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Validation of the Behavioral Activation for Depression Scale - Short Form (BADS-SF) with Spanish-Speaking Latinos

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VALIDATION OF THE BEHAVIORAL ACTIVATION FOR DEPRESSION SCALE –

SHORT FORM (BADS-SF) WITH SPANISH-SPEAKING LATINOS

by

Maria M. Santos

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ABSTRACT
VALIDATION OF THE BEHAVIORAL ACTIVATION FOR DEPRESSION SCALE –
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by

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Under the Supervision of Jonathan W. Kanter, Ph.D.

Accumulating empirical support for Behavioral Activation (BA) for depression's efficacy

has drawn attention to its promise as a treatment modality with ease of dissemination.

Given its pragmatic approach, it may be well-suited to address depression in communities

that have been traditionally hard to reach, such as those inhabited by Latinos in the U.S.

BA for Latinos (BAL) with depression has garnered support as a viable treatment option.

Further treatment evaluation will require the use of a validated measure of activation,

which is the treatment's hypothesized mechanism of change, to measure treatment

progress and outcome. Kanter and colleagues developed the Behavioral Activation for

Depression Scale (BADS) which is designed to track activation, or when and how clients

became activated throughout the course of treatment. Although the original measure

demonstrated acceptable psychometric properties, a short form was developed to improve

on the original measure. The 9-item BADS-SF has demonstrated stronger psychometric

properties. It may prove to be a valuable asset in further evaluating BA for Latinos. Two

studies were conducted to examine the short form's psychometric properties with

samples of Spanish-speaking Latinos. The measure's two-factor model consisting of the

Activation and Avoidance subscales was evaluated in Study 1and the measure's

predictive validity was examined in Study 2. Both studies evaluated the measure's

internal consistency reliability and its concurrent validity. Results do not support the

BADS-SF as a valid measure of activation and avoidance. However, these studies may

not represent adequate tests of the measure and thus further evaluation is needed.

To

my family

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With Spanish-Speaking Latinos

Environmental contexts are important to the etiology of Latino depression (Martinez Pincay & Guarnaccia, 2007; Cabassa, Lester, & Zayas, 2007). Latinos conceptualize their depression as having a behavioral and interpersonal origin (Martinez-Pincay et al., 2007). The onset of depression in Latinos has been attributed to a variety of psychosocial factors related to Latinos' immigration experiences (Grzywacz, Quandt, Early, Tapia, Graham, & Arcury, 2006; Grzywacz, Quandt, Chen, Isom, Kiang, Vallejos, & Arcury, 2010), the process of adapting to a new environment (Organista, Organista, & Kurasaki, 2003), and overrepresentation in the low socio-economic status brackets, among others (Bruce, Takeuchi, & Leaf, 1991; Vega, Kolody, Aguilar-Gaxiola, Alderete, Catalano, & Caraveo-Anduaga, 1998). These multidisciplinary investigations suggest that a viable treatment for depression among Latinos is one targeting salient environmental variables. Behavioral Activation for Latinos (BAL) with depression is a behavioral treatment approach designed to target factors in the environment that contribute to depressive psychological distress (Kanter, Santiago-Rivera, Rusch, Busch, & West, 2010). Preliminary pilot data suggest that BAL is found to be acceptable by low-income Latinas, can be feasibly implemented in the community setting, and is potentially efficacious (Kanter et al., 2010). Initial analyses of an on-going RCT lend support to these findings. This treatment approach is designed to successfully activate depressed Latino clients to engage in behaviors that are theorized to result in positive reinforcement and that lead to positive symptom change, as proposed by the behavioral activation treatment model (Manos, Kanter & Busch, 2010). However it has yet to be

determined whether activation, the theorized mechanism of action, in fact mediates the relationships between depression and outcome in BAL.

The Behavioral Activation for Depression Scale (BADS; Kanter, Mulick, Busch, Berlin, & Martell, 2007) was designed to measure when and how changes in activation occur throughout the course of treatment. The BADS has demonstrated acceptable factor structure, internal consistency, and test-retest reliability with evidence for both construct and predictive validity with a non-clinical sample (Kanter et al., 2007). Validation of the BADS with a community sample with elevated depressive symptoms demonstrated adequate fit to the factor structure and good psychometric properties including construct validity (Kanter, Rusch, Busch, & Sedivy, 2009). The scale has also demonstrated some problems (Manos, Kanter, & Luo, 2011). Three issues included the need to further investigate the appropriateness of items 6 and the activation subscale (Kanter et al., 2009). Also, the original measure was thought to be considerably lengthy and time-consuming (Manos et al., 2011). A 9-item short form of the measure (BADS-SF) was developed to address these problems and demonstrated good item characteristics, adequate internal consistency, construct validity, and predictive validity (Manos et al., 2011).

Validation of the BADS with a primarily Spanish-speaking sample is needed to identify whether activation is in fact the mechanism of change in BA treatment implemented with Spanish-speaking Latinos. In particular, it needs to be determined whether the measure's factor structure can be replicated and whether support for its psychometric properties can be obtained with a Spanish-speaking sample. Support for the original BADS full scale and short form was obtained using primarily Caucasian

samples (Kanter et al., 2007; Kanter et al., 2009). Given that the short form of the BADS has been shown to have a stronger factor structure, reliability, and validity (Manos et al., 2011), it is the indicated version for validation.

The primary aim of the current two-study proposal is to validate the BADS-SF with Spanish-speaking Latinos in the U.S. Midwest. To accomplish this, a confirmatory factor analysis (CFA) will be conducted in the first study using existing data collected from a sample of primarily Spanish-speaking Latinos to identify whether the two-factor model of the BADS-SF identified by Manos et al. (2011) is supported. The reliability and validity of the scale will also be evaluated. In the second study, the predictive validity and other psychometric properties of the measure will be examined with data obtained from a sample of primarily Spanish-speaking Latinos with depression treated with BAL.

Depression in the Latino Context

The Supplement to the U.S. Surgeon General's Report on Mental Health drew attention to the need to address mental health disparities among ethno-culturally distinct groups in the U.S., including Latinos, in the interest of advancing the country's welfare (USDHHS, 2001). According to the supplement, racial and ethnic minority group members are less likely to receive mental health services and poorer quality of care when services are received compared to Whites, suggesting that the disability burden is higher among minority group members (Lopez, 2002).

The urgent need to address the Latino disability burden is underscored by projected growth rates and other population characteristics. The U.S. Census Bureau projects that by 2050, 24% of the total country's population will be of Latin American

origin based largely on the expected growth of the relatively young, native-born Latino subgroup with higher birth and fertility rates compared to non-Hispanic Whites (US Census, 2007). Latinos are less likely to have health insurance and are more likely to have limited education (Aguilar Gaxiola, Kramer, Resendez, & Magaña, 2008). Generally, Latinos that are more acculturated to U.S. culture tend to have poorer health outcomes (Vega, Scribney, Aguilar-Gaxiola, & Kolody, 2004; Welte & Barnes, 1995; Lara, Gamboa, Kahramanian, Morales, & Hayes Bautista, 2005), a phenomenon attributed to the loss of protective behaviors and traditions that stem from native culture, and to the development of unhealthy behaviors once in the U.S. (Aguilar-Gaxiola et al., 2008). Existing Latino disparities, the population's projected growth, and their demographic and health profile provide a context in which to appreciate the imperative to address depression among Latinos.

Depression Prevalence. Mixed prevalence and symptom rate estimates of depression for Latinos have largely been based on small studies limited by region; population; variables examined (Plant & Sachs-Ericsson, 2004); analyses that do not account for population heterogeneity through the use of broadly defined terms (i.e., Latino and Hispanic; Polo & Alegria, 2010); small sample sizes, which do not allow for intergroup comparisons (Alegría, Mulvaney-Day, Torres, Polo, Cao, & Canino, 2007); exclusion of language preference (e.g., Breslau & Kendler, 2005; Breslau & Aguilar-Gaxiola, 2006); and lack of differentiation based on nativity, specifically between foreign- and U.S.-born Latinos (Alegría et al., 2007). Thus, small study results have not provided an accurate picture of depression among Latinos.

While some epidemiological studies have provided a more complete profile of psychiatric disorders among Latinos, others are limited by factors such as those listed above. The National Comorbidity Study (NCS; Kessler et al., 1994) and the National Comorbidity Study Replication (NCS-R; Kessler et al., 2005) have contributed to the knowledge base on the prevalence of psychiatric disorders among Latinos, despite methodical limitations.

The NCS revealed that Hispanics had lower risk for lifetime mood disorders when compared to non-Hispanic Whites, despite economic disadvantage and other risk factors (Breslau et al., 2005). NCS-R analyses on specific disorders were supportive of these findings indicating that, especially at the lower levels of education, Hispanics were at lower risk for major depression and dysthymia compared to Non-Hispanic Whites (Breslau et al., 2006). Notably, Hispanics with a history of mood disorders were at greater risk for persistent course of illness, almost twice as likely compared to non-Hispanic Whites after controlling for SES (Breslau et al., 2005).

The National Latino and Asian American Study (NLAAS; Alegria et al., 2004) has provided a fuller picture of Latino depression rates largely through examination of disaggregated data by subgroup (Alegria et al., 2008) and inclusion of an adequate sample of Spanish-speakers (Alegria et al., 2007). Support for NCS and NCS-R conclusions was obtained through NLAAS aggregated data, finding that generally Latinos are at lower risk for lifetime mood disorders compared to non-Latino Whites (Alegria et al., 2007). Unlike previous epidemiological studies (e.g., NCS; NCS-R), the NLAAS accounted for the heterogeneity of the Latino population (Alegria et al., 2004)

and found differential rates of depression by subgroup (Alegria et al., 2007), with Mexicans having the lowest rates and Puerto Ricans the highest.

Mexican-origin individuals comprise the majority of the U.S. Latino population, with a population of over thirty-one million in 2009, and are largely below the poverty line (Aguilar-Gaxiola et al., 2008). 75.1% of all Mexican-origin children live in poverty (Lopez & Velasco, 2011). Compared to their Puerto Rican counterparts, Mexican-origin individuals were less likely to have a history of depressive disorders (Alegria et al., 2007).

Puerto Ricans are the second largest Latino subgroup with a population of over 4 million in 2009 (Dockterman, 2011). They comprise 9% of the total U.S. Latino population, are the poorest among Latinos (Potter, Rogler, & Moscicki, 1995) with the highest unemployment rate and, unlike other subgroups, are eligible for public assistance, such as Medicare and Medicaid (Aguilar-Gaxiola et al., 2008). Studies suggest that past-year and lifetime rates of disorder are highest in Puerto Ricans among Latinos (Alegria, Canino, Stinson, & Grant, 2006). The prevalence of major depressive episodes among Puerto Ricans was found to be comparable to (Canino et al., 1987) or considerably higher than rates for the general population (Mosicki et al., 1987). Depressive symptomatology was significantly greater compared to Mexican Americans and Cuban Americans, even after controlling for standard socio-demographic risk factors (Mosicki , Rae, Regier, & Locke, 1987).

