1) acculturation (i.e., years lived in the U.S., language preference); (2) social support and family satisfaction; and (3) stigma toward treatment for emotional problems. Post-treatment outcomes were the ASI, BSI, and PHQ-9.

In the final set of analyses, the relationships between acculturation and anxiety and depressive-related distress were examined. Based on previous research (e.g., Canino et al., 1987; Caraveo-Anduaga et al., 1999; Ortega et al., 2000; Vega et al., 2004), it was hypothesized that high levels of acculturation would be associated with greater symptom severity following treatment for anxiety. Furthermore, it was of interest to examine whether social support moderated the relationship between acculturation and symptom severity. More specifically, the moderation model hypothesized that greater levels of
acculturation to mainstream American culture would predict greater anxiety and depressive-related distress among Hispanics, but that these relationships would be significantly moderated by lower social support.

To test the moderation model, separate multiple regression analyses were conducted. First, prior to analyses, variables were centered and standardized, and one subject with missing data was omitted from subsequent data analyses. Secondly, zero-order correlations were computed between the predictor (i.e., acculturation) and dependent variables (i.e., ASI, BSI, PHQ-9). Thirdly, the symptom severity measure (i.e., ASI, BSI, or PHQ-9) was entered as the dependent variable in each regression analyses. Finally in each regression, pre-treatment acculturation was entered as a predictor in the first block, social support were entered as predictor variable in the second block, and in the third block of the regression, the interaction of acculturation and social support was entered as a predictor variable. The test of moderation consisted of demonstrating a statistically significant interaction between acculturation and social support.

Attrition

Of the 279 participants (200 female; \( M = 44.38 \) years, \( SD = 14.31 \) years) receiving CBT treatment for anxiety disorders, 53 were Hispanics and 226 were Whites. Of these 279, a total of 60 participants (17 Hispanics and 43 Whites) completed treatment but failed to complete the follow-up assessments. More specifically, 41 (of the 279) participants completed treatment and the 6-month follow-up but failed to complete the 12-month follow-up and 19 additional participants completed treatment but failed to complete the follow-ups. Thus, the final sample size was 219 (36 Hispanics and 183 Whites). Hispanics had a significantly greater proportion of individuals who dropped out
of the study (32.1%) compared to Whites (19%), $X^2(1) = 4.33, p < .05$. Those who completed treatment but failed to complete either 6- or 12-month follow-up assessments did not differ from those who completed treatment in terms of demographics, diagnostic status and self-report across assessed outcomes at each of the 3 time points.

**Pre-Treatment Differences between Hispanic and White Samples**

Possible differences between Hispanic and White participants before receiving CBT were examined. Demographic characteristics are shown in Table 1. Significant differences between groups were apparent on some of the demographic variables. Hispanic participants were significantly younger ($M = 40.87$ years, $SD = 14.05$ years) than White participants ($M = 45.21$ years, $SD = 14.28$ years), $t(277) = -2.00, p < .05$. In general, the majority of participants (76.6%) had received more than 12 years of education. However, Hispanics had a significantly lower proportion of individuals who had greater than 12 years of education (63.5%) compared to Whites (84.5%), $X^2(1) = 6.18, p < .01$. The proportion of female participants was similar for Hispanics (79.2%) and Whites (69.9%), $X^2(1) = 1.84, p > .05$, as was the proportion of married or cohabitating participants among Hispanics (60.4%) and Whites (47.8%), $X^2(1) = 2.72, p > .05$. The proportion of employed Hispanics (62.3%) was similar to that of White participants (65%), $X^2(1) = .15, p > .05$. Rates did not differ between groups on the percentage of participants who were currently being treated with psychotropic medications: Hispanics = 60.4%, Whites = 69%, $X^2(1) = 1.46, p > .05$. Pre-treatment OASIS scores for the two groups were similar, though mean OASIS scores for Hispanics tended to be slightly greater ($M = 12.15, SD = 2.70$) but not significantly so compared to Whites ($M = 11.75, SD = 2.74$), $t(277) = .97, p > .05$. 

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Table 1

Summary of Descriptive Statistics in Hispanics and Whites

<table>
<thead>
<tr>
<th></th>
<th>Hispanic (n = 53)</th>
<th>White (n = 226)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (M)</td>
<td>40.87 (14.05)*</td>
<td>45.21 (14.28)*</td>
</tr>
<tr>
<td>% Female</td>
<td>79.2</td>
<td>69.9</td>
</tr>
<tr>
<td>% Married/cohabitating</td>
<td>60.4</td>
<td>47.8</td>
</tr>
<tr>
<td>% Employed</td>
<td>62.3</td>
<td>65</td>
</tr>
<tr>
<td>% ≥ 12 school years</td>
<td>63.5*</td>
<td>84.5*</td>
</tr>
<tr>
<td><strong>Anxiety Symptom Severity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OASIS pre-treatment score (M)</td>
<td>12.15 (2.70)</td>
<td>11.75 (2.74)</td>
</tr>
</tbody>
</table>

*Note. N = 279. Standard deviations appear in parentheses. OASIS = Overall Anxiety Severity and Impairment Scale. *p < .05

Groups did not differ significantly on the average total number of anxiety disorders diagnoses before treatment $t(277) = -.22, p > .05$. On average, Hispanic participants had a similar mean total number of anxiety disorders diagnoses ($M = 1.66, SD = .83$) compared to White participants ($M = 1.69, SD = .76$). Anxiety disorder diagnoses for the whole sample were distributed as follows: generalized anxiety disorder
(70.6%), panic disorder (43%), social anxiety disorder (37.3%), and posttraumatic stress disorder (17.2%). Type of primary anxiety disorder diagnosis did not discriminate between groups ($X^2$'s ranged between .138 to 2.77, all $p$’s > .05; see Table 2). Lastly, no significant differences were observed between groups on pre-treatment symptom outcome measures (i.e., ASI, BSI, PHQ-9) and the physical and mental functioning measure (i.e., SF12), $t$’s ranged between -1.05 to 1.67, all $p$’s > .05 (see Table 3).

Table 2

Anxiety Disorder Diagnoses at Pre-treatment in Hispanics and Whites

<table>
<thead>
<tr>
<th></th>
<th>Hispanic</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>($n = 53$)</td>
<td>($n = 226$)</td>
</tr>
<tr>
<td>% Panic disorder</td>
<td>45.3</td>
<td>42.5</td>
</tr>
<tr>
<td>% Generalized anxiety disorder</td>
<td>64.2</td>
<td>72.1</td>
</tr>
<tr>
<td>% Social anxiety disorder</td>
<td>47.2</td>
<td>35</td>
</tr>
<tr>
<td>% Posttraumatic stress disorder</td>
<td>9.4</td>
<td>19</td>
</tr>
<tr>
<td># Anxiety disorder diagnoses</td>
<td>1.66 (.83)</td>
<td>1.69 (.76)</td>
</tr>
</tbody>
</table>

Table 3

Symptom Outcome and Functioning Measures at Pre-treatment in Hispanics and Whites

<table>
<thead>
<tr>
<th>Measure</th>
<th>Hispanic</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n = 53)</td>
<td>(n = 226)</td>
<td></td>
</tr>
<tr>
<td>ASI</td>
<td>33.01 (14.60)</td>
<td>29.55 (13.29)</td>
</tr>
<tr>
<td>BSI</td>
<td>17.60 (8.88)</td>
<td>16.63 (8.58)</td>
</tr>
<tr>
<td>PHQ-9</td>
<td>13.89 (5.36)</td>
<td>13.42 (5.99)</td>
</tr>
<tr>
<td>SF-12 (physical)</td>
<td>46.96 (11.11)</td>
<td>48.57 (12.29)</td>
</tr>
<tr>
<td>SF-12 (mental)</td>
<td>30.75 (9.78)</td>
<td>32.29 (9.52)</td>
</tr>
</tbody>
</table>


Effect of Treatment Upon Symptom Severity

A repeated measures ANCOVA was conducted with ethnic group (Hispanic or White) entered as the between-subjects factor, and with time (pre-treatment, 6-month, 12-month follow-up) serving as a within-subjects factor with repeated measurements. Total number of treatment sessions was entered as a covariate for the current and subsequent analyses given the possibility it may be confounded with the effect of treatment over time. Total mean number of treatment sessions did not differ between the Hispanics (M = 10.47, SD = 5.88) and Whites (M = 9.20, SD = 5.16) by the end of treatment, t (217) =
1.32, $p > .05$. Overall, the covariate (total number of treatment sessions) did not predict any of the measured outcomes.

Means and standard deviations for ASI scores at pre-treatment, 6- and 12-month follow-ups for Hispanic and White participants are shown in Table 4. Hispanics reported significantly greater anxiety sensitivity ($M = 29.08$, $SE = 1.94$) than Whites ($M = 23.05$, $SE = .86$), as supported by a significant main effect for Group, $F (1, 212) = 8.05$, $p < .005$, $\eta_p^2 = .04$. There was also a significant main effect of Time, $F (1.77, 374.51) = 7.92$, $p < .001$, $\eta_p^2 = .04$. Reported anxiety sensitivity declined significantly over time: from pre-treatment ($M = 30.03$) to 6-month follow-up ($M = 25.43$), $t (216) = 7.98$, $p < .001$, and then to 12-month follow-up ($M = 22.74$), $t (214) = 3.61$, $p < .001$. Finally, there was a significant Group x Time interaction, $F (1.77, 374.51) = 3.87$, $p < .03$, $\eta_p^2 = .02$.

Table 4

*Effect of Treatment upon Anxiety in Hispanics and Whites*

<table>
<thead>
<tr>
<th></th>
<th>Hispanic ($n = 53$)</th>
<th>White ($n = 226$)</th>
<th>$p$ value</th>
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</thead>
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<tr>
<td><strong>ASI scores</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-treatment</td>
<td>31.23 (15.36)</td>
<td>28.74 (13.12)</td>
<td>.38</td>
</tr>
<tr>
<td>6-month follow-up</td>
<td>29.43 (15.23)*</td>
<td>21.32 (13.17)*</td>
<td>.001</td>
</tr>
<tr>
<td>12-month follow-up</td>
<td>26.23 (14.23) *</td>
<td>19.16 (12.54) *</td>
<td>.005</td>
</tr>
</tbody>
</table>
**BSI total scores (anxiety & somatic subscales)**