Depression rates for other Latinos, primarily from Central and South America, are estimated to be higher compared to Mexican Americans (Hovey, 2000a; Hovey, 2000b; Alegria et al., 2007; Salgado de Snyder, Cervantes, & Padilla, 1990) but lower than for

Puerto Ricans (Alegria et al., 2007). Central and South Americans comprise approximately 14% of the U.S. Latino population (Aguilar-Gaxiola et al., 2008). However, data on risk for depression are limited for individuals not of Mexican, Puerto Rican, or Cuban origin. Cubans comprise 4% of Latinos (Aguilar-Gaxiola et al., 2008) and have shown lower levels of depressive symptomatology than other Hispanic subgroups by some estimates (Narrow, Rae, Moscicki, Locke, & Regier, 1990). The immigration paradox does not apply to Central, South, or Cuban Americans (Alegria, Canino, Shrout et al., 2006; Alegria et al., 2007).

The NLASS and the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) provided evidence to dispute the generalizability of "the immigrant paradox" as it relates to depression among Latinos (Alegria, Canino, Shrout et al., 2006; Alegria, Canino, Stinson et al., 2006). The phenomenon known as the immigrant paradox predicts that mental and physical health and other outcomes deteriorate with increased acculturation within and across generations among immigrant populations (Vega et al., 1998; Lara, 2005; Burnam, Hough, Karno, Escobar; & Telles, 1987). The paradox is often referenced in the context of Latino mental health issues and hypothesized to apply generally (Vega & Scribney, 2011; Lara, 2005; Cuellar & Roberts, 1997). The paradox does not apply to all Latino subgroups with respect to depression, as demonstrated through a comparison of depression rates for Puerto Ricans and Mexican-origin individuals. No differences in rates of depression have been found between U.S.-born and native-born Puerto Ricans, suggesting that the immigrant paradox does not apply to this subgroup (Alegria, Canino, Shrout et al., 2006; Alegria, Canino, Stinson et al., 2006). The immigrant paradox has only been found to apply consistently and reliably

to the Mexican-origin population, particularly with regard to depressive disorders (Alegria, Canino, Shrout et al., 2006) across several large scale studies (Burnam et al., 1987; Vega et al., 1998; Karno, Hough, Burnam, Escobar, Timbers, Santana, & Boyd, 1987; Ortega, Rosenheck, Alegria, & Desai, 2000; Escobar & Vega. 2000; Grant et al., 2004; Alegria et al., 2007). Native-born Mexican Americans who demonstrated high levels of acculturation also demonstrated higher lifetime prevalence of major depression and dysthymia compared to immigrant Mexican Americans (Burnam et al., 1987). Nativity may serve as a protective factor for foreign born Mexicans and the acculturation process has potentially negative effects on their mental health (Grant et al., 2004).

Combined, findings of higher rates of depression for Puerto Ricans and "other" Latinos and the evidence for the immigrant paradox within the Mexican population indicate that the Latino burden of depression and related disability is considerable and will increase as the general Latino population grows. Even though the immigrant paradox is not reflected in the depression prevalence estimates of most Latino subgroups, it does apply to the largest of them, a fact with important implications. On the one hand, the rising number of Mexican immigrants will contribute to decreasing the prevalence rates of depression. On the other, the rapidly growing proportion of U.S.-born Mexicans, expected to account for most population growth in the years to come (Aguilar-Gaxiola et al., 2008), will lead to rapid acceleration in the population of Latinos with depression in the U.S, offsetting any reductions brought on by immigrant Latinos. Overall, we should expect increases in the rates of depression in Latino population.

Mental Health Service Underutilization. Although U.S. Latino service use epidemiological data are scant and have methodological limitations (Kouyoumdjian,

Zaomboanga, & Hansen, 2003; Lopez, 2002), they do shed light on Latino service underutilization issues. Latinos, underrepresented in the mental health care setting (Alegria, Canino, Rios, Vera, Calderon, Rusch, & Ortega, 2002), are much less likely to receive treatment compared to White counterparts (Miranda, 2008), such as specialty mental health services (Cooper et al., 2003). Utilization barriers of public health concern include lack of access, limited availability of quality care, and problems with treatment engagement and retention. Although Latinos underutilize specialty services, Latinos increasingly receive services from general medical providers for psychological problems (Cooper et al., 2003; Medina-Mora et al., 2003).

Issues of access are continuous problems for both Latino children and adults (USDHHS, 2001; Alegria et al., 2002), and include financial barriers (Lopez, 2002) such as lack of insurance (Campbell, 1998) or underinsurance (Miranda, 2008), and lack of non-White service providers (Miranda, 2008). Latinos are less likely to receive quality care or the best indicated care when they do seek mental health services (Young, Klap, Sherbourne, & Wells, 2001).

Problems of service underutilization are further aggravated by problems of treatment engagement and retention. Latinos have a tendency to terminate treatment prematurely (Kouyoumdjian et al., 2003), with higher premature termination rates compared to Whites (e.g., Sue, 1977; Chow, Jaffee, & Snowden, 2003; Cooper et al., 2003). Rates are likely related to low education and socioeconomic status (Alvidrez, 1999). Treatment engagement and retention may reflect structural factors to pursuing treatment as well (Acosta, 1980).

A Latino Construct of Depression

According to Kleinman and Good (1986), the experience, meaning, and expression of symptoms are not universal but are contextually based and culturally embedded. Through anthropological and cross-cultural psychiatric investigation, they found that unlike the expression of depressive affect in Western cultures, somatic signs, symptoms, and complaints characterize the manifestation of depressive experiences among non-Western cultures (Kleinman and Good, 1986). Moreover, cultural categories may influence which symptoms are culturally acceptable and thus expressed (Crocket, Randall, Shen, Russell, & Driscoll, 2005).

Investigation of the factor analytic structure of the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) supports Kleinman and Goodman's (1986) notion of the varying nature of the expression of emotional distress by cultural context. Findings indicate that depressed affect and particular somatic symptoms of depression may be more closely linked in some cultures than in others, suggesting that the CES-D's original factor structure may not be the best fit for all ethnic/racial groups (Crocket et al., 2005). Differences in constructs of depression between Latinos and other ethnic groups and within the Latino population are suggested (Crocket et al., 2005). Additional evidence for the role of culture in the varying expression of depression stems from findings indicating drastic variation in prevalence rates across different cultures. Other disorders are more stable across cultures (Weissman et al., 1996). Across cultures rates of depression vary from 1.5% to 19.0%, suggesting that factors other than those biological in nature may contribute to its development (Weissman et al., 1996).

These lines of research suggest that the expression or nature of depression among Latinos should be understood in depression research and treatment, including the

development and implementation of treatment and measurement instruments. The development of a measure of activation for Spanish-speaking populations is premised on the assumption that the behavioral model of depression on which Behavioral Activation is based is congruent with the nature of Latino depression. However, is Behavioral Activation an adequate treatment for Latino depression based on an evaluation of the underlying constructs of depression? Does the proposed mechanism of action, activation, become active and operate to produce reductions in depressive symptoms among Latinos? We would expect activation to mediate treatment outcome if the behavioral model of depression is indeed consistent with depression in Latinos.

Depression as Experienced by Latinos. The experience of depression among Latinos can be formulated through anthropological and psychological research findings (Martinez Pincay & Guarnaccia, 2007; Cabassa, 2007; Cabassa et al., 2007). Etiology among low-income immigrant Latinos is conceived to be contextual or environmental in nature. Latinos attributed their depressive symptoms to external stressors (e.g., interpersonal problems or disrupted social processes attributable to immigration, isolation, economic strains, and interrelated life events; Cabassa, 2007 and Cabassa et al., 2007; Martinez Pincay & Guarnaccia, 2007) and did not endorse biological explanations of illness (Martinez Pincay & Guarnaccia, 2007; Cabassa, 2007).

Quantitatively Identified Contributors to Latino Depression. Identified psychosocial contributors to depression in Latinos are supportive of the anthropologically identified construct. In the present proposal, commonly cited and interrelated factors – acculturation, acculturative stress, immigration-related, social, and economic – will be reviewed. They will be addressed as separate factors for purposes of practical discussion.

Acculturation is a process of change that occurs within an individual due to contact between the individual's culture and the host culture (Berry, Trimble, & Olmedo, 1986; Berry, 2005) that is thought to negatively impact mental health (Alderete, Vega, Kolody, & Aguilar-Gaxiola, 2000; Finch, Catalano, Novaco, & Vega, 2003; Vega et al., 1998), and be depressive in nature (Torres, 2010; Rogler, Cortes, & Malgady, 1991; Smart & Smart, 1995). Related challenges include adjusting to a new language, different sets of customs and norms, rules and laws to which there is no or limited previous exposure, and potentially drastic lifestyle changes, among others (Organista et al., 2003). These challenges are hypothesized to account for the deterioration of migrant's mental health according to the immigrant paradox (Grant et al., 2004; Escobar, 1998; and Escobar & Vega, 2000). Acculturation's effects on psychological outcomes are not well understood (Lara et al., 2005; Hovey, 2001). In fact, there is ongoing debate as to whether acculturation correlates with depression (Vega et al., 1998; Cuellar, Bastida, & Braccio, 2004).

Acculturative stress is a type of distress that stems from acculturation's demands (Berry, Kim, Minde, Mok, 1987; Hovey & King, 1996; and Organista et al., 2003). It is considered one of the most important risk factors among Latinos (Kouyoumdjian et al., 2003). Less acculturated individuals may not necessarily experience greater acculturative stress when compared to more acculturated individuals (Hovey & King, 1996). Acculturative stress was positively associated with depression and suicidal ideation among Latino immigrants and predicted depression and suicidal ideation among Mexicans (Hovey & King, 1996; Hovey, 2000a; and Hovey, 2000b).

Immigration as a contributor to depression can be conceived of as both a life event and chronic stressor (Finch, Kolody, &Vega, 2000; Coffman & Norton, 2010; Hiott, Grzywacz, Davis, Quandt, & Arcury, 2008) that over time leads to higher psychiatric disorder rates (Salgado de Snyder et al., 1990; Vega et al. 1998; Vega & Amaro, 1994). Migration is particularly stressful for undocumented Latinos (Grzywacz et al., 2006; Grzywacz et al., 2010). Challenges associated with depression include limited access to jobs, education, and health benefits, fear about being discovered (Santiago-Rivera, Kanter, Benson, DeRose, Illes, & Reyes, 2008; Medina-Mora et al., 2003), and negative experiences during the migration process (Cuellar, 2002; Cuellar et al., 2004; Smart & Smart, 1995).

Resettlement interrupts social support systems of foreign born Latinos (Vega, Kolody, Valle, & Weir, 1991) resulting in loss of social support, displacement, isolation, and disrupted family functioning (e.g., Hiott, Grzywacz, Arcury, & Quandt, 2006; Hiott et al., 2008; Vega et al., 1991; Grzywacz et al., 2006). These consequences can undermine mental health (Grzywacz, Quandt, Arcury, & MarIn, 2005; Hovey & Magaña, 2000) and produce depression (Vega et al., 1991; Aguilar-Gaxiola et al., 2008; Polo & Alegria, 2010; Grzywacz et al., 2010; Alderete et al., 2000). Social support and interpersonal functioning protect foreign-born Latinos against depression, among other disorders (Hernandez, Plant, Sachs-Ericsson, & Joiner, 2005).

Socio-economic status (SES) has long been thought to moderate the relationship between race and psychological distress (Kessler & Neighbors, 1986; Ulbrich, Warheit, & Zimmerman, 1989). Although low SES has been found to be strongly related to elevated risk for depression among Latinos (Bruce, Takeuchi, & Leaf, 1991; Vega et al.,

1998; Cuellar & Roberts, 1997), the directionality of the relationship is unclear (Plant & Sachs-Ericsson, 2004). The relationship between low income and greater psychological distress may be more complex than previously thought (Williams, Takeuchi, & Adair, 1992), as suggested by findings that low SES is less associated with major depression than other factors (Vega et al., 1998). Specific factors within SES may better account for the relationship between SES and depression, such as problems meeting basic needs (Ennis et al., 2000 in Plant & Sachs-Ericsson, 2004). Hernandez et al. (2005) found that problems meeting basic needs partially mediated higher prevalence of psychiatric disorders among a primarily Mexican-American sample compared to White participants (Hernandez et al., 2005).

Discrimination's relationship to depression has not been sufficiently examined, currently limited to a few studies with Latinos (Finch et al., 2000). It is thought to be a fundamental component of daily life for U.S. minority racial/ethnic groups (Bendick, Jackson, & Reinoso 1994; Feagin, 1991) and the perception of discrimination can result in psychological distress and depression (Kessler, Mickelson, & Williams, 1999; Gee, Ryan, Laflamme, & Holt, 2006). Discrimination is experienced in a variety of domains, including housing, employment seeking, and other human services (Jones, 2000), and represents a potential challenge for Latino integration to U.S. society post migration (Smart & Smart, 1995). Discrimination perception can be detrimental to mental health (Finch et al., 2000) and may operate indirectly by damaging self-efficacy and producing stress (Moradi & Risco, 2006).

Behavioral Activation

BA's history, model, and empirical support are briefly reviewed in order to provide a context for the development of the BADS. The BA model of depression is also reviewed in order to compare it to the derived Latino model of depression. Consistency with the treatment model would indicate that the validation of the BADS is indicated.

History of the Early Model and Current Variations. The history of and early support for BA through 2006 has been extensively covered in several meta-analyses (Cuijpers, Straten, & Warmerdam, 2007; Ekers, Richards, & Gilbody, 2008; Mazzucchelli, Kane, & Rees, 2009), and empirical reviews (Kanter, Manos, Bowe, Baruch, Busch, & Rusch, 2010; Dimidjian, Barrera, Martell, Muñoz, & Lewinsohn, 2011). This proposal will briefly touch on several highlights from this extensive history as well as research that has been recently published and that has not been covered in these earlier publications.

Lewinsohn produced a foundational BA manual based on his behavioral theory of depression. In Lewinsohn's model of depression, key antecedents to the onset of depression were low levels of response-contingent positive reinforcement (RCPR), the existence of a relationship between improved mood and the acquisition of positive reinforcement, and the notion that increases in positive reinforcement lead to depression reduction (Dimidjian et al., 2011). Rates of positive reinforcement were regulated by (1) the number of potentially reinforcing events for an individual, (2) the availability of those events in the individual's environment, and (3) the individual's ability to obtain reinforcement as dictated by instrumental skills (Lewinsohn, 1974). Thus, the manual focused on activity scheduling to increase rates of RCPR and supplemental techniques to help access and maintain contact with sources of RCPR. Early research on Lewinsohn's

approach was supportive but methodological problems with these studies existed (Kanter et al., 2010).

Since the late 1970's, attention has been drawn away from behavioral conceptualizations of depression and instead has been directed toward cognitive models (Clark, Beck, & Alford, 1999), in part due to several influential studies published in the late 1970's . First, a comparison of cognitive and behavioral techniques by Shaw (1977) suggested that cognitive techniques were more effective than were behavioral techniques. Second, Zeiss, Lewinsohn, & Muñoz (1979) found that activity scheduling, skills training, and cognitive approaches performed comparably in a component analysis and concluded that combining the approaches was warranted. These findings fueled increased research on and employment of Cognitive Therapy (CT) for the treatment of depression (DeRubeis & Crits-Christoph, 1998). Particular attention has been paid to Beck, Rush, Shaw, & Emery's (1979) CT which conceptualized change as occurring through the modification of cognitive schemas but included a behavioral activation component in treatment. Although numerous outcome studies have documented CT's efficacy (Hollon, Thase, & Markowitz, 2002), there is strong evidence to suggest that it is not the most effective treatment for depression for all individuals, especially those with severe depression (Elkin, Gibbons, Shea, Sotsky, Watkins, Pilkonis, & Hedeker, 1995).

Jacobson et al.'s (1996) component analysis of CT led to a revitalization of interest in strictly behavioral treatment approaches and the introduction of modified versions of BA (Kanter et al., 2010). In aiming to identify CT's active ingredients, they found that CT's behavioral activation component produced as much change in depressive symptoms as did the whole CT package post treatment and at two-year follow up

(Gortner, Gollan, Dobson, & Jacobson, 1998). These findings led to the evaluation that BA had potential to be a superior treatment due to its ease of training and efficiency (Kanter et al. 2010; Kanter, Puspitasarai, Santos, & Nagy, 2012), as cognitive and behavioral techniques may differ with regard to ease of implementation in the real world setting.

Following the component analysis, two versions of behavioral activation were put forth. First, Jacobson, Martell, and Dimidjian (2001) provided a re-conceptualized behavioral theory of depression and a corresponding treatment model (Dimidjian, Martell, & Herman-Dunn, R., 2007; Martell, Addis, & Jacobson, 2001; Martell, Dimidjian, & Herman-Dunn, R., 2010). This comprehensive BA treatment package included traditional behavioral techniques in conjunction with the use of functional analyses of behavior and other contextual interventions. A functional contextualistic (Hayes, Strosahl, & Wilson, 1999) application of Lewinsohn's theory emphasized the importance of addressing avoidance behavior and activating competing behavior (Ferster, 1973) as avoidance may inhibit behaviors that serve to access reward (Dimidjian et al., 2011). Techniques include basic activity scheduling, skills training, contingency management strategies, activity and mood self-monitoring, activity structuring, and problem solving. Treatment targets covert behavior, specifically rumination, and emphasizes the flexible implementation of techniques based on the client's needs over adopting a structured session-by-session format (Martell et al., 2001). The model is designed to increase engagement in adaptive activities related to the experience of pleasure, mastery, and routine setting, and to decrease activities that lead to or maintain depression (Dimidjian et al., 2011). The efficacy of this model (Martell et al., 2001) was

empirically supported by Dimidjian et al.'s (2006) seminal study, which will be discussed below.

As Martell and colleagues (2001) were developing their model of BA, Lejuez, Hopko, & Hopko (2001; Lejuez, Hopko, LePage, Hopko, & McNeil, 2001; Lejuez, Hopko, Acierno, Daughters, & Pagoto, 2011) were simultaneously and independently developing a condensed version of BA, Brief Behavioral Activation Treatment for Depression (BATD). Based on behavioral principles, BATD operates within an applied matching law (Hernstein, 1970) framework in which depression is conceptualized as the result of increased reinforcement for depressive behaviors and decreased reinforcement of healthy, non-depressive behaviors. When the value of depressed behavior reinforcers increases due to environmental change, the value of non-depressed behavior reinforcers is decreased (Hopko, Lejuez, Ruggiero, & Eifert, 2003; Dimidjian et al., 2011). As with BA, the goal in BATD is to increase non-depressive behaviors and access to RCPR. Unlike BA, the brief treatment approach does not emphasize the role of escape and avoidance behaviors as barriers to coming in contact with RCPR (Hopko et al., 2003).

Underlying BA Model of Depression. The behavioral model of depression that corresponds with BA conceives of depression as behavioral and emotional changes that result from losses of, reductions in, and chronically low levels of positive reinforcement (Manos et al., 2010). Changes in reinforcement contingencies, such as decreases in positive reinforcement, result in increases in depressed mood and extinguished healthy behaviors that were formerly maintained by positive reinforcement. Healthy behaviors are replaced by depressed behaviors that are maintained by a new set of positive reinforcers as well as avoidance behaviors maintained by negative reinforcers. Under

these circumstances, the depressed behavior is more likely to increase and continue with greater risk of falling into a deeper depression. (See Manos et al., 2010 for a review of the complete model.)

Empirical Base for BA. Dimidjian and colleagues (2006) presented strong evidence in support of Martell et al.'s (2001) BA. In a randomized placebo controlled study, the efficacy of CT, anti-depressant medication (ADM), and BA was compared. Results demonstrated that although all treatments were comparably efficacious among mildly depressed patients, BA performed as well as ADM, and better than CT, among more severely depressed patients (Dimidjian et al., 2006). BA consistently outperformed CT among more severely depressed clients across several analytic strategies (Coffman, Martell, Dimidjian, Gallop, & Hollon, 2007).

Since Dimidjian et al.'s (2006) study, the research on behavioral activation has rapidly expanded (Dimidjian et al., 2011), although still in its early stages and primarily comprised of case studies and small, open-trials. These provide support for BA as an efficient, straight-forward treatment with ease of training and dissemination (Dimidjian et al., 2011; Kanter et al., 2012). The small trials that lend support for BA by Martell et al., (2001) include a comparison of group BA to a wait-list control in a public mental health setting (Porter, Spates, & Smitham, 2004), and uncontrolled trials of BA with veterans with post-traumatic stress disorder (Jakupcak et al., 2006; Jakupcak, Wagner, Paulson, Varra, & McFall, 2010), depressed obese clients (Pagoto, Bodenlos, Schneider, & Spates, 2008), and depressed Latinas (Kanter et al., 2010).

BATD has garnered support as a feasible and effective treatment across several trials (Kanter et al., 2010), including randomized trials with depressed inner-city illicit

drug users with elevated depressive symptoms (Daughters, Braun, Sargeant, Reynolds, Hopko, Blanco, & Lejuez, 2008), depressed college students treated with single-session BATD (Gawrysiak, Nicholas, & Hopko, 2009), smokers with mildly elevated depressive symptoms treated with BATD for smoking cessation (MacPherson, Tull, Matusiewicz, & Rodman, 2010), and adult substance users with depressive symptoms in a residential treatment center (Magidson, Gorka, MacPherson, Hopko, Blanco, & Lejuez, 2011). Trials with non-clinical populations are also supportive of BATD, including a sample of first-semester freshman that resulted in reduced alcohol consumption (Reynolds, MacPherson, Tull, Baruch, & Lejuez, 2011). Successful open trials have been conducted with individuals with complicated bereavement (Acierno et al., 2011), and depressed cancer patients (Hopko, Robertson, & Colman, 2008; Hopko, Robertson, & Carvalho, 2009). Case studies of BATD have been conducted with 6 depressed cancer patients (Hopko, Bell, Armento, Hunt, & Lejuez, 2005), 3 community mental health patients (Lejuez et al., 2001), two individuals comorbid with anxiety and depression (Armento & Hopko, 2009; Hopko, Lejuez, & Hopko, 2004), a suicidal, depressed client with Borderline Personality Disorder (Hopko, Sanchez, Hopko, Dvir, & Lejuez, 2003), and a depressed adolescent (Ruggiero, Morris, Hopko, & Lejuez, 2007).