<table>
<thead>
<tr>
<th></th>
<th>Pre-treatment</th>
<th>6-month follow-up</th>
<th>12-month follow-up</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSI scores (anxiety subscale)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-treatment</td>
<td>9.42 (5.46)</td>
<td>10.37 (5.34)</td>
<td>.33</td>
<td></td>
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<tr>
<td>6-month follow-up</td>
<td>8.17 (5.92)</td>
<td>6.62 (4.76)</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>12-month follow-up</td>
<td>6.33 (4.87)</td>
<td>6.11 (5.09)</td>
<td>.80</td>
<td></td>
</tr>
<tr>
<td>BSI scores (somatic subscale)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-treatment</td>
<td>7.17 (4.40)</td>
<td>5.93 (4.51)</td>
<td>.13</td>
<td></td>
</tr>
<tr>
<td>6-month follow-up</td>
<td>6.33 (5.11) *</td>
<td>4.17 (4.19) *</td>
<td>.007</td>
<td></td>
</tr>
<tr>
<td>12-month follow-up</td>
<td>5.14 (3.54)</td>
<td>4.23 (4.30)</td>
<td>.24</td>
<td></td>
</tr>
<tr>
<td>PHQ-9 scores</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-treatment</td>
<td>13.25 (5.58)</td>
<td>13.29 (5.99)</td>
<td>.97</td>
<td></td>
</tr>
<tr>
<td>6-month follow-up</td>
<td>9.92 (6.04)</td>
<td>8.98 (5.98)</td>
<td>.39</td>
<td></td>
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<tr>
<td>12-month follow-up</td>
<td>9.00 (5.84)</td>
<td>8.64 (6.31)</td>
<td>.75</td>
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<tr>
<td>SF-12 (mental functioning subscale)</td>
<td></td>
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<td>Pre-treatment</td>
<td>31.98 (10.87)</td>
<td>32.56 (9.76)</td>
<td>.75</td>
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<tr>
<td>6-month follow-up</td>
<td>38.78 (9.33)</td>
<td>41.36 (11.63)</td>
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<td>12-month follow-up</td>
<td>39.52 (10.57)</td>
<td>42.09 (11.78)</td>
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<tr>
<td>SF-12 (physical functioning subscale)</td>
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<tr>
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<td>46.81 (11.13)</td>
<td>48.47 (12.30)</td>
<td>.45</td>
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<tr>
<td>6-month follow-up</td>
<td>44.78 (9.75)</td>
<td>47.47 (12.15)</td>
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To clarify the Group x Time interaction for ASI scores, difference scores for (a) Time 2 (6-month follow-up) – Time 1 (pre-treatment) and (b) Time 3 (12-month follow-up) – Time 2 (6-month follow-up) were computed for the anxiety sensitivity scores, and t-tests between those difference scores between groups were then performed. As illustrated in Figure 3, anxiety sensitivity decreased to a greater extent in Whites ($M = -7.46$) than in Hispanic participants ($M = -1.80$) when comparing difference scores for Time 2 – Time 1, $t(215) = 2.57, p < .01$. No significant differences were observed between groups when comparing difference scores for Time 3 – Time 2, $t(213) = -.60, p > .05$. Given that the Hispanic sample was significantly younger and less educated than the White sample at pre-treatment, analyses were conducted to explore whether age and education level explained significant variance with the poorer outcomes that were observed on the ASI from pre-treatment to 6-month follow-up. Age and education level were entered in the analyses as covariates. Results showed that age and education level were not significantly related to the ASI, ($F[1.77, 317.01] = .10, p > .05, \eta^2_p = .001$ and $F[1.77, 317.01] = .42, p > .05, \eta^2_p = .01$, respectively). Thus, the significant Group x Time interaction was retained, $F(1.77, 371.01) = 3.72, p < .03, \eta^2_p = .02$, even when controlling for age and years of education.
Means and standard deviations for the BSI subscales (i.e., anxiety, somatic, global index) at pre-treatment, 6- and 12-month follow-ups for Hispanic and White participants are shown in Table 4. On the BSI, the repeated measures ANCOVA for the anxiety subscale showed significant improvements over time, $F(2, 432) = 10.57, p < .001, \eta^2_p = .05$, with BSI anxiety scores declining significantly from pre-treatment ($M = 9.91$) to 6-month follow-up ($M = 7.42$), $t(218) = 9.25, p < .001$, and then to 12-month follow-up ($M = 6.24$), $t(218) = 2.18, p < .03$. There was also a significant Group x Time interaction, $F(2, 432) = 3.48, p < .03, \eta^2_p = .02$. To clarify this interaction, difference scores for (a) Time 2 (6-month follow-up) – Time 1(pre-treatment) and (b) Time 3 (12-
month follow-up) – Time 2 (6-month follow-up) were computed for the BSI anxiety scores and t-tests between those difference scores between groups were then performed. As illustrated in the left-hand portion of Figure 4, reported BSI anxiety scores decreased to a greater extent in Whites ($M = -3.75$) than in Hispanic participants ($M = -1.25$) when comparing difference scores for Time 2 – Time 1, $t (217) = 2.60, p < .01$. No significant differences were observed between groups when comparing difference scores for Time 3 – Time 2, $t (217) = -1.48, p > .05$. Age and education level were again entered in the analyses as covariates to explore whether age and education level explained significant variance with the poorer outcomes that were observed on the BSI anxiety scores from pre-treatment to 6-month follow-up. Results showed that age and education level were not significantly related to the BSI anxiety scores, ($F [2, 428] = 2.15, p > .05, \eta_p^2 = .01$ and $F [2, 428] = .16, p > .05, \eta_p^2 = .01$, respectively). Once again, significant Group x Time interaction was retained, $F (2, 428) = 3.68, p < .03, \eta_p^2 = .02$, even when controlling for age and years of education.

For the somatic subscale on the BSI, results showed a significant Group main effect, $F (1, 216) = 4.24, p < .04, \eta_p^2 = .02$, with Hispanics reporting significantly greater somatic concerns ($M = 6.15, SE = .61$) than Whites ($M = 4.79, SE = .27$). Somatic symptom severity scores did not vary significantly as a function of Time or Group x Time. Global severity index scores on the BSI did vary as a function of Time, $F (1.94, 418.05) = 7.76, p < .001, \eta_p^2 = .04$. As illustrated in the right-hand portion of Figure 4, BSI global severity scores declined significantly from pre-treatment ($M = 16.42$) to 6-month follow-up ($M = 12.65$), $t (218) = 8.53, p < .001$. No significant differences were found when comparing BSI global severity scores from 6-month follow-up to 12-month
follow-up, $t(218) = 1.67, p > .05$. BSI global severity scores did not vary significantly as a function of Group or Group x Time.

Figure 4

*Brief Symptom Inventory (BSI) Anxiety and Somatic Subscales and Global Severity Index Score in Hispanics and Whites across Time*

Means and standard deviations for PHQ-9 scores at pre-treatment, 6- and 12-month follow-ups for Hispanic and White participants are shown in Table 4. As illustrated in Figure 5, frequency of depressive symptoms (i.e., PHQ-9) decreased significantly over time, $F(1.92, 414.74) = 11.84, p < .001$, $\eta_p^2 = .05$, and specifically
from pre-treatment ($M = 13.25$) to 6-month follow-up ($M = 9.46$), $t (218) = 10.50, p < .001$. No significant differences were found when comparing PHQ-9 scores from 6-month follow-up to 12-month follow-up, $t (218) = 1.27, p > .05$. The effects of Group and Group x Time were non-significant.

Figure 5

*Patient Health Questionnaire Depression Scale (PHQ-9) in Hispanics and Whites across Time*

![Graph showing PHQ-9 mean scores across pre-treatment, 6-month, and 12-month follow-ups for Hispanics and Whites.]

*Effect of Treatment upon Adaptive Functioning*

Means and standard deviations for the SF-12 subscales (i.e., physical, mental) at pre-treatment, 6- and 12-month follow-ups for Hispanic and White participants are shown in Table 4. Participants showed significant improvement in mental health functioning.
over time, $F (2,432) = 9.95, p < .001, \eta_p^2 = .05$. As illustrated in the right-hand portion of Figure 6, reported mental health functioning improved significantly from pre-treatment ($M = 32.29$) to 6-month follow-up ($M = 39.97$), $t (218) = -10.18, p < .001$. No significant differences were found when comparing reported mental health functioning from 6-month follow-up to 12-month follow-up, $t (218) = -.97, p > .05$. The effects of Group and Group x Time were non-significant. For the physical subscale on the SF-12, results showed no significant main effects for Group, Time, or Group x Time interaction (see Figure 6).

Figure 6

*General Health Survey Short Form (SF-12) in Hispanics and Whites across Time*
Intent-to-Treat

All participants who began CBT treatment (N = 279) were included in the intent-to-treat analyses of all outcomes. Baseline data was carried forward for participants who completed treatment but failed to complete the 6- and 12-month follow-up assessments (n = 41), and 6-month follow-up data was carried forward for participants who failed to complete the 12-month follow-up assessment (n = 19). The final sample size included 53 Hispanics and 226 Whites. Intent-to-treat analyses suggested a similar pattern of results when examining the effect of CBT treatment upon symptom severity and adaptive functioning in Hispanics and Whites. Overall, mean scores for White participants improved to a greater extent than those of Hispanic participants from pre-treatment to 6-month follow-up.

First, the effects for reported anxiety sensitivity on the intent-to-treat analyses were similar to the effects reported earlier. That is, intent-to-treat analyses showed (1) a significant main effect of Group, $F(1, 271) = 10.92, p < .001, \eta^2_p = .04$, with Hispanics reporting significantly more anxiety sensitivity than Whites, (2) a significant main effect of Time, $F(1.68, 453.82) = 7.56, p < .001, \eta^2_p = .03$, with anxiety sensitivity scores declining significantly over time, and (3) a significant Group x Time interaction, $F(1.68, 294.88) = 4.01, p < .03, \eta^2_p = .02$, with anxiety sensitivity decreasing to a greater extent in Whites than in Hispanic participants when comparing difference scores for Time 2 – Time 1, $t(274) = 2.49, p < .01$. No significant differences were observed between groups when comparing difference scores for Time 3 – Time 2, $t(272) = -.35, p > .05$.

Secondly, the effects found on the intent-to-treat analyses for the BSI subscales were generally similar to the effects reported earlier, with the exception that no
significant Group x Time interaction was found on the BSI anxiety subscale scores. The intent-to-treat analyses showed (1) a significant main effect of Time, \( F(1.90, 524.80) = 12.28, p < .001, \eta_p^2 = .04 \), with the BSI anxiety scores improving significantly over time, (2) a significant main effect for Group, \( F(1, 276) = 5.61, p < .02, \eta_p^2 = .02 \), with Hispanics reporting significantly greater BSI somatic scores than Whites, and a (3) a significant main effect of Time, \( F(1.86, 514.23) = 8.77, p < .001, \eta_p^2 = .03 \), with global severity index scores declining significantly over time.

Thirdly, the effects for the PHQ-9 on the intent-to-treat analyses were similar to the effects reported earlier. That is, intent-to-treat analyses showed a significant main effect of Time, \( F(1.82, 501.71) = 13.45, p < .001, \eta_p^2 = .05 \), with PHQ-9 score decreasing significantly over time.

Finally, findings from the intent-to-treat analyses for the SF-12 mental health functioning subscale were generally similar to the findings reported earlier. That is, the intent-to-treat analyses found a significant main effect of Time on the SF-12 for the mental health functioning subscale, with scores increasing significantly over time, \( F(1.94,534.92) = 11.02, p < .001, \eta_p^2 = .04 \). In addition, unlike results reported earlier, there was also a significant main effect of Group on the mental health functioning subscale, \( F(1, 276) = 4.33, p < .04, \eta_p^2 = .02 \), with Hispanics having significantly lower scores than Whites.

**Relationship Between Treatment Predictors and Outcome in Hispanics**

One of the aims of the present study was to identify predictors of treatment response, particularly in Hispanics. To examine the impact of cultural variables (i.e., acculturation, social support and family satisfaction, stigma) on treatment outcome, zero-
order correlations were first computed between each set of predictor variable(s) and the dependent variables (i.e., ASI, BSI, PHQ-9) at the 6- and 12-month follow-up to determine the relationship among variables. Separate hierarchical linear regression analyses were then conducted. Table 5 and 7 display the correlations among predictor and treatment outcome variables at 6- and 12-month follow-up in Hispanics (n = 36). Table 6 and 8 - 14 display the results from the separate regression analyses conducted, including unstandardized regression coefficients (B), the standard error of B (SE B), standardized regression coefficients (β), and R² Change (ΔR²) for each step of the analysis.

Predicting anxiety sensitivity 6-months following CBT treatment

Zero-order correlations indicated that greater anxiety sensitivity at 6-month follow-up was significantly related to decreased social support, r = -.46, p < .01 (one-tailed) and increased dissatisfaction with marital life, r = .47, p < .05 (one-tailed; see Table 5). As shown in Table 6, results from the regression analysis suggested that pre-treatment social support and marital dissatisfaction together accounted for 28% of the variance in anxiety sensitivity at the 6-month follow-up, R² = .64, ΔR² = .28, ΔF = 6.20, p < .01. Pre-treatment marital dissatisfaction significantly predicted 6-month follow-up scores on the ASI, B = .41, t = 2.53, p < .02. Greater family life dissatisfaction scores predicted greater ASI scores, suggesting that greater family life dissatisfaction at pre-treatment was associated with poorer outcome at the 6-month follow-up. Pre-treatment social support did not significantly predict ASI scores at 6-month follow-up.

As can be seen in Table 5, results indicated that being born in the U.S. was negatively correlated with greater anxiety sensitivity at 6-month follow-up for Hispanics, rpb = -.29, p < .05 (one-tailed). That is, Hispanics not born in the U.S. reported greater
### Table 5

*Zero-order correlations between predictors and outcome measures at 6-month follow-up among Hispanics*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
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<th>4</th>
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<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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<td>.41**</td>
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<td>.46**</td>
<td>.52***</td>
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<td>-.26</td>
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<td>.47*</td>
<td>.47*</td>
<td>.42*</td>
<td>.21</td>
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<td>.45**</td>
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<td>-.29*</td>
<td>-.17</td>
<td>.27</td>
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<td>-.22</td>
<td>.04</td>
<td>.11</td>
<td>.42**</td>
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<td></td>
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<td>5. Language Preference</td>
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<td>.37*</td>
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<td>8. Brief Symptom Inventory</td>
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</table>

*Note: N = 36. * p < .05, ** p < .01, *** p < .001 (one-tailed).*
Table 6

Summary of Regression Analysis for Social Support and Marital Satisfaction Predicting Anxiety Sensitivity at 6-month follow-up

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>∆R²</th>
</tr>
</thead>
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<td>.23</td>
<td>.60**</td>
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<td>Step 2:</td>
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<td></td>
<td></td>
<td>.28**</td>
</tr>
<tr>
<td>Anxiety Sensitivity (Pre-treatment)</td>
<td>.69</td>
<td>.19</td>
<td>.57**</td>
<td></td>
</tr>
<tr>
<td>Social Support</td>
<td>-3.73</td>
<td>2.95</td>
<td>-.21</td>
<td></td>
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<tr>
<td>Marital Satisfaction</td>
<td>4.88</td>
<td>1.93</td>
<td>.41*</td>
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Note. N = 36. B = unstandardized regression coefficients. SE B = standard error of B. β = standardized regression coefficient. ∆R² = R² change. * p < .05, ** p < .01. R² = .36 for Step 1; ∆R² = 28 for Step 2 (p’s < .01).

anxiety sensitivity at 6-month follow-up. However, results from the regression analysis showed having been born in the U.S. did not contribute significantly to the variance in anxiety sensitivity at the 6-month follow-up. Anxiety sensitivity at the 6-month follow-up did not correlate significantly with the other acculturation variables at pre-treatment: years lived in the U.S. and language preference or with stigma, ps > .05. Of note, separate analyses were conducted with only those Hispanics born outside the U.S. (n = 18) to
examine whether acculturation variables, years lived in the U.S. and language preference, would be significantly associated with any of the outcomes (i.e., ASI, BSI, PHQ-9) in this subgroup. Results showed no significant association between anxiety sensitivity at 6-month follow-up and years lived in the U.S. and language preference among this subgroup of Hispanics, \( p \)'s > .05.

**Predicting anxiety sensitivity 12-months following CBT treatment**

Zero-order correlations indicated that greater anxiety sensitivity at 12-month follow-up was significantly related to decreased social support, \( r = -.50, p < .01 \) (one-tailed; see Table 7). As shown in Table 8, results from the regression analysis suggested that pre-treatment social support accounted for 13% of the variance in anxiety sensitivity at the 12-month follow-up, \( R^2 = .47, \Delta R^2 = .13, \Delta F = 7.89, p < .01 \). Pre-treatment social support significantly predicted 12-month follow-up scores on the ASI, \( B = -.38, t = -2.81, p < .01 \), suggesting that lower social support at pre-treatment was associated with poorer outcome at the 12-month follow-up. Anxiety sensitivity at the 12-month follow-up did not correlate significantly with the marital satisfaction, acculturation or stigma variables at pre-treatment, \( ps > .05 \). Results of separate analyses conducted with subgroup of Hispanics born outside the U.S. \( (n = 18) \) found no significant association between anxiety sensitivity at 12-month follow-up and years lived in the U.S. and language preference among this subgroup of Hispanics, \( p \)'s > .05.
Table 7

Zero-order correlations between predictors and outcome measures at 12-month follow-up among Hispanics

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Depression

*Note: N = 36. * p < .05, ** p < .01, *** p < .001 (one-tailed).
Table 8

*Summary of Regression Analysis for Social Support Predicting Anxiety Sensitivity at 12-month follow-up*

<table>
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<th>Variables</th>
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<td>.58***</td>
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*Note.* N = 36. B = unstandardized regression coefficients. SE B = standard error of B. β = standardized regression coefficient. ∆R² = R² change. *p < .05, **p < .01, ***p < .001.* R² = .36 for Step 1; ∆R² = 28 for Step 2 (p’s < .01).

*Predicting psychological distress 6-months following CBT treatment*

Greater BSI global scores at 6-month follow-up were significantly correlated with decreased social support, r = -.52, p <.001 (one-tailed) and increased dissatisfaction with marital life, r = .42, p <.05 (one-tailed). Results from the regression analysis showed that pre-treatment social support and marital satisfaction together contributed 30% of the variance in BSI scores at 6-month follow-up, R² = .18, ∆R² = .30, ΔF = 4.92, p <.02 (see Table 9). Pre-treatment social support significantly predicted BSI scores at 6-month
follow-up, $B = -.41, t = -2.18, p < .04$, indicating that lower social support at pre-treatment was associated with poorer outcome at the 6-month follow-up. BSI scores at 6-month follow-up were not predicted by pre-treatment marital satisfaction. BSI scores at 6-month follow-up also did not correlate significantly with the acculturation variables or stigma at

Table 9

Summary of Regression Analysis for Social Support and Marital Satisfaction Predicting Psychological Distress at 6-month follow-up

<table>
<thead>
<tr>
<th>Variables</th>
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<th>SE B</th>
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<th>$\Delta R^2$</th>
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<td>Psychological Distress (Pre-treatment)</td>
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<td>.30*</td>
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<tr>
<td>Marital Satisfaction</td>
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<td>1.33</td>
<td>.27</td>
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</table>

Note. $N = 36$. * $p < .05$. B = unstandardized regression coefficients. SE B = standard error of B. $\beta$ = standardized regression coefficient. $\Delta R^2 = R^2$ change.
pre-treatment, \( p \)'s > .05. Separate analyses conducted with subgroup of Hispanics born outside the U.S. yielded a non-significant association between BSI global scores at 6-month follow-up and years lived in the U.S. and language preference, \( p \)'s > .05.

**Predicting psychological distress 12-months following CBT treatment**

Zero-order correlations indicated that greater BSI global scores at 12-month follow-up was significantly related to decreased social support, \( r = -.47, p < .01 \) (one-tailed). As shown in Table 10, results from the regression analysis suggested that pre-treatment

Table 10

*Summary of Regression Analysis for Social Support Predicting Psychological Distress at 12-month follow-up*

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE B</th>
<th>( \beta )</th>
<th>( \Delta R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1:</td>
<td></td>
<td></td>
<td></td>
<td>.34***</td>
</tr>
<tr>
<td>Psychological Distress (Pre-treatment)</td>
<td>.48</td>
<td>.12</td>
<td>.58***</td>
<td></td>
</tr>
<tr>
<td>Step 2:</td>
<td></td>
<td></td>
<td></td>
<td>.11*</td>
</tr>
<tr>
<td>Psychological Distress (Pre-treatment)</td>
<td>.41</td>
<td>.11</td>
<td>.50**</td>
<td></td>
</tr>
<tr>
<td>Social Support</td>
<td>-2.54</td>
<td>.99</td>
<td>-2.58*</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* \( N = 36 \). * \( p < .05 \), ** \( p < .01 \), *** \( p < .001 \). \( B \) = unstandardized regression coefficients. \( SE B \) = standard error of \( B \). \( \beta \) = standardized regression coefficient. \( \Delta R^2 = R^2 \) change.
social support accounted for 11% of the variance in BSI scores at the 12-month follow-up, $R^2 = .45$, $\Delta R^2 = .11$, $\Delta F = 6.66$, $p < .02$. Pre-treatment social support significantly predicted 12-month follow-up scores on the BSI, $B = -.35$, $t = -2.58$, $p < .02$, suggesting that lower social support at pre-treatment was associated with poorer outcome at the 12-month follow-up.

As can be seen in Table 7, results indicated that stigma was correlated with greater BSI global scores at 12-month follow-up for Hispanics, $r = -.32$, $p < .05$ (one-tailed). That is, Hispanics with greater stigma scores at pre-treatment reported greater BSI scores at 12-month follow-up. Results from the regression analysis showed that pre-treatment stigma accounted for 15% of the variance in BSI scores at the 12-month follow-up, $R^2 = .49$, $\Delta R^2 = .15$, $\Delta F = 9.55$, $p < .01$ (see Table 11). Pre-treatment stigma significantly predicted 12-month follow-up scores on the BSI, $B = .39$, $t = 3.09$, $p < .01$, suggesting that greater stigma at pre-treatment was associated with poorer outcome at the 12-month follow-up. BSI scores at the 12-month follow-up did not correlate significantly with the marital satisfaction or acculturation variables at pre-treatment, $ps > .05$. Results of separate analyses conducted with subgroup of Hispanics born outside the U.S. ($n = 18$) found no significant association between anxiety sensitivity at 12-month follow-up and years lived in the U.S. and language preference among this subgroup of Hispanics, $p’s > .05$. 
Table 11

*Summary of Regression Analysis for Stigma Predicting Psychological Distress at 12-month follow-up*

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>ΔR²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological Distress (Pre-treatment)</td>
<td>.48</td>
<td>.12</td>
<td>.58***</td>
<td></td>
</tr>
</tbody>
</table>

**Step 1:**

<table>
<thead>
<tr>
<th>Variables</th>
<th>.34***</th>
</tr>
</thead>
</table>

**Step 2:**

| Psychological Distress (Pre-treatment) | .51     | .10   | .62** |
| Stigma                                | 2.51    | .81   | .39** |

*Note.* N = 36. *p < .05, **p < .01, ***p < .001. B = unstandardized regression coefficients. SE B = standard error of B. β = standardized regression coefficient. ΔR² = R² change.