Viability for Widespread Dissemination. Preliminary evidence for BA's flexibility, adaptability, and acceptability is one of the treatment's major strengths. Such qualities may make it an ideal treatment for dissemination within difficult to reach and underserved communities (Kanter et al., 2012). Early in the development of BA its dissemination for use with racial and ethnic minorities and other traditionally and geographically underserved populations was emphasized (e.g., Padfield 1976). BA's

flexible rationale allows for the incorporation of cultural models of illness. For instance, a competent BA therapist may identify culturally rooted values in defining activation targets and may potentially result in greater buy-in and improved outcome (Kanter et al., 2012). Given BA's non-biological rationale, it may be particularly acceptable among populations that do not endorse a biologically based model of illness (Kanter et al., 2012) such as Latinos (Cabassa, 2007; Martinez Pincay & Guarnaccia, 2007).

Culturally distinct ethnic minority groups have been included in randomized trials of BA, including depressed epilepsy patients in a community clinic (Chaytor, Ciechanowski, Miller, Fraser, Russo, Unutzer, & Gilliam, 2011), incoming non-depressed college freshman (Reynolds et al., 2011), and physically injured trauma survivors with PTSD and depression (Wagner , Zatzick, Ghesquiere, & Jurkovich, 2007). An open trial of BA with patients with atypical depression (Weinstock, Munroe & Miller, 2011) also included such groups. MacPherson et al.'s (2010) RCT comparing a BATD-based treatment for smoking versus standard treatment and Magidson et al.'s (2011) RCT of BATD-based treatment for adult substance users with depressive symptoms were both conducted with primarily Black American samples. Kanter and colleagues' program of research has focused on developing and evaluating the feasibility and efficacy of a culturally adapted treatment for depressed Latinos (discussed below; Santiago-Rivera et al. 2008; Kanter, Dieguez Hurtado, Rusch, Busch, & Santiago-Rivera, 2008; Kanter et al., 2010; Santiago-Rivera, Kanter, Busch, Rusch, Reyes, West, & Runge, 2011). Research on BA has been extended to culturally distinct populations outside of the US as well, with open trials having been conducted in Sweden (Freij & Masri, 2008), Australia (Lazzari, Egan, & Rees, 2011; Nixon & Nearmy, 2011), the United Kingdom (Mairs,

Lovell, Campbell, & Keeley, 2011), and case studies in Australia, Canada, and Spain (Turner & Leach, 2009; Claud Blais & Boisvert, 2010, & Mairal, 2010, respectively).

BA's potential for broad dissemination (Dimidjian et al., 2011) also is indicated by its ease of adaptability to a variety of treatment formats including group, reduced session, and multimedia modalities. Group format BA significantly reduced self-reported depressive symptoms in an RCT (Porter et al., 2004) and a BA group based on Addis and Martell (2004) obtained partial support in an uncontrolled trial (Houghton, Curran, & Saxon, 2008). A one-session BATD-based protocol effectively reduced depressive symptoms in a moderately depressed sample (Gawrysiak et al., 2009). BATD delivered via videoconferencing to a group of uncontrolled older adults with MDD showed clinically significant and reliable decreases in depression with treatment gains maintained at 1-month follow up (Lazzari et al., 2011). Preliminary evidence for a computerized treatment's feasibility and possible efficacy was obtained with decreases in depressive symptoms trending toward significance (Kalata, 2010). Finally, BA was effectively taught to mental health nurse practitioners who produced superior outcomes compared to usual care in a randomized trial at a primary care clinic in the UK (Ekers, Richards, McMillan, Bland, & Gilbody, 2011).

BA's Mechanism of Action. An important step in BA research is a close examination of its mechanism of action as it is not yet clear how BA works (Mazzucchelli et al., 2009). Limited investigation in this area has focused primarily on activity scheduling and client activation (Kanter et al., 2010; Dimidjian et al., 2011), which are seen as the core behavioral activation technique and measurement variables (Kanter et al., 2009). The primary question is: When in treatment and how does a client

become less avoidant and more activated (Kanter et al., 2007)? More to the point, does activation mediate change in depression in BA treatment? Identifying mediators of change can contribute to improving treatment outcomes, increasing treatment efficiency, and understanding how changes may be obtained in the natural environment (Kazdin, 2007). For instance, treatment techniques for patients who do not initially respond well to treatment can be identified. Isolating the most effective techniques may streamline training and dissemination efforts (Mazzacchelli et al., 2009).

Measurement of Activation. Several instruments have been developed to examine mediation in BA (for a more thorough discussion, see Manos et al., 2010). Early behavioral treatment models incorporated the Pleasant Events Schedule (PES), designed to track the frequency and reinforcement value of pleasant events as a measure of response contingent positive reinforcement in the natural environment (MacPhillamy & Lewinsohn, 1982), and research using the PES was supportive but methodologically limited (Manos et al., 2011). More recently, the Environmental Reward Observation Scale (EROS) was designed to assess general contact with rewarding activities (Armento & Hopko, 2007), and the Reward Probability Index (RPI), designed to assess reward in the environment and approximate RCPR, subsequently addressed several problems with the EROS (Carvalho, Gawrysiak, Hellmuth, McNulty, Magidson, Lejuez, & Hopko, 2011). None of these scales measure activation and avoidance directly.

The Behavioral Activation for Depression Scale (BADS; Kanter et al., 2007; Kanter et al., 2009; Manos et al., 2011) is the only measure of activation and avoidance consistent with BA (Martell et al., 2001) for depression. It is designed to identify the point at which an individual becomes activated during BA treatment. Kanter et al. (2007)

developed an initial set of items, submitted them to exploratory and confirmatory factor

analyses with data obtained from a sample of non-depressed undergraduates, and

identified four factors – Activation, Avoidance/Rumination, Work/School Impairment,

and Social Impairment – with good factor structure, internal consistency, and test-retest

reliability. This 25-item measure was shown to have good construct and predictive

validity. The BADS was later validated with a community sample with elevated

depressive symptoms and was found to have good psychometric properties (Kanter et al.,

2009). Data satisfactorily corresponded with the original factor structure and construct

validity of total scale and subscales was supported (Kanter et al., 2009).

Although support was found for the BADS, results did reveal some areas of

concern regarding internal consistency and construct validity (Kanter et al., 2009). Item

6 of Work/School Impairment correlated .24 with the subscale while the other subscale

items ranged from .52 to .68. Subscale-total scale correlations revealed that the

Activation subscale did not correlate significantly with the total ($r = .13$, $p = .096$; Kanter

et al., 2009). The Activation subscale did not correlate significantly with the Cognitive

Behavioral Avoidance Scale (CBAS; Ottenbreit & Dobson, 2004) in the expected

direction ($z = 3.42$, $p < .01$). Although the BADS Activation subscale and depression were

found to correlate significantly, the relationship was relatively small (Kanter et al., 2009).

A 9-item BADS – Short Form (BADS-SF; Manos et al., 2011) was developed and

validated over four studies to address concerns with the original 25-item measure. In the

first study, items for the short form were selected from the pool of the original scale.

Results indicated a two-factor solution consisting of the activation and avoidance, a

model that was consistent with BA theory (Martell et al., 2001). The Rumination factor

items of the original BADS were integrated into the Avoidance factor in the short form given that from a theoretical standpoint, rumination is one way in which avoidance is manifested (Manos et al., 2011). The resulting 9-item measure had acceptable internal consistency and criterion validity when evaluated using both undergraduate and community sample data.

In Study 2, a 10-item version (the nine items plus one recommended by consultants) was administered to college students with elevated depressive symptomatology and examined with exploratory and confirmatory factor analyses. Results of Study 2 were generally consistent with those of the previous study with regard to factor loading, which identified the Activation and Avoidance subscales. The BADS-SF total scores correlated with criterion measures, and construct validity was stronger when compared to the original BADS (except with regard to rumination).

The predictive validity of the two-factor BADS-SF was supported by Study 3. Specifically, BADS-SF scores were found to predict time spent in high reward value activities as well as time spent in activities with low reward value, over and above depression scores, over one week. Although the Activation subscale added to the prediction of these behaviors, the Avoidance subscale did not. Cross-lagged panel correlations were used in Study 4 to examine the BADS-SF's performance throughout treatment for two clients. Changes in activation led changes in depression scores for one client and occurred concurrently with changes in depression scores for another. The four studies provided support for the BADS-SF's factor structure, reliability, construct validity, and predictive validity.

Cross-Cultural Validation of the BADS. Validation of the BADS with culturally distinct populations to track activation, measure outcome, and evaluate mediation will become increasingly important as BA dissemination increases. Validation of the original 25-item BADS has been conducted abroad. The four-factor solution fit both Dutch non-clinical and clinical sample data and support for adequate internal consistency, convergent and differential validity was obtained (Raes, Hoes, Van Gucht, Kanter, & Hermans, 2010). The model also fit Iranian undergraduate sample data and evidence for concurrent validity was found (Mohammadi & Amiri, 2010). Evaluation with clinical and non-clinical samples from Spain supported validity and internal consistency of the original scale (Barraca, Perez-Alvarez, & Lozano Bleda, 2011). Validation studies with U.S. non-White samples have yet to be conducted.

Congruence between BA and a Latino Construct of Depression

A major BA assumption is that positive reinforcement decreases that maintain healthy, non-depressed behaviors are the means through which environmental events lead to clinical depression. Thus, the theoretical question is whether or not depression in Latinos is a consequence of decreases in positive reinforcement due to environmental events. Events that represent losses of or reductions in reinforcement for Latinos include events that are found to influence depression generally, such as negative life events (e.g., immigration), persistent life strains (e.g., acculturative stress, discrimination, and economic strain), and problems relating to social support networks (e.g., family separation). The Latino depression construct is consistent with the behavioral model of depression on which BA is based, suggesting that the activation-based treatment could successfully reduce depressive symptoms.

BA for Latinos with Depression

Kanter, Santiago-Rivera, and colleagues (Santiago-Rivera et al., 2008; Kanter et al., 2008; Kanter et al., 2010; Santiago-Rivera et al., 2011) considered that BA was a suitable treatment to address Latino depression because it focuses on environmental conditions that lead and contribute to depression. A pilot trial of Behavioral Activation for Latinos (BAL) with depression at a bilingual (Spanish-English) community mental health clinic provided preliminary support for BAL (Kanter et al., 2010). Community therapists trained in BAL successfully assigned and reviewed culturally and contextually relevant homework assignments consistently in most sessions. BAL clients were successfully engaged and retained. BAL clients responded positively to treatment, and approximately half achieved remission. Support was obtained for BAL as an acceptable, easy to train and disseminate, and potentially efficacious treatment (Kanter et al., 2010).

An efficient and empirically supported treatment such as BA can help address mental health service use problems, such as the limited availability of quality services. The treatment's degree of acceptability among sampled Latinos may address problems with treatment engagement and retention. The potential match between the treatment model and the nature of Latino depression may contribute to its acceptability. Moreover, BA's ease of implementation may contribute to addressing depression-related disparities in the public sector.

Current Proposal

A Spanish version of the BADS was utilized in the pilot and randomized controlled trials of BAL even though it had not been formally evaluated with Latinos. Although the original 25-item version of the BADS has been evaluated with a sample

from Spain, validation findings obtained using data from a European sample may not generalize to the U.S. Latino population. In addition to geographical differences, the two samples are likely distinct based on socio-political, historical and cultural contextual factors. The current proposal focused on determining whether the 9-item BADS-SF is a valid measure of activation and avoidance with two Latino samples primarily comprised of Mexican- and Puerto Rican-origin participants.