*Predicting depressive symptoms 6-months following CBT treatment*

PHQ-9 scores at 6-month follow-up were not related to pre-treatment social support or marital satisfaction, *p > .05*. Results from the correlations between PHQ-9 scores and acculturation variables indicated that language preference and whether the Hispanic individual was born in the U.S. did not correlate significantly with PHQ-9 scores at the 6-month follow-up, *p’s > .05*; however, greater number of years lived in the
U.S. were significantly related to greater frequency of depressive symptoms, \( r = .42, p < .01 \) (see Table 5). Regression analysis indicated that the number of years lived in the U.S. (at pre-treatment) accounted for 25\% of the variance in the frequency of depressive symptoms at the 6-month follow-up, \( R^2 = .12, \Delta R^2 = .25, \Delta F = 6.25, p < .005 \) (see Table 12). That is, greater number of years lived in the U.S. predicted greater PHQ-9 scores, suggesting that the longer a Hispanic individual lived in the U.S. by pre-treatment, the

Table 12

*Summary of Regression Analysis for Acculturation Predicting Depressive Symptoms at 6-month follow-up*

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>( \Delta R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1:</td>
<td></td>
<td></td>
<td></td>
<td>.12*</td>
</tr>
<tr>
<td>Psychological Distress (Pre-treatment)</td>
<td>.37</td>
<td>.18</td>
<td>.34*</td>
<td></td>
</tr>
<tr>
<td>Step 2:</td>
<td></td>
<td></td>
<td></td>
<td>.25**</td>
</tr>
<tr>
<td>Psychological Distress (Pre-treatment)</td>
<td>.39</td>
<td>.15</td>
<td>.36*</td>
<td></td>
</tr>
<tr>
<td>Years lived in the U.S.</td>
<td>.18</td>
<td>.05</td>
<td>.52**</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* \( N = 36. \) *\( p < .05, \) **\( p < .01, \) ***\( p < .001. \) B = unstandardized regression coefficients. \( SE \) B = standard error of B. \( \beta = \) standardized regression coefficient. \( \Delta R^2 = R^2 \) change.
poorer the outcome at the 6-month follow-up, $B = .52$, $t = 3.46$, $p < .002$. Results from the correlations suggested that PHQ-9 scores at 6-month follow-up did not correlate significantly with stigma at pre-treatment, $p > .05$. Separate analyses conducted with subgroup of Hispanics born outside the U.S. yielded a non-significant association between PHQ-9 scores at 6-month follow-up and years lived in the U.S. and language preference, $p$’s > .05.

Predicting depressive symptoms 12-months following CBT treatment

Greater PHQ-9 scores at 12-month follow-up were significantly correlated with decreased social support, $r = -.33$, $p < .05$ (one-tailed). As shown in Table 13, results from the regression analysis suggested that pre-treatment social support accounted for 10% of variance in PHQ-9 scores at the 12-month follow-up, $R^2 = .28$, $\Delta R^2 = .10$, $\Delta F = 4.76$, $p < .04$. Pre-treatment social support significantly predicted 12-month follow-up scores on the PHQ-9, $B = -.32$, $t = -2.18$, $p < .04$, suggesting that lower social support at pre-treatment was associated with poorer outcome at the 12-month follow-up.

As can be seen in Table 7, results indicated that stigma was correlated with greater PHQ-9 scores at 12-month follow-up for Hispanics, $r = -.33$, $p < .05$ (one-tailed). That is, Hispanics with greater stigma scores at pre-treatment reported greater PHQ-9 scores at 12-month follow-up. Results from the regression analysis showed that pre-treatment stigma accounted for 10% of the variance in PHQ-9 scores at the 12-month follow-up, $R^2 = .28$, $\Delta R^2 = .10$, $\Delta F = 4.44$, $p < .04$ (see Table 14). Pre-treatment stigma significantly predicted 12-month follow-up scores on the BSI, $B = .31$, $t = 2.11$, $p < .04$, suggesting that greater stigma at pre-treatment was associated with poorer outcome at the 12-month follow-up. PHQ-9 scores at the 12-month follow-up did not correlate
Table 13

Summary of Regression Analysis for Social Support Predicting Depressive Symptoms at 12-month follow-up

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>ΔR²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological Distress (Pre-treatment)</td>
<td>.44</td>
<td>.16</td>
<td>.42**</td>
<td></td>
</tr>
<tr>
<td>Step 2:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological Distress (Pre-treatment)</td>
<td>.44</td>
<td>.15</td>
<td>.42**</td>
<td></td>
</tr>
<tr>
<td>Social Support</td>
<td>-1.84</td>
<td>.84</td>
<td>-.32*</td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 36. * p < .05, ** p < .01. B = unstandardized regression coefficients. SE B = standard error of B. β = standardized regression coefficient. ΔR² = R² change.

significantly with the marital satisfaction or acculturation variables at pre-treatment, ps > .05. Results of separate analyses conducted with subgroup of Hispanics born outside the U.S. (n = 18) found no significant association between PHQ-9 scores at 12-month follow-up and years lived in the U.S. and language preference among this subgroup of Hispanics, p’s > .05.
Table 14

Summary of Regression Analysis for Stigma Predicting Depressive Symptoms at 12-month follow-up

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>ΔR²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological Distress (Pre-treatment)</td>
<td>.44</td>
<td>.16</td>
<td>.42**</td>
<td></td>
</tr>
<tr>
<td>Step 2:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological Distress (Pre-treatment)</td>
<td>.43</td>
<td>.16</td>
<td>.41**</td>
<td></td>
</tr>
<tr>
<td>Stigma</td>
<td>1.56</td>
<td>.74</td>
<td>.31*</td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 36. *p < .05, **p < .01. B = unstandardized regression coefficients. SE B = standard error of B. β = standardized regression coefficient. ΔR² = R² change.

Relationship between Predictors and Treatment Outcome in Whites

Table 15 displays the correlations among predictor and treatment outcome variables at 6-month follow-up in Whites (n = 183). Zero-order correlations indicated that anxiety sensitivity at 6-month follow-up did not correlate significantly with marital satisfaction at pre-treatment, p > .05. On the other hand, greater anxiety sensitivity at 6-month follow-up was significantly related to decreased social support, r = -.23, p < .002.
However, results from the regression analyses suggested that pre-treatment social support did not significantly predict ASI scores at 6-month follow-up. Anxiety sensitivity at 6-month follow-up did not correlate significantly with the acculturation variables or stigma at pre-treatment, $p$’s > .05. Of note, separate analyses were conducted with only those White participants born outside the U.S. ($n = 15$) to examine whether acculturation variables, years lived in the U.S. and language preference, would be significantly associated with any of the outcomes (i.e., ASI, BSI, PHQ-9) in this subgroup. Results showed no significant association between anxiety sensitivity and years lived in the U.S. and language preference among this subgroup of Whites, $p$’s > .05.

Table 15

Zero-order correlations between predictors and outcome measures at 6-month follow-up among Whites

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social Support</td>
<td>-</td>
<td>-.58***</td>
<td>.01</td>
<td>-.23**</td>
<td>-.18**</td>
<td>-.21**</td>
</tr>
<tr>
<td>2. Marital Satisfaction</td>
<td>-</td>
<td>.02</td>
<td>.16</td>
<td>.09</td>
<td>.32**</td>
<td></td>
</tr>
<tr>
<td>3. Therapy Stigma</td>
<td>-</td>
<td>-.10</td>
<td>-.04</td>
<td>-.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Anxiety Sensitivity Index</td>
<td>-</td>
<td>.64***</td>
<td>.58**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Brief Symptom Inventory</td>
<td>-</td>
<td>.72***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Patient Health Questionnaire Depression</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: $N = 183$. * $p < .05$, ** $p < .01$, *** $p < .001$. 
As shown in Table 16, results from zero-order correlations indicated that greater anxiety sensitivity at 12-month follow-up was significantly related to decreased social support, $r = -.34$, $p < .001$ and greater marital dissatisfaction, $r = .24$, $p < .01$. However,

Table 16

Zero-order correlations between predictors and outcome measures at 12-month follow-up among Whites

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Support</td>
<td></td>
<td>-.58***</td>
<td>.01</td>
<td>-.34**</td>
<td>-.27**</td>
<td>-.29**</td>
</tr>
<tr>
<td>Marital Satisfaction</td>
<td></td>
<td>.02</td>
<td>.24*</td>
<td>.19</td>
<td>.38**</td>
<td></td>
</tr>
<tr>
<td>Therapy Stigma</td>
<td></td>
<td>-.06</td>
<td>.01</td>
<td>-.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety Sensitivity Index</td>
<td></td>
<td></td>
<td>.67**</td>
<td>.63**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brief Symptom Inventory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.70**</td>
<td></td>
</tr>
<tr>
<td>Patient Health Questionnaire Depression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: $N = 183$. * $p < .05$, ** $p < .01$, *** $p < .001$.

results from the regression analyses suggested that pre-treatment social support and marital dissatisfaction did not significantly predict ASI scores at 12-month follow-up. Anxiety sensitivity at 6-month follow-up did not correlate significantly with the acculturation variables or stigma at pre-treatment, $p$’s > .05. Analyses conducted with only those White participants born outside the U.S. ($n = 15$) suggested no significant
Results from the correlations between BSI global scores at 6-month follow-up and the predictor of treatment outcome variables indicated that BSI scores at 6-month follow-up did not correlate significantly with marital satisfaction at pre-treatment, \( p > .05 \). Greater BSI scores did show a significant correlation with decreased social support, \( r = - .18, p < .01 \). However, regression analyses suggested that pre-treatment social support did not significantly predict BSI scores at 6-month follow-up. BSI global scores at 6-month follow-up did not correlate significantly with the acculturation variables or stigma at pre-treatment, \( p’s > .05 \). Separate analyses conducted with subgroup of Whites born outside the U.S. yielded a non-significant association between BSI global scores at 6-month follow-up and years lived in the U.S. and language preference, \( p’s > .05 \).

Zero-order correlations indicated that greater BSI global scores at 12-month follow-up was significantly related to decreased social support, \( r = -.27, p < .01 \) (one-tailed). However, results from the regression analysis suggested that pre-treatment social support did not significantly predict BSI global scores at 12-month follow-up. BSI global scores at 12-month follow-up did not correlate significantly with the marital satisfaction, acculturation, or stigma variables at pre-treatment, \( p’s > .05 \). Analyses conducted with only those White participants born outside the U.S. \( (n = 15) \) suggested no significant association between BSI global scores and years lived in the U.S. and language preference among this subgroup of Whites, \( p’s > .05 \).

Finally, correlations between PHQ-9 scores and predictor of treatment outcome variables indicated that greater PHQ-9 scores were significantly correlated with
decreased social support, $r = -.21, p < .005$ and marital dissatisfaction, $r = .32, p < .003$.
Regression analyses suggested that PHQ-9 scores at 6-month follow-up were not predicted by pre-treatment social support or marital satisfaction, $p$’s $> .05$. No significant correlations were observed between PHQ-9 scores at 6-month follow-up and acculturation variables and stigma at pre-treatment, $p$’s $> .05$. Separate analyses conducted with subgroup of Whites born outside the U.S. yielded a non-significant association between PHQ-9 scores at 6-month follow-up and years lived in the U.S. and language preference, $p$’s $> .05$.

Results from the correlations between PHQ-9 scores at 12-month follow-up and the predictor of treatment outcome variables indicated that PHQ-9 scores at 12-month follow-up were significantly correlated with decreased social support, $r = -.29, p < .01$ and marital dissatisfaction, $r = .38, p < .01$. Regression analyses suggested that PHQ-9 scores at 6-month follow-up were not predicted by pre-treatment social support or marital satisfaction, $p$’s $> .05$. No significant correlations were observed between PHQ-9 scores at 6-month follow-up and acculturation variables and stigma at pre-treatment, $p$’s $> .05$. Separate analyses conducted with subgroup of Whites born outside the U.S. yielded a non-significant association between PHQ-9 scores at 6-month follow-up and years lived in the U.S. and language preference, $p$’s $> .05$.

*Social support as potential moderator of acculturation effects on psychological distress*

The model of moderation is illustrated in Figure 7. It was of interest to examine whether social support moderated the relationship between greater levels of acculturation and greater symptom severity following treatment among Hispanics. For example,
participants with greater levels of acculturation would experience poorer treatment outcomes when social support was weak. In contrast, those with greater levels of acculturation would experience better treatment outcomes when social support was strong. Zero-order correlations were computed to examine the relationships between acculturation and dependent variables (i.e., ASI, BSI, PHQ-9) among Hispanics. The acculturation variables in the present study measured nativity, years lived in the U.S., and language preference (i.e., Spanish or English language preference). Regression analyses were performed to determine if social support served as a moderator in the relationship between acculturation and greater symptom severity at the 6- and 12-month follow-ups.

First, correlational analyses were conducted to examine the relationship between acculturation and anxiety sensitivity at 6- and 12-month follow-ups. Results from correlational analyses suggested that being born in the U.S. (i.e., nativity) was negatively correlated with greater anxiety sensitivity at 6-month follow-up, \( r_{pb} = -.29, p < .05 \) but not at 12-month follow-up for Hispanics, \( p > .05 \). The other acculturation variables, years lived in the U.S. and language preference, were not significantly related to anxiety sensitivity at 6- and 12-month follow-ups. Regression analysis examining whether social support served as a moderator in the relationship between acculturation and anxiety sensitivity at 6-month follow-up failed to find a statistically significant interaction for social support and acculturation variables, \( \Delta R^2 = .10, \Delta F = 1.48, p > .05 \); \( B = .02, t = .10 \), for years lived in the U.S.; \( B = -.34, t = -1.75 \), for language preference; and \( B = -.06, t = -.27 \), for nativity; \( p \)'s > .05. Similarly, regression analysis examining whether social support served as a moderator in the relationship between acculturation and anxiety sensitivity at 12-month follow-up failed to find a statistically significant interaction for social support and acculturation variables.
social support and acculturation variables, $\Delta R^2 = .10$, $\Delta F = 1.21$, $p > .05$; $B = .34$, $t = 1.71$, for years lived in the U.S.; $B = -.18$, $t = -.90$, for language preference; and $B = -.20$, $t = -.95$, for nativity; $p$’s $> .05$.

Second, correlations were conducted to investigate the relationship between acculturation and BSI global scores at 6- and 12-month follow-ups. Acculturation variables did not correlate significantly with BSI global scores at 6- and 12-month follow-ups, $p$’s $> .05$. Further, regression analysis conducted to assess if social support served as a moderator of the relation between acculturation and BSI outcome at 6-month follow-up failed to find a statistically significant interaction for social support and acculturation variables, $\Delta R^2 = .16$, $\Delta F = 2.48$, $p > .05$; $B = -.24$, $t = -1.33$, for years lived in the U.S.; $B = -.40$, $t = -2.17$, for language preference; and $B = .26$, $t = 1.33$, for nativity; $p$’s $> .05$. Results from regression analysis examining whether social support served as a moderator in the relationship between acculturation and BSI outcome at 12-month follow-up failed to find a statistically significant interaction for social support and acculturation variables, $\Delta R^2 = .09$, $\Delta F = 1.11$, $p > .05$; $B = -.13$, $t = -.66$, for years lived in the U.S.; $B = -.25$, $t = -1.18$, for language preference; and $B = -.01$, $t = -.05$, for nativity; $p$’s $> .05$.

Finally, results from correlational analysis examining the relationship between acculturation and PHQ-9 at 6- and 12-month follow-ups found that number of years lived in the U.S. was positively correlated with greater PHQ-9 scores at 6-month follow-up, $r = .42$, $p < .01$ but not at 12-month follow-up for Hispanics, $p > .05$. That is, the increasing number of years that a Hispanic participant lived in the U.S. was related to increased frequency of depressive symptoms (i.e., PHQ-9) at the initial follow-up assessment. The
other acculturation variables, nativity and language preference, were not significantly related to PHQ-9 scores at 6- and 12-month follow-ups. Regression analysis conducted to examine whether social support served as a moderator in the relationship between acculturation and frequency of depressive symptoms (i.e., PHQ-9) failed to find a statistically significant interaction for social support and acculturation variables, ∆R² = 0.14, ∆F = 2.35, p > .05; B = -.03, t = -.16, for years lived in the U.S.; B = -.47, t = -2.59, for language preference; and B = .24, t = 1.28, for nativity; p’s > .05. Further, regression analysis assessing whether social support served as a moderator in the relationship between acculturation and PHQ-9 outcome at 12-month follow-up failed to find a statistically significant interaction for social support and acculturation variables, ∆R² = 0.08, ∆F = .98, p > .05; B = -.09, t = -.43, for years lived in the U.S.; B = -.31, t = -1.55, for language preference; and B = .24, t = 1.13, for nativity; p’s > .05.

Discussion

The central aim of the present study was to evaluate the difference in clinical effectiveness of CBT for Hispanic relative to White participants with one or more of the four common anxiety disorders (panic disorder, post-traumatic stress disorder, generalized anxiety disorder, and social anxiety disorder). The present study found that CBT for anxiety disorders was effective for both Hispanic and White participants as evidenced by changes in symptom severity (i.e., ASI, BSI, PHQ-9) and mental health functioning (i.e., SF-12) at the follow-up assessments. Hispanic and White participants’ frequency of depressive symptoms (i.e., PHQ-9) as well as mental health functioning (i.e., SF-12) improved similarly from pre-treatment to 6-month follow-up and then to 12-
month follow-up. Further, as expected, White participants’ anxiety symptom severity (i.e., ASI, BSI) improved to a significantly greater extent at the 6-month follow-up compared to Hispanic participants. It is interesting to note that although Hispanic participants’ BSI anxiety scores did not significantly improve at the 6-month follow-up relative to White participants, by the 12-month follow-up, both groups’ BSI anxiety scores had improved to a similar extent. That is, Hispanic and White participants reported similar BSI anxiety scores at the 12-month follow-up. Whether this finding can be replicated in future research is worth examining prior to speculation on its possible meaning. Given the importance of these findings for understanding whether this evidenced-based treatment for anxiety disorders is effective for individuals who do not belong to the mainstream culture in the U.S., we closely examined the pattern of treatment effectiveness for Hispanics compared to Whites. More specifically, we sought to evaluate whether symptom severity outcomes in the Hispanic sample, in contrast to the White sample, would be predicted by cultural factors evidenced to play an important role in the mental health of this particular population (i.e., acculturation, social support, stigma about visiting mental health professionals). As described in more detail below, the results provided support for this hypothesis, as cultural variables predicted anxiety severity outcome and frequency of depressive symptoms at the 6-month follow-up assessment for Hispanics. The results were retained in the conservative intent-to-treat analyses.

Consistent with expectation, CBT for anxiety disorders was effective in reducing anxiety symptom severity and frequency of related depressive symptoms in both groups, a finding that was retained in the intent-to-treat analyses. That is, Hispanic and White
participants showed symptom severity improvement (i.e., ASI, BSI, PHQ-9) following the CBT intervention at the 6- and 12-month follow-up assessment. Reports of anxiety sensitivity severity were attenuated by the 6-month follow-up for both groups. In addition, reports of anxiety distress (i.e., BSI), as expected, were likewise attenuated by 6-month follow-up for all participants. Reports of frequency of depressive symptoms (i.e., PHQ-9) decreased by the 6-month follow-up for all participants and similar improvements were found in participants’ report of mental functioning (i.e., SF-12) by the initial follow-up assessment. Notably, participants’ frequency and severity of symptom outcomes as well as mental health functioning continued to further improve by the 12-month follow-up assessment. Of greatest significance, although both groups evidenced overall symptom severity improvement (i.e., ASI, BSI, PHQ-9) following CBT, the results suggested that White participants showed a consistent pattern of greater improvement of anxiety symptom severity (i.e., ASI, BSI) from pre-treatment to the initial follow-up assessment relative to the Hispanic sample. That is, the overall rate of symptom severity improvement was significantly greater for White participants compared to Hispanic participants from pre-treatment to 6-month follow-up. This finding was retained in the intent-to-treat analyses. It is important to note that this pattern of significant greater improvement for White relative to Hispanic participants was retained from 6- to 12-month follow-up assessments for anxiety sensitivity severity scores (i.e., ASI) but not for anxiety distress (i.e., BSI).

The expected finding that CBT for anxiety appeared to be significantly more effective for Whites than their Hispanic counterparts at the 6-month follow-up deserves some additional comment. Years of clinical research and practice have led to impressive
gains in the treatment of anxiety disorders, with this work resulting in the development of empirically derived and time-limited psychological interventions to assist those with anxiety disorders (Barlow, 2002; Craske, 1999). Further, several randomized, controlled clinical trials have established the efficacy of CBT and have shown its effectiveness regardless of the anxiety disorder (Barlow, 2002; Chambless et al., 1998; Chambless & Ollendick, 2001; Craske, 1999). Yet, despite these advances, whether these evidenced-based interventions are effective for the Hispanic population is a question yet to be answered as the rates of participation by this group are largely limited in the studies that make up the evidence base for these interventions (Miranda et al., 2005). The present study represented an effort to bridge this gap in the literature by evaluating the clinical effectiveness of CBT for anxiety among Hispanics and providing preliminary data that would help unearth new evidence regarding CBT’s validity as an effective intervention for the Hispanic population.