The 9-item BADS-SF was developed to address concerns with the original 25-item BADS and has demonstrated stronger psychometric properties. Given its stronger empirical support, the validity of the 9-item version of the measure was evaluated with Latinos in two studies. Study 1 examined whether the BADS-SF two-factor model (Manos et al., 2011) was supported by data obtained from a sample of Spanish-speaking Latinos through confirmatory factor analysis. The measure's internal consistency and criterion validity were also examined. Study 2 further investigated the measure's internal consistency and concurrent validity, as well as its predictive validity using data obtained from a clinical sample.

Study 1

The purpose of this study was to evaluate the factor model and psychometric properties of the 9 items of the BADS-SF translated into Spanish. Data were obtained from a community sample of Spanish-speaking Latinos who were administered a 19-item version of the measure at two sites. Initial evaluation of the data suggested problems stemming from poor participant response. Although preliminary CFA analysis results suggested that the two-factor model (Manos et al., 2011) did not fit the sample data, the results were interpreted with caution given that poor data quality was suspected. The

procedures that were undertaken to conduct a more systematic data quality check are described below. Analyses for the present study were conducted only after the data quality evaluation was carried out and findings suggested that data use was indicated. Specifically, analyses consisted of the evaluation of the BADS-SF two-factor model and of the scale's internal consistency and construct validity.

Method

   Participants and Procedure. Data collected with the 19-item version of the BADS translated into Spanish were used to conduct Study 1. The University of Wisconsin-Milwaukee Institutional Review Board approved the study. Participants were recruited at two sites, the Sixteenth Street Community Health Center (SSCHC) Behavioral Health Clinic (BHC) and at a yearly community festival conducted in the U.S. Midwest. Data were collected from 357 participants.

   The SSCHC is a community clinic that provides comprehensive health services to low-income, primarily Spanish-speaking populations in Milwaukee. At SSCHC, participants were recruited from the BHC's waiting room when study assessors were available. Clients were verbally invited to participate. Signs advertising the study were also posted throughout the clinic containing information on assessor availability. A total of 181 participants were recruited through the clinic.

   The yearly three day festival celebrates Mexican culture and has an estimated attendance of 70,000. Patrons include Mexican origin Latinos, Latinos of other backgrounds, and non-Latinos. Participants were recruited through the event's health fair. The same experimenters carrying out the study at the clinic staffed a booth throughout the event. Individuals who approached the booth were asked to participate in

a survey. Upon providing informed consent, participants completed a questionnaire packet. A total of 156 participants were recruited through the festival.

Individuals needed to be between the ages of 18-65 and speak Spanish to participate. The study assessor was available to read survey items to participants if needed (e.g., due to low literacy). Participants were given $5 for completion of the questionnaires. Total completion time was approximately 15 minutes. Two assessors carried out the study, including one bilingual undergraduate research assistant and one bilingual clinic staff member trained and supervised by the study's principal investigator.

Measures. The original version of the BADS is a 25-item self-report measure with a four-factor structure that measures activation, avoidance/rumination, work/school impairment, and social impairment and was specifically designed to track these areas throughout Behavioral Activation treatment for depression (BADS; Kanter et al., 2007, 2008; Appendix A). Participant were instructed to read each item carefully and indicate the response option that best described how much the statement was true for the participant during the past week, including the current day, by circling the number corresponding to the applicable response. Items are rated on a seven-point scale that ranges from 0 (not at all) to 6 (completely). A total subscale score was obtained by summing items after reverse scoring items in all subscales except Activation. Subscale scores were obtained by summing items comprising the subscale. Higher scores represent higher levels for the given construct.

A 19-item version of the measure translated into Spanish was used to collect data for the current study. The original scale was translated into Spanish using blind back-translation. Initial evaluation of the Spanish language version suggests that its total and

subscale scores are consistent with scores for the original English version (Kanter et al., 2007). Total scale and subscales were found to have good internal consistency. The scale's correlation with depression in the expected direction suggested the measure's construct validity.

The Spanish Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977; Appendix B) is a 20-item self-report measure of depression symptom severity in the general population. The scale items are rated on a four point scale with a 0-3 range, where 0 represents "rarely or none of the time [less than one day]" and 3 represents "most or all of the time [5-7 days]" during the past week. A total score is obtained from summing item scores after reverse scoring four positive items. The possible range of scores is 0-60, where higher scores reflect greater symptomatology. Scores of 16 or greater suggest possible depression according to Eaton, Smith, Ybarra, Muntaner, & Tien (2004). The CES-D has been used extensively in large-scale community studies and has good psychometric properties. Although it has moderate test-retest reliability, it has high internal consistency (Radloff, 1977). It also has good criterion validity, as indicated by its discrimination of depressed from non-depressed psychiatric patients (Weissman, Sholomaskas, Pottenger, Prusoff, & Locke, 1977). The measure was validated with a Mexican-American sample, with evidence for internal consistency reliability and support for the factor structure (Roberts, 1980).

The Short Form 36-item Health survey (SF-36v2; Ware & Sherbourne, 1992; Appendix C) is a generic measure of health status that provides scores on eight domains of functioning and well-being and scores on the two broad areas of physical health and mental health. A second version was developed in order to address deficiencies in the

original measure (Ware, 2000) and is the product of eight years of research (Ware, Kosinski, & Dewey, 2000). Item scores are coded, summed, and transformed on a scale that ranges from 0 to 100; higher scores represent better health and less functional impairment. Raw scores are transformed based on the 1998 National Survey of Functional Health Status (NSFHS) and norm-based scoring (NBS) algorithms (Ware, 2000). The SF-36 has been validated with Mexican-American, Cuban-American, and other Spanish speaking populations (see Arocho & McMillan, 1998; Ayuso-Mateos, Lasa, Vázquez-Barquero, Oviedo, & Diez-Manrique, 2007).

For this study, only a select number of SF-36v2 items were administered in order to reduce participant burden. Specifically, item 1, 2, 3 (a-j), 4 (a-d), 7, 8, and 11 (a-d) were administered. Data were not scored using the methods designed by the measure developers. The manual containing algorithm information was not readily accessible. Although a scoring program is available online, it was not used since scale and broad subscale scores could not be calculated because only a subset of items were used for this study. A review of the literature did not produce a validated hand-scoring method. In order to obtain a total score from the raw data, an average of the items for each participant was calculated after reverse scoring items 1, 2, 7, 8, 11b, and 11d. Items were reverse scored so that higher scores indicated better health and less functional impairment. A broad subscale score of physical health was obtained from items 1, 3, 4, 7, 8, and 11, consistent with the SF-36 measurement model (Physical Component Summary (PCS); Ware, 2000). Item 2 represents a measure of general health ("Compared to one year ago, how would you rate your health in general now?"). Analyses will be conducted with the total score, PCS, and general health item.

A demographics questionnaire (Appendix D) was also administered with these measures. Participant age, gender, marital status, annual income, religious preference, importance of religion (on a 1-7 scale), participation in religious activities (on a 1-7 scale), grade completed in school, ethnicity, number of years in the US were assessed. They were also asked whether they had children and the number of children, if applicable.

Data Analyses. An extensive evaluation of the quality of the data was conducted as a first step in this study. As previously indicated, initial review of the data suggested poor participant responding. Some participants responded uniformly across both reversed and non-reversed items (e.g., endorsing the same score for all items), which suggested random responding and a subset of participants provided more than one response per item on one item or more. Criteria were established as part of the data quality evaluation to systematically identify and remove poor responders from the sample. The analyses proposed below were conducted with the remaining sample.

The overall sample was evaluated for demographic and clinical differences based on recruitment site. Possible differences between sites were examined through the use of independent samples *t*-tests and chi-square tests of independence for continuous and categorical variables, respectively. The overall sample was evaluated to determine whether sizeable subsamples existed based on CES-D depression severity data. Specifically, scores were used to make a distinction between participants who fall within the non-clinical and those who fall within the clinical ranges. Participants with CES-D scores of 16 or greater were assigned clinical status. If sizeable subsamples had been obtained based on depression severity status, then the confirmatory factor analysis (CFA;

described below) proposed in Study 1would would have been conducted for each subsample. Recommendations offered by Bentler & Chou's (1987) were used to determine whether sufficient sample sizes were identified. Based on these criteria, a ratio of ten responses per free parameter is required to obtain reliable estimates, assuming no violation of multivariate normality assumptions. The proposed model solution involves 19 free parameters, which indicated that subsamples of at least 190 participants were required if the data were free of multivariate normality violations. A goal was also to determine whether sizeable subsamples were identified based on ethnic origin. Since large enough subsamples are not identified based on depression severity status or ethnicity, the CFA was conducted using the total sample.

A CFA was conducted to test the two-factor model identified by Manos et al. (2011) using the 9-items of the BADS-SF. Specifically, the sample variance-covariance matrix was evaluated using SAS 9.3 with a maximum likelihood minimization function, assuming no violation of multivariate normality assumptions. The two-factor BADS-SF model has been previously specified based on both theoretical and empirical considerations. Before evaluating the CFA solution, the data were evaluated for violation of assumptions. Specifically, the data were evaluated for sample size violations, assumptions that the indicators approximate interval-level scales, and for multivariate normality and outliers. Both the standardized and unstandardized solutions were reported. Although standardized solutions are most commonly reported in applied CFA research, SEM methodologists support reporting the results of unstandardized solutions. The use of a standardized solution poses the risk of masking the true nature of the variance and relationships among indicators and factors (Brown, 2006). Both solutions

are reported in order to carry out analyses that are consistent with applied research and

address methodological recommendations. The acceptability of the CFA solution were

evaluated on the basis of overall goodness of fit as indicated by overall model fit indices.

Further examination for the presence or absence of localized areas of strain in the

solution (i.e., specific points of ill fit) and the interpretability, size, and statistical

significance of the model's parameter estimates were dependent on results of overall

goodness-of-fit (Brown, 2006).

The internal consistency or homogeneity of the items for the total scale and

subscales were measured using Cronbach's alpha. The concurrent validity of the Spanish

version of the BADS-SF was evaluated by examining whether the total and subscale

scores correlated with the CES-D and a subset of SF-36v2 items in the expected

directions. Examining concurrent validity by evaluating the relationship between the

measure of interest and a validated measure of the same construct is ideal. However, few

measures of activation exist (Manos et al., 2011) and those that do are not designed to

measure activation and avoidance as conceptualized by Martell et al. (2001). Thus,

construct validity was evaluated by examining associations between the measure of

interest and distal and related constructs, namely depression and functional health. The

Spanish and English versions were compared to further evaluate the BADS-SF's

construct validity with the current sample. The correlation coefficient of the association

between the BADS-SF total scale and CES-D obtained from the current sample was

compared to the coefficient obtained for the same measures by Manos et al. (2011). A z-

score test of independent correlations was carried out for this purpose (Preacher, 2002).

In addition, an independent samples *t*-test was conducted to determine whether higher

BADS-SF and subscale scores are observed for non-clinical participants compared to those in the clinical range based on CES-D responses.