Given that the differences observed on the 6-month follow-up outcomes consistently favored Whites over Hispanics, these can be viewed as providing evidence that CBT may be a more powerful intervention for Whites compared to Hispanics. Yet, at this stage of early research development, it may be important to also consider whether culturally-relevant factors for Hispanics may play an important role in predicting the effectiveness of CBT in this population. For this reason, the current investigation was particularly interested in identifying predictors of treatment response in Hispanic participants. As expected, a subset of cultural factors (i.e., family satisfaction, social support, and stigma) found previously to be predictive of psychological dysfunction in epidemiological studies with Hispanics were shown to predict the ineffectiveness of CBT
for anxiety among Hispanic participants in this study. Moreover, acculturation was
unexpectedly unrelated with outcomes. This pattern of null results for acculturation were
surprising but may be explained by considering that acculturation may interact with
clinical outcomes in complex ways that were not directly associated with the factors
tapped by the acculturation variables used in this study.

Hispanic participants who benefited the least from CBT were those who entered
treatment with the greater marital dissatisfaction, least social support, and greater stigma
about visiting mental health professionals. That is, lesser social support, and greater
marital life dissatisfaction and stigma before receiving CBT treatment for anxiety
predicted greater anxiety sensitivity and distress at the 6- and 12-month follow-ups
among Hispanics. In addition, it is interesting to note that cultural factors such as marital
satisfaction and social support were significantly associated with treatment outcome
among Whites. Yet, unlike Hispanics, these factors did not predict poorer outcome
among White participants. Collectively these findings point to another important yet
unanswered question: to what extent do evidenced-based interventions need to be
culturally-adapted to be effective for Hispanics?

At first glance, it may appear that when important cultural factors are ignored, at
least in the treatment of anxiety disorders, Hispanics receiving treatment are less likely to
experience treatment success. As previous research has found, receiving a treatment that
lacks cultural-sensitivity may result in individuals’ discomfort, conflict in values, poor
engagement, and even dropout (Pope-Davis, & Coleman 1997; Sue 1988). However,
before advocating for culturally-adapted interventions for Hispanics, one must recognize
that although evidence exists that some adapted interventions are effective for minority
groups (e.g., Takeuchi, Sue, & Yeh, 1995), there is no evidence comparing them to standard, evidenced-based interventions (Miranda et al., 2002). Nevertheless, the present findings on treatment predictors appear to confirm that culture and context may need to be considered when providing treatment to Hispanics with anxiety disorders. Thus, it may be helpful to combine CBT with guidelines that consider culturally-relevant factors for Hispanics, in order to facilitate engagement in treatment and enhance outcomes for this population. For example, for a Hispanic patient entering treatment with low levels of social support, the therapist may consider problem solving with the patient ways to improve opportunities for social engagement and support before starting CBT treatment.

The final set of analyses attempted to test a model based on the extensive literature relating acculturation and clinical outcomes (e.g., Escobar et al., 1986; Gamst et al., 2002; Miranda & Matheny, 2000; Ortega et al., 2000; Ritsner et al., 1997; Vega et al., 1998). This model hypothesized that high levels of acculturation would be associated with poorer symptom severity following treatment for anxiety disorders. Further, it was hypothesized that the relationship between acculturation and symptom outcomes would be moderated by social support. There is considerable evidence relating family relationships (e.g., Hovey & King, 1996; Rivera et al., 2008; Salgado de Snyder, 1987) and social support to lower psychological distress in Hispanics (e.g., Cohen & Willis, 1985; Rivera, 2007; Turner, 1981; Vega et. al, 1991). Social support was of special interest to the proposed moderation model because it has been found to serve an important protective function in the psychological adjustment of Hispanics individuals given the importance of traditional family values in this group (Hovey & King, 1996; Salgado de Snyder, 1987). The limited proportion of significant associations between
acculturation and poorer symptom severity in the Hispanic sample following treatment
was surprising given the substantial body of research indicating acculturation’s
contribution to psychological adjustment (Escobar et al., 2000; Moyerman & Forman,
1992; Rogler et al., 1991). It is possible that the cultural variables used in this study (i.e.,
number of years lived in the U.S., place of birth, and language preference) were not
sufficiently sensitive to accurately detect the levels of acculturation to the mainstream
American culture in our Hispanic sample. However, numerous past studies have used
these factors as proxies for acculturation as these have been found to be better predictors
of outcomes than other cultural factors nested within multidimensional acculturation
measures (Cobas et al., 1996; Escobar & Vega, 2000). Yet a problem with this approach
is that although such cultural factors are useful and predictive of mental health outcomes,
they do not necessarily represent valid indicators of acculturation.

The present findings should be considered in light of the present study’s
limitations. First, although the present study used data from a larger study, “Coordinated
Anxiety Learning and Management (CALM): Improving Primary Care Anxiety
Outcomes,” with a sample where Hispanics were over-represented ($n = 196$), the number
of Hispanic participants who opted for the CBT intervention and completed both follow-
up assessments was much smaller ($n = 36$), thus limiting statistical power and
generalizability. It will be important in future research to evaluate CBT treatment effects
in a larger Hispanic sample to see whether effects found here can be replicated. Second,
CBT treatment maintenance was assessed for up to 12-months. The current study’s
design might be improved by evaluating whether gains are maintained using longer
follow-up assessments (e.g., 18-, 24-months). Third, the use of demographic indicators
(i.e., nativity, years lived in the U.S., and language preference) as proxies for acculturation instead of a multidimensional measure of acculturation, although useful, may be problematic as these proxy variables may not necessarily represent valid indicators of acculturation. Yet, this approach is currently preferred given the “general confusion about the usefulness, appropriateness, and operational characteristics of acculturation measures” (Escobar & Vega, 2000). Finally, it should be noted that Hispanics had a significantly greater proportion of individuals who dropped out of the study (32.1%) compared to Whites (19%) and thus, differential dropout from CBT may have biased outcome evaluations based on ethnicity of participant. Though the reasons for dropout are unknown, if those who were most severely ill terminated early, results might have shown a more drastic difference in clinical outcomes between groups.

Conclusion

Substantial research has documented the efficacy and effectiveness of CBT for anxiety disorders (Barlow, 2002; Chambless et al., 1998; Chambless & Ollendick, 2001; Craske, 1999). Nonetheless, Hispanics and other minorities are virtually absent from the treatment outcome literature. Consequently, concerns continue to arise regarding CBT’s validity as an effective intervention for minority groups (Bernal et al., 1995; Bernal & Scharron-Del-Rio, 2001; Hall, 2001; Sue, 1998). For this reason, it was critical for the present study to examine differences in treatment response among Hispanics and Whites following CBT treatment for anxiety disorders as well as to identify predictors of treatment response. Unearthing evidence suggesting that CBT is an effective treatment for Hispanics may support a more optimistic view that such evidenced-based interventions can be generalized to this and other minority populations.
Overall, the present findings provide preliminary evidence for the notion that CBT for anxiety is an effective treatment for the Hispanic population. Further, results also suggest that addressing critical cultural factors during the process of treatment may potentially make CBT a more powerful intervention for Hispanics (Castro & Alarcon, 2002). Results showed that although CBT reduced anxiety symptoms in both samples, Whites improved to a greater extent than Hispanics, as evidenced by better treatment outcomes at the initial follow-up assessment. Thus, an attempt was made to show whether considering culturally relevant factors for Hispanics would predict poorer treatment outcomes in the Hispanic sample. Although findings were somewhat mixed, data suggested that poor social support and marital dissatisfaction were strong predictors of greater symptom severity in Hispanics.

Cultural-related adaptations to CBT may improve the lower quality of care Hispanics face by enhancing treatment access, engagement and adherence, thus potentially improving treatment outcomes. However, given that there is yet to be evidence that these culturally-adapted interventions promote better clinical outcomes in Hispanics (and other minority groups), utilizing such interventions may also lead to inadequate, ineffective, and costly treatment. It will be critical for future clinical research to consider culturally-relevant adaptations to deliver effective interventions for minority populations, while exploring whether such tailored interventions are necessary. This is a challenging question and research area that remain unexplored. Yet as the answer becomes clearer, it is likely that it may yield to advances in the quality of care received by Hispanic patients as well as improvements in the effectiveness of treatment for this population.
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Appendix A

SCREENER QUESTIONNAIRE INTRODUCTION

You are being asked to complete a brief screening questionnaire. This questionnaire has nine questions and should take just a couple of minutes to complete. The purpose of the questionnaire is to help determine whether you may be eligible for a UCLA research study being conducted in your primary care clinic.

CALM is a research study designed to help people who are very anxious. We want to find out how to make care better in clinics like yours so that people with anxiety can lead lives that are as normal as possible. When the CALM study is finished, we will have a better idea of how to help improve care for people with anxiety.

You do not have to answer any questions you do not wish to answer and you may stop at any time. Your participation in the screening is voluntary. A decision whether or not to participate in the screening will not affect your relationship with UCLA.
In the past 3 months…

1. Did you ever have a spell or an attack when all of a sudden you felt frightened, anxious, or very uneasy? Yes No

2. Would you say that you have been bothered by “nerves” or feeling anxious or on edge? Yes No

3. Would you say that being anxious or uncomfortable around other people is a problem for you in your life? Yes No

4. Did you have a period of one week or more when you lost interest in most things like work, hobbies, and other things you usually enjoyed? Yes No

5. Some people have terrible experiences happen to them, like being attacked or threatened with a weapon; being in a fire or a bad traffic accident; being sexually assaulted; or seeing someone being badly injured or killed. Has anything like this ever happened to you? Yes No
IF YES:

In the past 3 months, have you had recurrent dreams or nightmares about this experience, or recurrent thoughts or “flashbacks” (times when you felt as though it was happening again, even though it wasn’t)?

Do you expect to receive most of your medical care in this clinic for the next 12 months?

Do you have a telephone?

Would you be willing to be considered for a research study based on your responses to these items?
PRE-SCREENING FORM

Instructions: Administer these questions prior to scheduling MINI appointment, in order to determine if patient meets the basic eligibility criteria for CALM. If the patient cannot answer these questions by phone prior to your appointment, administer them in person before you do the MINI.

1. “How old are you?” If the participant is younger than 18 or older than 75, explain that they are not eligible and refer them back to their PCP.

2. “Do you have a reliable telephone number where you can be contacted?” If no, explain that they are not eligible and refer them back to their PCP.

3. “Are you currently in ongoing medication treatment by a psychiatrist or in ongoing individual cognitive behavioral therapy (CBT) targeting anxiety problems? (Other individual counseling, marital therapy and group therapy are permitted.)” If yes, explain that they are not eligible and refer them back to their PCP.

4. “Do you have a life threatening condition?” (For example a medical illness that would render inclusion unsafe such as end-stage renal disease, end-state HIV disease, a debilitating cardiac disease, etc.) If yes, explain that they are not eligible and refer them back to their PCP.

5. “Are you on a methadone maintenance regimen for the treatment of opiate addiction?” If yes, explain that they are not eligible and refer them back to their PCP.
Overall Anxiety Severity and Impairment Scale (OASIS)

1. In the past week, how often have you felt anxious?
   0  No anxiety in the past week.
   1  Infrequent anxiety. Felt anxious a few times.
   2  Occasional anxiety. Felt anxious as much of the time as not. It was hard to relax.
   3  Frequent anxiety. Felt anxious most of the time. It was very difficult to relax.
   4  Constant anxiety. Felt anxious all of the time and never really relaxed.