Results

    Data Quality Check. A data quality check was conducted after initial evaluation of the data indicated that a sizeable proportion of the sample might have been comprised of poor responders. Specifically, it was observed that a number of participants provided more than one response on one or more items or appeared to respond indiscriminately, not showing the expected patterns of response across non-reversed and reversed items. A quality variable was developed with anchors that identified the type of problem observed. A score of 1 indicated that the participant did demonstrate an expected pattern of response given the inclusion of reversed items. A score of 2 indicated that the participant provided more than one response for an item or more and the items were not adjacent to each other. A score of 3 indicated that the participant did not provide a response on three or more items. A score of 7 indicated that the participant provided more than one response for an item or more and that the items were adjacent.

    Participants' responses were also evaluated based on item comparisons. Based on data used in the development and validation of the BADS-SF with English speaking samples, three pairs of items, specifically 2 and 6, 2 and 3, and 13 and 19 were found to correlate ($n = 471$; $r = -.54$, $r = -.43$, and $r = -.34$, respectively). Thus, items for all participants in the current sample were evaluated to determine whether respondents provided answers consistent with these correlations after reverse coding the indicated items. If participants' responses were more than three points apart, their responses were deemed inconsistent with the expected correlations. A score of 4 indicated inconsistency

based on a comparison of items 2 and 6, a score of 5 indicated inconsistency based on a comparison of 13 and 19, and a score of 6 suggested inconsistency based on a 2 and 3 comparison. A score of 10 was designated to participants who did not meet criteria for any of the above anchors and thus, were deemed to have provided good quality responses.

The data quality check resulted in a reduced sample size. 152 individuals were removed from the final data set. Individuals who did not identify as either Mexican or Puerto Rican were also excluded from this sample given that Latinos are the population of interest, including individuals who identified as 'other ($n = 20$).' Since data were collected from individuals who identified with non-Latino racial categories (i.e., African-American and Caucasian), it is not possible to determine with certainty that those endorsing the 'other' category belonged to a Latino subpopulation. Thus, analyses were conducted using a final sample of 185 participants.

Demographic Characteristics. Table 1 presents sample characteristics for participants recruited at both sites. Questionnaires were primarily completed in Spanish. Most participants recruited at both sites preferred to complete questionnaires in Spanish. A significant association between recruitment site and language preference for questionnaire completion was observed $\chi^2(1, n = 185) = 5.26, p < .01, \varphi = -.193$.

On average, participants were 36.1 years old ($SD = 10.86$). A significant difference in mean participant age by recruitment site was not observed, $t(183) = -.48, p = .632$, two-tailed. Participants were predominantly female. Results of a Chi-square test of independence demonstrated an association between gender and recruitment site, $\chi^2(1, n = 180) = 7.37, p < .01, \varphi = -.215$. The majority of the sample self-identified as

Mexican and the rest identified as Puerto Rican. A significant association between ethnicity and recruitment site was observed, χ^2 (1, $n = 185$) = 27.49, $p < .01$, $\phi = -.398$. The average participant reported having lived in the U.S. for an average of 17.83 years ($SD = 12.97$) and a median of 14 years (min = 1, max = 65). Participants recruited at the festival had lived in the U.S. for a greater number of years than those recruited at the clinic, t (176) = -2.44, $p < .05$, two-tailed. The magnitude of the differences in the means ($MD = -4.69$, 95% CI: -8.47 to -.9) was small ($\eta2 = .03$).

Most participants were either married or were cohabitating, and a considerable number had never been married. Approximately half of clinic participants were married or cohabitating and approximately one fifth had never been married. Of festival participants, three fourths of participants were either married or cohabitating. A Chi-square test for independence indicated a significant association between recruitment site and marital status, χ^2 (5, $n = 179$) = 21.89, $p < .01$, $\phi = .35$. Most participants had children and no significant association was found between recruitment site and reported children, as indicated by a Chi-square test for independence. Participants across recruitment sites tended to have an average of three children and on average, two of the children lived with the participant. There was not a significant difference between clinic and festival participants based on number of children and number of children residing with participant.

Over half of the sample was unemployed and approximately one quarter was employed full-time. Clinic participants tended to be unemployed and the rest were about as equally likely to be employed full-time as part-time. Among festival participants, under half were unemployed and over a quarter were employed full-time. There was a

significant association between recruitment site and employment status, as determined by a Chi-square test for independence, χ^2 (2, n = 182) = 10.77, $p < .01$, φ = .24. The average annual income was \$22,990 (SD = \$23,886) and the median was \$16,000 (min=\$0, max=\$125,000.00). There was a significant difference in annual income by recruitment site, where those recruited at the festival had on average a higher annual income than those participants recruited at the clinic, t (75.32) = -4.13, $p < .01$, two-tailed). The magnitude of the differences in the means (MD = -17,626, 95% CI: -26124.44 to -9128.06) was large ($\eta2$= .18). On average, the 11th was the highest grade completed by participants across sites, and the median was the 12th grade (min= 1, max = 18). Participants recruited at the festival tended to be more educated than those recruited at the clinic, t (175) = -2.183, p = .05, two-tailed). The magnitude of the differences in the means (MD = -1.07, 95% CI: -2.03 to -.1) was small ($\eta2$ = .03).

Religious preference was also assessed. Most participants indicated a preference for Catholicism and the second largest subset reported preference for a religion that was not specified. Participants were asked to report the importance of religion in their lives and their level of participation in religious activities on a scale from 1-7. On average, participants reported that religion was important in their lives and reported some involvement in religious activities. Although there was no difference between the groups based on rated importance of religion, festival participants were more likely to report participation in religious activities compared to those recruited at the clinic, t (174) = -2.79, $p < .01$, two-tailed. The magnitude of the differences in the means (MD = -.85, 95% CI: -1.45 to -.25) was small ($\eta2$ = .04).

Clinical Characteristics. The mean CES-D depression severity score for the total

sample was 23.28 (*SD* = 13.48). An independent-samples *t*-test was conducted to

compare the CES-D depression scores of participants recruited at the clinic and the

festival sites. A significant difference was found between the scores of clinic and

festival, *t* (165.5) = 4.154, *p* < .01, two-tailed, participants, where clinic participants

showed higher depression severity. The magnitude of the differences in the means (*MD*

= 7.91, 95% *CI*: 4.15 to 11.66) was moderate ($\eta2$ = .09). Scores for 65.4% (*n* = 121) of

the sample indicated high depressive symptoms, as measured by CES-D scores ≥ 16.

69.6% (*n* = 64 of 92) of the participants recruited at the clinic and 61.3% (*n* = 57 of 93)

of participants recruited at the festival had scores that indicated high depressive

symptoms. A Chi-square for independence (with Yates Continuity Correction)

demonstrated no significant association between depression symptom severity (high

versus low) and recruitment site, χ^2 (1, *n* = 185) = 1.06, *p* = .24, φ = –.09. This indicates

that the proportion of individuals with high depression symptom scores recruited at the

clinic is not significantly different from the proportion of individuals with high scores

recruited at the festival.

The average BADS-SF score for the total sample is 29.5 (*SD* = 10.35). An

independent-samples *t*-test demonstrated a significant difference between the BADS-SF

scores of the clinic and festival recruited participants. Specifically, it was demonstrated

that participants recruited at the festival had significantly higher BADS-SF scores

compared to participants who were clients at the clinic site, *t* (183) = -4.52, *p* < .01, two-

tailed, suggesting that festival participants are more activated or engaged in life. The

magnitude of the differences in the means (*MD* = -6.55, 95% *CI*: -9.39 to -3.68) was

moderate (η2 = .1). A significant difference between sites was observed on the Activation, *t* (177) = -3.6, *p* < .01, two-tailed; *MD* = -3.84% *CI*: -5.95 to -1.73, η2 = .06, and Avoidance subscales, *t* (177) = -2.34, *p* < .05, two-tailed; *MD* = -1.66, 95% *CI*: -3.05 to -.26, η2 = .03.

The average SF-36 score obtained from a subset of the measure's items was 2.99 (*SD* = .64). A significant difference was observed between clinic and festival, *t* (145.48) = -4.31, *p* < .01, two-tailed participants based on functional health, where clinic participants reported poorer functional health compared to their festival counterparts. The magnitude of the differences in the means (*MD* = -.41, 95% *CI*: -.59 to -.22) was moderate (η2 = .1). Consistent with this finding, clinic participants were also more likely to report poorer physical health compared to festival participants, *t* (146.4) = -4.32, *p* < .01, two-tailed; *MD* = -.41, 95% *CI*: -.6 to -.22, η2 =1).

Internal Consistency. The scale's internal structure was evaluated through the use of Cronbach's Alpha to evaluate the homogeneity of the scales' items. IC provides a measure of the relationship between each item and each other item and also between the relationship of each item to the collection of items or total score. Table 2 presents the results of the evaluation of the total scale's internal consistency. The internal consistency of the 9 items is in the acceptable range. A review of the inter-item correlation matrix shows that item 6 and 8 correlate poorly with the other scale items, with correlation ranges of -.02 to .3 and -.17 to - .3, respectively. Support for these items' lack of contribution to the internal consistency of scale is found in examining the item-to-total score correlations. Item 6 is not correlated as well as the other items to the total score, except for item 8. The item accounts for 20.4% of the variance. If deleted, the scale's

alpha coefficient would increase, which is indicative of the item's limited contribution to the scale's IC. Item 8's correlation with the total score is poor and accounts for 16.3% of the variance. If deleted, the scale's internal consistency would increase. Removing Item 6 results in a decrease in the total score variance, which is an indicator of greater internal consistency. Removing Item 8 also results in greater internal consistency as indicated by decreased variance. A revised scale comprising the 7 items shows the strongest internal consistency ($\alpha = .87$, $s^2 = 88.7$).

The internal consistency of the two subscales was also evaluated, results of which are presented in Table 3. The Activation subscale, comprised of items 2, 3, 4, 5, and 9, shows good internal consistency. The inter-item correlations of the five items range from .413 - .712, indicating that the items correlate well with each other. An examination of the item-to-total score correlations show that the five items correlate well with the total score (range .57 to .76). All items contribute meaningfully to the subscale's internal consistency. If deleted, all items would result in a lower α, except for item 9. The Avoidance subscale, which consists of items 1, 6, 7, and 8, demonstrates poor internal consistency. The inter-item correlation matrix shows that Item 8 (range from .05 to .29) did not correlate well with the other three subscale items. The item does not correlate well with the total subscale score and accounts for only 8.5% of the variance, further suggesting its lack of contribution to the subscale's internal consistency. If removed, the subscale's internal consistency would improve. Items 1, 6, and 7 contribute substantially to the subscale's internal consistency, as indicated by the expected Cronbach's α score if one of these items were removed.

Concurrent Validity. Given that data were collected at one time point, the measure's criterion-related validity was evaluated through an examination of its concurrent validity. Specifically, the relationship between the BADS-SF and its subscales and measures of related constructs was examined using Pearson product-moment correlation coefficient. Related constructs are depression, as measured by the CES-D and functional health, as measured by a select subset of items of the SF-36.