2. In the past week, when you have felt anxious, how intense or severe was your anxiety?
   0  Little or none. Anxiety was absent or barely noticeable.
   1  Mild. Anxiety was at a low level. It was possible to relax when I tried. Physical symptoms were only slightly uncomfortable.
   2  Moderate. Anxiety was distressing at times. It was hard to relax or concentrate, but I could do it if I tried. Physical symptoms were uncomfortable.
   3  Severe. Anxiety was intense much of the time. It was very difficult to relax or focus on anything else. Physical symptoms were extremely uncomfortable.
   4  Extreme. Anxiety was overwhelming. It was impossible to relax at all. Physical symptoms were unbearable.

3. In the past week, how often did you avoid situations, places, objects, or activities because of anxiety or fear?
   0  None. I do not avoid places, situations, activities, or things because of fear.
   1  Infrequent. I avoid something once in a while, but will usually face the situation or confront the object. My lifestyle is not affected.
2 Occasional. I have some fear of certain situations, places, or objects, but it is still manageable. My lifestyle has only changed in minor ways. I always or almost always avoid the things I fear when I’m alone, but can handle them if someone comes with me.

3 Frequent. I have considerable fear and really try to avoid the things that frighten me. I have made significant changes in my lifestyle to avoid the object, situation, activity, or place.

4 All the Time. Avoiding objects, situations, activities, or places has taken over my life. My lifestyle has been extensively affected and I no longer do things that I used to enjoy.

4. In the past week, how much did your anxiety interfere with your ability to do the things you needed to do at work, at school, or at home?

0 None. No interference at work/home/school from anxiety.

1 Mild. My anxiety has caused some interference at work/home/school. Things are more difficult, but everything that needs to be done is still getting done.

2 Moderate. My anxiety definitely interferes with tasks. Most things are still getting done, but few things are being done as well as in the past.

3 Severe. My anxiety has really changed my ability to get things done. Some tasks are still being done, but many things are not. My performance has definitely suffered.

4 Extreme. My anxiety has become incapacitating. I am unable to complete tasks and have had to leave school, have quit or been fired from my job, or have been unable to complete tasks at home and have faced consequences like bill collectors, eviction, etc.

5. In the past week, how much has anxiety interfered with your social life and relationships?

0 None. My anxiety doesn’t affect my relationships.
1 Mild. My anxiety slightly interferes with my relationships. Some of my friendships and other relationships have suffered, but, overall, my social life is still fulfilling.

2 Moderate. I have experienced some interference with my social life, but I still have a few close relationships. I don’t spend as much time with others as in the past, but I still socialize sometimes.

3 Severe. My friendships and other relationships have suffered a lot because of anxiety. I do not enjoy social activities. I socialize very little.

4 Extreme. My anxiety has completely disrupted my social activities. All of my relationships have suffered or ended. My family life is extremely strained.
MMSE-Screen

Administer these questions to patients over age 65 and to any patient who you suspect may have cognitive impairment. Patients who make three or more errors are ineligible.

I would like to ask you some questions that ask you to use your memory. I am going to name three objects. Please wait until I say all three words, then repeat them. Remember what they are because I am going to ask you to name them again in a few minutes.

Please repeat these words for me: APPLE—TABLE—PENNY. (Interviewer may repeat names 3 times if necessary but repetition not scored).

Did patient correctly repeat all three words? Yes No

(1) at year is this?
(1) at month is this?
(1) at is the day of the week?

What were the three objects that I asked you to remember?

Apple =
Table =
Penny =
Suicidality Risk Assessment and Protocol

The suicide assessment protocol is to be initiated whenever the patient indicates any suicide intent. Suicide intent is defined as any communication related to wanting to kill oneself or wanting to be dead, either spoken out loud or indicated on a questionnaire. This protocol should also be initiated if you have any reason to suspect suicide ideation might be present, even if the patient did not communicate this directly.

1. On a scale of 1 to 7, what is your intent to kill yourself right now?

   Date__________  Time__________

   Low 1 2 3 4 5 6 7 High

2. If “4” or higher, ask: Do you believe you could control your impulses?

   __________Yes    __________No

3. If “no” or if any reason to suspect that the patient is at risk, ask the following:

   a. Suicide planning and/or preparation- Do you have a plan on how you would kill yourself?

   b. Suicide note written or in progress- Have you written or started a letter to others about killing yourself?

   c. Methods available or easily obtained- Refer back to plan and ask:

      Do you have __________ available to you?

   d. Precautions against discovery or intervention; deception or concealment about timing, place, etc. Consider plan and ask: Does anyone know about your plan?
e. Indirect references to own death, arrangements for death-

*Consider plan and ask:* Have you made any preparations for your death?

f. History of suicide attempts- Have you been particularly isolated lately?

g. Recent disruption or loss of interpersonal relationship; negative environmental changes in past month; recent psychiatric hospital discharge-*Ask:* Have you suffered any recent losses or serious stressors or changes or problems in your relationships

h. Isolation-*Ask:* Have you been particularly isolated lately?

i. Abrupt clinical change, either negative or positive-*Ask:* Have you recently experienced a drastic change in your mood-either feeling really “up” or really “down”?

j. Current hopelessness, anger, or both-*Ask:* Are you currently feeling hopeless (like things will never get better)? Are you currently feeling a lot of anger?

k. Depressive turmoil, severe anxiety, panic attacks, severe mood cycling-*Ask:* Are you experiencing a lot of depression, anxiety, panic attacks or extreme “ups and downs”?

l. Alcohol consumptions/drug use-*Ask:* In the last week, have you been drinking alcoholic beverages or using recreational drugs? A lot more than normal? *Assess frequency quantity, and recency.*
Remain with the patient or on the phone until risk is lowered. If over the telephone, tell the patient that you would like to consult with the study investigator and ask the patient for a commitment not to harm himself/herself and to stay present and available for a return phone call within the next 10 minutes. Page the study investigator for directions. Use emergency means (dial 911) if necessary.

Check which actions taken (must always do items in bold):

_____a. Referred to positive things(s) in patient’s life;

_____b. Focused on what he/she can do about his/her feelings;

_____c. Ask patient to list and call people in his/her support network;

_____d. Made sure he/she had emergency numbers (including crisis line and clinic numbers);

_____e. Contracted with patient to not harm self or engage in suicide acts;

_____f. Ask patient to call for professional help (psychiatrist/therapist/PCP/crisis line/ER);

_____g. Had patient call you back to confirm patient took positive actions;

_____h. Referred patient to clinic staff/PCP in waiting room;

_____i. Accompanied patient to Emergency Room;

_____j. Contacted 911 (danger to life is imminent and patient refuses help); Time __________

_____k. Contacted CDMHP Office; Who did you speak with?

______________________________

_____l. Contacted subject’s PCP within 24 hours; Date ________Time __________
m. Contacted Study Investigator within 24 hours;

Date ________ Time ___________

n. Other

_________________________________________________________________________________

o. Completed Adverse Event Report
ANXIETY SENSITIVITY INDEX

Now I’m going to ask you about things you may worry about or that may scare you. For these questions, the response options will be: Very little, A little, Some, Much, or Very much.

1. To what extent is this statement true for you… It is very important for me not to appear nervous. READ CATEGORIES IF NECESSARY

   1 = very little
   2 = a little
   3 = some
   4 = much
   5 = or very much
   d = DON’T KNOW
   r = REFUSED

2. To what extent is this statement true for you… When I cannot keep my mind on a task, I worry that I might be going crazy. READ CATEGORIES IF NECESSARY

   1 = very little
   2 = a little
   3 = some
   4 = much
   5 = or very much
   d = DON’T KNOW
   r = REFUSED
3. To what extent is this statement true for you… It scares me when I feel shaky.

READ CATEGORIES IF NECESSARY

1 = very little
2 = a little
3 = some
4 = much
5 = or very much
d = DON’T KNOW
r = REFUSED

4. To what extent is this statement true for you… It scares me when I feel faint.

READ CATEGORIES IF NECESSARY

1 = very little
2 = a little
3 = some
4 = much
5 = or very much
d = DON’T KNOW
r = REFUSED

5. It is important to me to stay in control of my emotions. (IF NECESSARY: To what extent is this statement true for you … READ CATEGORIES)

1 = very little
2 = a little
3 = some
4 = much
5 = or very much
d = DON’T KNOW
r = REFUSED

6. It scares me when my heart beats rapidly. (IF NECESSARY: To what extent is this statement true for you … READ CATEGORIES)
   1 = very little
   2 = a little
   3 = some
   4 = much
   5 = or very much
d = DON’T KNOW
r = REFUSED

7. It embarrasses me when my stomach growls. (IF NECESSARY: To what extent is this statement true for you … READ CATEGORIES)
   1 = very little
   2 = a little
   3 = some
   4 = much
   5 = or very much
d = DON’T KNOW
r = REFUSED
8. It scares me when I am nauseous. (IF NECESSARY: To what extent is this statement true for you … READ CATEGORIES)
   1 = very little
   2 = a little
   3 = some
   4 = much
   5 = or very much
   d = DON’T KNOW
   r = REFUSED

9. When I notice my heart is beating rapidly, I worry that I might have a heart attack. (IF NECESSARY: To what extent is this statement true for you … READ CATEGORIES)
   1 = very little
   2 = a little
   3 = some
   4 = much
   5 = or very much
   d = DON’T KNOW
   r = REFUSED

10. It scares me when I become short of breath. (IF NECESSARY: To what extent is this statement true for you … READ CATEGORIES)
    1 = very little
    2 = a little
11. When my stomach is upset, I worry that I might be seriously ill. (IF NECESSARY: To what extent is this statement true for you … READ CATEGORIES)

1 = very little
2 = a little
3 = some
4 = much
5 = or very much
d = DON’T KNOW
r = REFUSED

12. It scares me when I am unable to keep my mind on a task. (IF NECESSARY: To what extent is this statement true for you … READ CATEGORIES)

1 = very little
2 = a little
3 = some
4 = much
5 = or very much
d = DON’T KNOW
r = REFUSED
13. Other people notice when I feel shaky. (IF NECESSARY: To what extent is this statement true for you … READ CATEGORIES)

\[
\begin{align*}
1 &= \text{very little} \\
2 &= \text{a little} \\
3 &= \text{some} \\
4 &= \text{much} \\
5 &= \text{or very much} \\
d &= \text{DON'T KNOW} \\
r &= \text{REFUSED}
\end{align*}
\]

14. Unusual body sensations scare me. (IF NECESSARY: To what extent is this statement true for you … READ CATEGORIES)

\[
\begin{align*}
1 &= \text{very little} \\
2 &= \text{a little} \\
3 &= \text{some} \\
4 &= \text{much} \\
5 &= \text{or very much} \\
d &= \text{DON'T KNOW} \\
r &= \text{REFUSED}
\end{align*}
\]

15. When I am nervous, I worry that I might be mentally ill. (IF NECESSARY: To what extent is this statement true for you … READ CATEGORIES)

\[
\begin{align*}
1 &= \text{very little} \\
2 &= \text{a little} \\
3 &= \text{some}
\end{align*}
\]
4 = much
5 = or very much
d = DON’T KNOW
r = REFUSED

16. It scares me when I am nervous. (IF NECESSARY: To what extent is this statement true for you … READ CATEGORIES)

1 = very little
2 = a little
3 = some
4 = much
5 = or very much
d = DON’T KNOW
r = REFUSED
Next is a list of problems people sometimes have. Please tell me which response best describes how much that problem has distressed or bothered you during the past 7 days including today. Your response choices will be not at all, a little bit, moderately, quite a bit, extremely.

During the past 7 days, how much were you distressed by…

1. Faintness or dizziness READ CATEGORIES
   0=Not at all
   1= A little bit
   2= Moderately
   3= Quite a bit
   4= Extremely

2. Nervousness or shakiness inside READ CATEGORIES
   0=Not at all
   1= A little bit
   2= Moderately
   3= Quite a bit
   4= Extremely

3. Pains in heart or chest READ CATEGORIES
   0=Not at all
   1= A little bit
   2= Moderately
3. Quite a bit
4. Extremely

4. Feeling tense or keyed up READ CATEGORIES

0=Not at all
1= A little bit
2= Moderately
3= Quite a bit
4= Extremely

5. Nausea or upset stomach READ CATEGORIES

0=Not at all
1= A little bit
2= Moderately
3= Quite a bit
4= Extremely

6. Suddenly scared for no reason READ CATEGORIES

0=Not at all
1= A little bit
2= Moderately
3= Quite a bit
4= Extremely

7. Trouble getting your breath READ CATEGORIES

0=Not at all
1= A little bit
2 = Moderately
3 = Quite a bit
4 = Extremely

8. Spells of terror or panic READ CATEGORIES IF NECESSARY
   0 = Not at all
   1 = A little bit
   2 = Moderately
   3 = Quite a bit
   4 = Extremely

9. Numbness or tingling in parts of your body READ CATEGORIES
   0 = Not at all
   1 = A little bit
   2 = Moderately
   3 = Quite a bit
   4 = Extremely

10. Feeling so restless you couldn’t sit still READ CATEGORIES
    0 = Not at all
    1 = A little bit
    2 = Moderately
    3 = Quite a bit
    4 = Extremely

11. Feeling weak in parts of your body READ CATEGORIES
    0 = Not at all
1= A little bit
2= Moderately
3= Quite a bit
4= Extremely

12. Feeling fearful READ CATEGORIES IF NECESSARY
0=Not at all
1= A little bit
2= Moderately
3= Quite a bit
4= Extremely
PATIENT HEALTH QUESTIONNAIRE 9-ITEM DEPRESSION SCALE

Over the last 2 weeks, how often have you been bothered by any of the following problems? Your response choices are not at all, several days, more than half the days, nearly every day.

1. Little interest or pleasure in doing things. READ CATEGORIES IF NECESSARY
   0 = not at all
   1 = several days
   2 = more than half the days
   3 = nearly every day

2. Feeling down depressed or hopeless. READ CATEGORIES IF NECESSARY
   0 = not at all
   1 = several days
   2 = more than half the days
   3 = nearly every day

3. Trouble falling or staying asleep, or sleeping too much. READ CATEGORIES IF NECESSARY
   0 = not at all
   1 = several days
   2 = more than half the days
   3 = nearly every day
4. Feeling tired or having little energy. READ CATEGORIES IF NECESSARY

0 = not at all
1 = several days
2 = more than half the days
3 = nearly every day

5. Poor appetite or overeating READ CATEGORIES IF NECESSARY

0 = not at all
1 = several days
2 = more than half the days
3 = nearly every day

6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down. READ CATEGORIES IF NECESSARY

0 = not at all
1 = several days
2 = more than half the days
3 = nearly every day

7. Trouble concentrating on things, such as reading the newspaper or watching television. READ CATEGORIES IF NECESSARY

0 = not at all
1 = several days
2 = more than half the days
3 = nearly every day
8. Moving or speaking so slowly that other people could have noticed? Or the opposite---being so fidgety or restless that you have been moving around a lot more than usual.

READ CATEGORIES IF NECESSARY

0 = not at all
1 = several days
2 = more than half the days
3 = nearly every day

9. Thoughts that you would be better off dead or of hurting yourself in some way. READ CATEGORIES IF NECESSARY

0 = not at all
1 = several days
2 = more than half the days
3 = nearly every day
The next question is about your health now. Answer as accurately as you can.

1. In general, would you say your health is: READ RESPONSE CHOICES
   
   1 = excellent
   
   2 = very good
   
   3 = good
   
   4 = fair
   
   5 = poor

Now I’m going to read a list of activities that you might do during a typical day. As I read each item, please tell me if your health now limits you a lot, limits you a little, or does not limit you at all in these activities.

2. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf. Does your health now limit you a lot, limit you a little, or not limit you at all? (IF RESPONDENT SAYS S/HE DOES NOT DO ACTIVITY, PROBE: Is that because of your health?)
   
   1 = Yes, limited a lot
   
   2 = Yes, limited a little
   
   3 = No, not limited at all

3. …Climbing several flights of stairs. Does your health now limit you a lot, limit you a little, or not limit you at all? (IF RESPONDENT SAYS S/HE DOES NOT DO ACTIVITY, PROBE: Is that because of your health?)
   
   1 = Yes, limited a lot
2 = Yes, limited a little
3 = No, not limited at all

The following two questions ask about your physical health and your daily activities.

4. During the past 4 weeks, how much of the time have you accomplished less than you would like as a result of your physical health?
   1 = all of the time
   2 = most of the time
   3 = some of the time
   4 = a little of the time
   5 = or none of the time

5. During the past 4 weeks, how much of the time were you limited in the kind of work or other regular daily activities you do as a result of your physical health? READ RESPONSE CHOICES
   1 = all of the time
   2 = most of the time
   3 = some of the time
   4 = a little of the time
   5 = or none of the time

The following three questions ask about your emotions and your daily activities:

6. During the past 4 weeks, how much of the time have you accomplished less than you would like as a result of any emotional problems, such as feeling depressed or anxious? READ RESPONSE CHOICES
   1 = all of the time
2 = most of the time
3 = some of the time
4 = a little of the time
5 = or none of the time

7. During the past 4 weeks, how much of the time did you do work or other regular daily activities less carefully than usual as a result of any emotional problems, such as feeling depressed or anxious? READ RESPONSE CHOICES
   1 = all of the time
   2 = most of the time
   3 = some of the time
   4 = a little of the time
   5 = or none of the time

8. During the past 4 weeks, how much did pain interfere with your normal work, including both work outside the home and housework? READ RESPONSE CHOICES
   1 = none
   2 = a little bit
   3 = moderately
   4 = quite a bit
   5 = or extremely

The next questions are about how you feel and how things have been with you during the past 4 weeks.
As I read each statement, please give me the one answer that comes closest to the way you have been feeling. Is it all of the time, most of the time, some of the time, a little of the time, or none of the time?

9. How much of the time during the past 4 weeks… have you felt calm and peaceful?

READ RESPONSE CHOICES ONLY IF NECESSARY

1 = all of the time
2 = most of the time
3 = some of the time
4 = a little of the time
5 = or none of the time

10. How much of the time during the past 4 weeks… did you have a lot of energy?

READ RESPONSE CHOICES ONLY IF NECESSARY

1 = all of the time
2 = most of the time
3 = some of the time
4 = a little of the time
5 = or none of the time

11. How much of the time during the past 4 weeks… have you felt downhearted and depressed? READ RESPONSE CHOICES ONLY IF NECESSARY

1 = all of the time
2 = most of the time
3 = some of the time
4 = a little of the time
5 = or none of the time

12. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities like visiting friends, relatives, etc.? READ RESPONSE CHOICES

1 = all of the time
2 = most of the time
3 = some of the time
4 = a little of the time
5 = or none of the time
ACCULTURATION

1. Where were you born? ________ PLACE OF BIRTH

   1. UNITED STATES [go to ACC4]
   2  ARGENTINA       8  COSTA RICA       14  KOREA, SOUTH
   3  BRAZIL          9  ECUADOR          15  MEXICO
   4  CANADA          10  EL SALVADOR     16  NICARAGUA
   5  CHILE           11  GUATEMALA       17  PHILIPPINES
   6  CHINA           12  HONDURAS        18  UNITED KINGDOM
   7  COLOMBIA        13  JAPAN           19  VENEZUELA
   20  ANOTHER COUNTRY - Specify (ACC1NAME)

2. How long have you lived in the United States?

   _____ NUMBER OF YEARS

3. [IF NOT BORN IN THE UNITED STATES] How old were you when you immigrated to the United States?

   _____ Age at time of immigration
1. All in all, how satisfied are you with your marriage/relationship with your significant other---very satisfied, somewhat, not very, or not at all satisfied?
   1 = Very satisfied  
   2 = Somewhat satisfied  
   3 = Not very satisfied  
   4 = Not at all satisfied  
   d = DON’T KNOW  
   r = refused

2. Overall, would you rate your (marriage/relationship with significant other) as excellent, good, fair, or poor?
   1 = Excellent  
   2 = Good  
   3 = Fair  
   4 = Poor  
   d = DON’T KNOW  
   r = REFUSED

3. How many children do you have. Include both children who do and do not live with you?
   __________ (Number of children)
4. Overall, is your relationship with your child(ren) excellent, good, fair, or poor?

1 = Excellent

2 = Good

3 = Fair

4 = POOR

d = DON’T KNOW

r = refused
SOCIAL SUPPORT

People sometimes look to others for companionship, assistance, or other types of support.

How often is each of the following kinds of support available to you if you need it?

1. Someone to get together with for relaxation.
   1 = None of the time
   2 = A little of the time
   3 = Some of the time
   4 = Most of the time
   5 = All of the time
   d = DON’T KNOW
   r = refused

2. Someone to help with daily chores if you were sick
   1 = None of the time
   2 = A little of the time
   3 = Some of the time
   4 = Most of the time
   5 = All of the time
   d = DON’T KNOW
   r = refused

3. Someone to turn to for suggestions about how to deal with a personal problem.
   1 = None of the time
   2 = A little of the time
3 = Some of the time
4 = Most of the time
5 = All of the time

d = DON’T KNOW

r = refused

4. Someone to love and make you feel wanted.

1 = None of the time
2 = A little of the time
3 = Some of the time
4 = Most of the time
5 = All of the time

d = DON’T KNOW

r = refused
1. People differ a lot in their feelings about professional help for emotional problems. If you had a serious emotional problem, would you definitely go for professional help, probably go, probably not go, or definitely not go for professional help?

1 = Definitely Go
2 = Probably Go
3 = Probably Not Go
4 = Definitely Not Go
d = DON’T KNOW
r = refused

2. How comfortable would you feel talking about personal problems with a professional - - very comfortable, somewhat, not very, or not at all comfortable?

1 = Very
2 = Somewhat
3 = Not Very
4 = Not at all
d = DON’T KNOW
r = refused
3. How embarrassed would you be if your friends knew you were getting professional help for an emotional problem—very embarrassed, somewhat, not very, or not at all embarrassed?

1 = Very
2 = Somewhat
3 = Not Very
4 = Not at all
d = DON'T KNOW
r = refused

4. Of the people who see a professional for serious emotional problems, what percent do you think are helped?

____________________%

5. Of those who do not get professional help, what percent do you think get better even without it?

____________________%