Analyses indicated that the 9-items of the BADS-SF correlate strongly with the CES-D in the expected direction, indicating that activation increased as depression decreased for this sample. A strong negative relationship was found between the Activation subscale and the CESD, and a moderate positive relationship was observed between the Avoidance subscale and the CES-D. The BADS-SF total score was also found to correlate strongly in the expected direction with the functional health score obtained from the subset of SF-36 items, where greater activation was associated with greater functional health and less impairment. Moderate associations in the expected direction were also found between the subscales and functional health, where greater activation and less avoidance were related to better functional health. The same pattern of relationships was observed between the BADS-SF scores and the physical health subscale. There was a strong positive association between the PCS and the total score, a moderate positive association between the PCS and the Activation subscale, and a moderate negative correlation between the PCS and the Avoidance subscale, consistent with findings that greater activation is associated with better physical health. A small positive relationship was found between the BADS total score and the SF-36 item assessing health generally. A small positive relationship was also found between general

health and activation and no relationship was found between general health and the avoidance subscale.

The concurrent validity of the present Spanish version of the 9-item BADS-SF was further examined by comparing the correlation coefficient obtained from an examination of the association between the BADS-SF total score and the CES-D score (r = -.67, n = 173) for the current sample and the correlation coefficients obtained from an investigation of the relationship between the same measures in Study 2 of the BADS-SF validation (r = -.71, n = 460; Manos et al., 2011). A z-score test of independent correlations was conducted (Preacher, 2002). The result indicates that the correlation coefficients obtained from the independent samples are equal, z = -.85, p = .39, two-tailed.

An independent samples t-test was conducted to determine whether BADS-SF total scale and subscale scores were higher among participants in the non-clinical range based on the CES-D compared to counterparts in the clinical range. Results indicated that non-clinical participants had significantly higher activation scores compared to participants with CES-D scores in the clinical range, t (171) = 6.58, p < .01, two-tailed. The magnitude of the differences in the means (*MD* = 9.33, 95% *CI*: 6.53 to 12.13) was large ($\eta2$ = .2).

Confirmatory Factor Analysis. Based on prior theory and evidence as discussed above, a two-factor model of behavioral activation underlying the BADS-SF was specified. Indicators loaded on two latent variables, Activation and Avoidance. Indicators that were loaded onto the latent variable of Activation are the BADS-SF items 2, 3, 4, 5, and 9 and those that were loaded onto Avoidance include items 1, 6, 7, and 8.

Table 5 presents the input data correlation matrix. Indicators had a range of scores from 0 to 6. Higher total scale and subscale scores are indicative of greater behavioral activation. Table 6 depicts the complete specification of the two-factor model. Although the unstandardized solution was evaluated, the coefficients for both the standardized and unstandardized solutions are reported. In order to evaluate the unstandardized solution, one indicator loaded onto one of the two latent variables was selected to be the marker indicator. Specifically, BADS-SF items 2 and 1 were used as marker indicators for the Activation and Avoidance factors, respectively. The measurement model indicators were only loaded onto one of the two latent variables (i.e., no double-loading) and all measurement error was presumed to be uncorrelated. The latent variables were permitted to be correlated. The model was overidentified with 172 *df*.

As noted in the Method section, a 19-item version of the BADS was administered to 357 individuals at two data collection sites. CFA analysis was conducted using only the 9 items comprising the BADS-SF. As discussed above, participants considered to be poor responders and participants who identified with a non-Latino ethnic group were excluded from the final sample. The resulting sample was utilized in the present and subsequent study ($N = 185$). However, the CFA to evaluate the model fit to the sample data was smaller due to incomplete cases ($n = 173$). Given that data were missing for just over 5% of the sample (6.5%, $n = 12$), missing data was not considered problematic. Thus, testing to determine the nature of the missing data (e.g., missing completely at random) was not conducted and a method for managing the missing data was not implemented.

Prior to the CFA analysis, the data were evaluated for violation of assumptions. The use of maximum likelihood (ML) estimation methods (specified below) rely on meeting key assumptions, namely multivariate normality. ML is the fitting function that aims to minimize the difference between the predicted variance-covariance matrix and the input matrix, and is the most widely used in applied CFA research and SEM more generally. Its purpose is to find the model parameter estimates that maximize the probability of observing the available data if these were collected again from the sample population (Brown, 2006).

Concerns arose regarding sample size given the loss of power due to the removal of suspected poor responders, incomplete cases, and non-Latino individuals, which represented a reduction in sample size of 158 cases. However, the size of the sample utilized remains sufficient according to Bentler & Chou's (1987) recommendations. Based on their guideline, the present analysis was conducted with a sufficient sample size (i.e., at least 190 participants). The data also meet the assumption that requires that indicators approximate interval-level scales.

The data were also evaluated for multivariate normality (i.e., skewness and kurtosis) and outliers. Results suggest violation of univariate normality and some violation of multivariate normality. Specifically, tests indicate that the data are skewed but do not violate kurtosis. These findings suggest that use of an alternative fitting function may be indicated. The solution was nevertheless evaluated in accordance with the analytic plan given that multivariate normality assumptions were partially met.

The sample variance-covariance matrix was analyzed using SAS 9.3 and a maximum likelihood minimization function (see Table 5 for sample correlations) to

estimate the model. In particular, the CALIS procedure, LINEQS model type was implemented. Goodness-of-fit was evaluated using at least one fit index from the three major fit index classes (i.e., absolute, parsimony, and comparative). These were the standardized root mean square residual (SRMR), root mean square error of approximation (RMSEA), and comparative fit index (CFI) in order to assess the overall model fit to the sample data. The use of multiple indices permits a more conservative and reliable evaluation of the solution because each index provides different information about the fit of the CFA solution. The following interpretations of Goodness-of-fit indices are based on cutoff criteria established by Hu and Bentler (1999) from findings of simulation studies; criteria assume ML estimation. The following values support overall goodness-of-fit: SRMR close to .08 or below; RMSEA values close to .06 or below; and CFI values close to .95 or greater. While CFI values in the range of .90-.95 may indicate acceptable model fit, values below .90 suggest the need to reject the solution (Bentler, 1990). Cut off values fluctuate as a function of modeling conditions.

The overall goodness-of-fit indices provide inconsistent results and combined suggest poor fit of the two-factor model: $\chi^2 (26) = 80.37$, $p < .0001$; RMSEA $=.11$ with a 90%; CFI$=.909$; SRMSR$=.085$.

Indices of absolute fit provide contradictory information regarding model fit. These indices evaluate the reasonability of the hypothesis that the predicted variance-covariance matrix equals the sample variance covariance matrix, without consideration of other factors. Results show that the model χ^2 of 80.37 exceeds the critical value of 38.89. Thus, χ^2 is statistically significant and supports the alternate hypothesis that model estimates do not sufficiently reproduce the sample variances and covariances.

However, this index is rarely used in applied research. Less stringent alternative fit indices are favored. The SRMR is an index of absolute fit which is understood to reflect the average discrepancy between the correlations observed and the predicted model correlations. An index value of 0 reflects perfect fit. SRMSR results suggest that there may be a good fit between the target model and the observed data.

In addition to evaluating absolute fit, parsimony correction indices take into account model parsimony, or the number of freely estimated parameters. Such an index would favor a model solution that fit the sample data with fewer freely estimated parameters. The RMSEA is a recommended index belonging to this class, which assess the extent to which a model fits reasonably well in the population. As with the SRMR, an index value of 0 reflects perfect fit. Results of the current model suggest poor model fit.

Comparative fit, or incremental fit indices, evaluate the fit of solution specified by the investigator compared to a more restricted, nested baseline model. Such indices tend to look more favorable because the baseline model does not place constraints on the indicator variances. The CFI belongs to this category of indices. The CFI's possible values range from 0.0 to 1.0, with values closer to 1.0 implying good model fit. Results of the current analyses suggest acceptable model fit.

An evaluation of potential areas of strain and the interpretability and strength of the resulting parameter estimates would be indicated to fully evaluate model fit if results of the overall fit indices lent initial evidence for model fit. However, taking such steps would be erroneous given the results of the specified CFA solution. Interpretation of the model's parameter estimates would be futile given that misspecified models produce

biased parameter estimates. Given the study results, the indicated fit evaluation procedures involve diagnosing the sources of model misspecification. This could involve inspection of modification indices and standardized residuals.

Study 2

The purpose of the study was to examine the BADS-SF's psychometric properties using data obtained from a clinically depressed sample of Spanish-Speaking Latinos. In particular, the measure's internal consistency and concurrent and predictive validity were evaluated.

Method

Participants and Procedure. Data used in the current study were obtained from a randomized-controlled trial (RCT) of Behavioral Activation for Latinos (BAL) with depression, in which BAL was compared to treatment as usual (TAU). The RCT was approved by the University of Wisconsin – Milwaukee's Institutional Review Board. SSCHC medical providers referred clients with possible depression to the study and provided the study assessor with client contact information to facilitate initial contact. Once in contact with a study assessor, participants were invited to participate in a screening process to determine eligibility. Clients met inclusion criteria if they were between the ages of 18-65, self-identified as Latino, screened positive for Major Depression Disorder according to the Mini International Neuropsychiatric Interview version 5.0.0 (MINI; Sheehan, 2006), a short psychiatric structured diagnostic interview that is validated in both English and Spanish (Bobes, 1998), and obtained a score of ≥ 16 on the Hamilton Rating Scale for Depression (HRSD; Miller, Bishop, Norman, & Maddever, 1985), a structured depression severity measure. Once deemed eligible,

participating clients provided consent. Consenting individuals received $15 for completing the pre-treatment, $15 for the mid-treatment, $50 for the post-treatment, and $15 for the 6-9 month follow up assessments. Participants were interviewed and completed self-report measures during assessment sessions and if needed, were assisted by the study evaluator. Participants also completed questionnaires before each therapy session. Although the RCT sample consists of 43 participants, data will only be reported for the 42 Spanish-speakers.

Measures. The 25-item Modified HRSD (Miller, Bishop, Norman, & Maddever, 1985; Appendix E) is an interviewer-based standard measure of depression severity, and has been validated for use by paraprofessionals. Only the first 17 items of the HRSD were scored, consistent with other studies, and was used as the primary measure of acute treatment outcome. Questions have between 3 to 5 possible response options, and a greater number represents greater severity. Although the measure is typically administered throughout the course of 20-30 minutes, the length of the interview was typically greater. Scores between 0 and 7 are considered to be within normal range while scores of 20 or greater suggest moderate to severe depression. The MHRSD was designed to address limitations of the original HRSD. The modified version was found to have excellent inter-rater reliability among paraprofessional research assistants. Moreover, there was a high relationship between the MHRSD and expert clinician ratings using the MHRSD and the original HRSD (Miller et al., 1985). The MHRSD was administered at pre-, mid-, post- treatment, and at 6-9 month follow up in the larger study. The Spanish version of the HRSD has been validated (Ramos-Brieva & Cordero-Villafafila, 1988).

Translated and validated in Spanish, the Beck Depression Inventory – II (BDI-II; Beck, Steer, Ball, & Ranieri, 1996; Appendix F) is a 21-item self-report inventory with multiple-choice response options. It is one of the most widely used measures of depression severity. Respondents are instructed to select the statement that best describes how the respondent has been feeling during the past two weeks, including the current day. The measure assesses 21 depression related constructs, such as sadness, pessimism, self-dislike, irritability, and concentration difficulty. Response options range from 0 to 3, and anchors vary by item. The BDI-II has been found to have good psychometric properties. It converges with the HRSD, positively correlating and indicating good agreement. It has also shown to have good test-retest reliability and high internal consistency. The BDI was administered at the four data collection time points and before each session.

The Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q; Endicott, Nee, Harrison, & Blumenthal, 1993; Appendix G) 16-item measure is designed to measure satisfaction and enjoyment in the following domains of function: physical health/activities, feelings, work, household duties, school/course work, leisure time activities, social relations, and general activities. Ratings are on a scale from 1 (not at all, never or very poor) to 5 (frequently or all of the time or very good) for all items. Scale scores are obtained by calculating a percentage of the points rated out of the total number of possible points. Higher enjoyment and satisfaction in a given domain is represented by a high score on the corresponding subscale. The Q-LES-Q is a widely used measure and several Spanish translations exist. It has been shown to have acceptable reliability

and validity (Endicott et al., 1993). The measure was administered at each of the four assessments, as the MHRSD.

Used to assess functioning, the 12-item Short Form Health Survey (SF-12; Ware, Kosinski, & Keller, 1996; Appendix H) is more efficient than the Medical Outcome Study SF-36. Items were extracted from the original scale to create the brief 12-item scale. Its two subscales are the Physical Component Summary and the Mental Component Summary. It has been shown to be a good predictor of scores on the 36-item version. Moreover, it has been shown to have good test-retest reliability on both subscales. Although the SF-36 is a more precise tool, the difference becomes less important with greater sample size. The measure has not been validated with Spanish-speaking Latinos.

The Spanish translation of the 19-item version of the BADS was utilized in the current study. A description of the measure was provided in Study 1. Descriptions were provided only for RCT measures that are relevant to the current study. The measures described were used at all four major data collection time points (i.e., pre-, mid-, and post-treatment and 6-9 month follow up). Session data were obtained using the BDI-II and the 19-item version of the BADS. Given that participants were offered up to 12 psychotherapy sessions, up to 12 session data points were obtained. The 9-items of the BADS-SF (Manos et al., 2011; Appendix J) were extracted from the 19-item version of the measure.

Data Analyses. The internal consistency of the BADS-SF total scale and subscales was examined. In particular, Chronbach's alpha was used as a measure of the homogeneity of the item or to determine whether the items are measuring the same

construct. The measure's criterion-related validity was evaluated by examining both its concurrent and predictive validity. The BADS-SF scales were correlated with scales that have been previously validated as measures of related, distal constructs. These include the BDI-II and the HRSD, which measure depression severity, the SF-12, which measures functional health, and the Q-LES, which provides a measure of quality of life through an evaluation of enjoyment and satisfaction. The scores used for these analyses were all taken at pre-treatment. The BADS-SF's predictive validity was evaluated through hierarchical multiple regression (HMR) and cross-lagged panel correlations, described in detail below. Criterion validity findings were used to evaluate the short form's construct validity.

Four HMR analyses were conducted to determine whether the BADS-SF total score predicts depression severity at post-treatment as measured by the BDI-II and the HRSD at post-treatment and 6-9 month follow-up. The predictive ability of the BADS-SF was evaluated while controlling for the effect of condition and pre-treatment depression severity. Specifically, condition and pre-treatment depression severity were forced into step 1 of the model to account for and "remove" any shared variability with the hypothesized predictor. Then, the BADS-SF was entered into step 2 to determine whether it accounts for post-treatment depression independent of condition and pre-treatment depression. The data were checked for violations of assumptions (Tabachnick & Fidell, 2007) before proceeding with these analyses. For instance, data were checked for multicollinearity and singularity and the presence of outliers (i.e., standardized residual values > 3.3 or < -3.3). Residuals were examined for normality, linearity, and homoscedasticity.

The BADS-SF's predictive validity was also examined using single-subject session data for participants in both the BAL and TAU conditions. The relationship of activation and depression change throughout the course of treatment was examined. For each participant with sufficient data (at least 8 data points), cross-lagged correlations were computed between the BADS-SF and depression to determine whether the respective BADS-SF score led or lagged behind depression change. Simulation modeling analysis (Borckardt, Nash, Murphy, Moore, Shaw, & O'Neil, 2008) was used to account for autocorrelation in single-subject time series data in determining statistical significance.

Results

Participant Characteristics. Table 7 presents the sample's characteristics. Participants tended to be female, were predominantly of Mexican origin, and approximately half were married or cohabitating. Most participants were unemployed and most who reported an annual income made $20 thousand or less. On average, participants were 37.66 ($SD = 10.62$) years old. Most participants were born abroad and resided in the U.S. for an average of 14.71 years ($SD = 10.37$). At pre-treatment, over half of participants were severely depressed based on the HRSD and the BDI-II. Participants attended an average of 5.9 sessions ($SD = 4.31$). 38% dropped out of treatment.

Internal consistency. Cronbach's alpha provides a measure of item homogeneity and was used to examine the internal consistency of the 9-items that comprise the BADS-SF total scale and the items that make up its subscales, Activation and Avoidance. Table 8 shows results of the internal consistency evaluation of the total scale. The 9-items

show unacceptable internal consistency. Inter-item correlation results indicated that most pairs showed weak correlations and many did not correlate. All items except for Item 1 did not correlate with at least two items. The correlation coefficients for pairs 1-2 ($r = -.36$) and 2-4 ($r = .38$) were in the moderate range and only pair 4-9 ($r = .52$) showed a strong association. Item to total score correlations show that Items 1 and 4 correlate moderately with the total scale and Items 2, 7, & 8 correlate weakly with the total scale. Items 3, 5, 6, and 9 do not correlate with the scale total score. The scale's internal consistency would show some improvement if Items 5, 6, or 8 were removed. The internal consistency would somewhat improve by removing the three items ($\alpha = .57$; $s^2 = 28.14$). However, the improved α value falls within the poor range.

Table 9 presents the results of the evaluation of the subscales. The Activation subscale's internal consistency is poor. Inter-item correlations were generally weak (range .14 to .21), except for item pairs 2-4 and 4-9, which showed moderate and strong relationships respectively. Item pairs 4-5 and 5-9 showed no association. Item-total score correlations showed a weak correlation between Item 3 and the total score. Item 5 was not correlated with the total score. Removal of item 5 would result in some improvement, although the subscale's internal consistency would still be considered questionable. The Avoidance subscale's internal consistency is unacceptable. Inter-item correlations are weak (range .12 - .29), except for item pair 6-7 which showed no association. Item-total score correlations show that Item 8 does not correlate with the subscale score. Removing the item would improve the subscale's internal consistency only minimally and would still be considered unacceptable.

Concurrent Validity. Table 10 contains the results of the examination of the BADS' concurrent validity. The measure's construct validity was evaluated by examining the association between the BADS-SF and measures of constructs that are theorized to be distally related to activation and avoidance, namely depression, functional health, and quality of life and enjoyment. The 9-item BADS-SF was not related to depression, as measured by the BDI-II. An association between depression and activation, as measured by the full scale and activation subscale, was not found using HRSD scores either. An association was not found between the total score or any of the other criterion measures.

The Activation subscale did not correlate with any of the measures of related constructs. However, significant correlations were found between some of the measures and the Avoidance subscale. BDI-II depression severity was positively associated with avoidance, suggesting that greater depression severity was related to greater avoidance (i.e., lower scores on the Activation subscale). A similar association was not found between the subscale and HRSD scores. Less avoidance was moderately associated with greater quality of life, as well as with greater functional physical health. However, no association was found between avoidance and functional mental health.

Predictive Validity. Hierarchical multiple regression (HMR) analyses were conducted to assess whether the 9-item BADS-SF predicted depression severity at post-treatment and 6-9 month follow up after controlling for the effects of condition and pre-treatment depression severity. Four HMRs were conducted in order to evaluate the BADS-SF total score's ability to predict depression as measured by the BDI-II and the HRSD at both time points.

The data were evaluated for violation of assumptions. The generalizability of the HMR findings may be limited due to a small sample size. Based on Stevens's (1996) recommendation, approximately 45 participants are needed to conduct a HMR. The multicollinearity assumption was partially met, even though correlation matrices indicate that the independent variables are not highly correlated and recommended Tolerance and VIF value cut offs are met. Although most independent variables show some relationship with the dependent variable, the relationship between condition and the depression scores is below the preferred cut off of .3. Since no independent variable is a combination of other independent variables singularity is not violated. Outliers were not identified for any of the variables.

The first HMR was conducted to determine whether the BADS-SF predicted HRSD depression severity at post-treatment after accounting for condition and pre-treatment depression. Results indicate that condition and pre-treatment depression scores account for 12.9% variance and the model only account for 20% of the variance after inclusion of 9-item BADS in the second step of the model. The model showed that the BADS-SF items did not predict depression severity scores at post-treatment as measured by the HRSD, $F(1, 24) = 2.14$, $p = .121$. The BADS-SF's ability to predict HRSD scores at follow up was evaluated next. In the first model, the condition and pre-treatment HRSD explained 22.6% of the variance. After the BADS-SF was entered in Step 2, the variance accounted for by the model only increased to 23.6%. Not surprisingly, the model did not support the BADS-SF as a predictor of post-treatment HRSD depression scores, $F(1, 20) = 2.05$, $p = .139$.

Consistent findings were obtained for the 9-item BADS as a predictor of depression severity as measured by the BDI-II. In examining the measure as a predictor of BDI-II depression severity at post-treatment, it was found that condition and pre-treatment depression accounted for 12.9% of the variance and that this increased to 20% when the BADS-SF was added to the model. However, the model was not statistically significant and thus did not support the BADS-SF as a predictor, $F(1, 26) = 2.17$, $p = .115$. The BADS-SF was not found to be a predictor of BDI-II scores at follow up, $F(1, 21) = 1.9$, $p = .161$.

The temporal pattern of change in activation and depression over the course of treatment for participants in both the BAL and TAU RCT conditions was examined. The goal was to identify whether changes in activation led or followed changes in depression. Of particular interest was whether activation temporally led (i.e., predicted) changes in depression.

As a first step in conducting these analyses, a subset of the RCT sample was identified for inclusion given that an equal number of data points were needed for each participant selected. Only participants who had at least 8 data points were selected for inclusion.   After selecting a subsample, cross-lagged correlations were operationalized and calculated using BDI-II and BADS session data. A cross-correlation of the BADS as a predictor of the BDI-II was defined as the relationship between BADS at session X and the BDI-II at session X + 1. A BDI-II predicts BADS cross-correlation was defined as the correlation between the BDI-II at session X and the BADS at session X + 1.

Bivariate correlations were computed for each participant after controlling for auto-correlation. The bootstrapping method was applied. The available data points for a

given participant were utilized to calculate Pearson *r* values of the BADS predicting the BDI and the BDI predicting the BADS (Table 11). The values for strong significant correlations ranged from *r* = .58 to .94 based on Cohen's (1988) conservative criteria for determining the strength of a correlation (*strong* = .5 to 1.0). Of the BADS predicts BDI cross-lagged correlation, 10 of 19 (53%) suggested that activation temporally preceded depression change. 9 (90%) of these observations were obtained from BA clients. BDI predicts BADS cross-lagged correlations of 6 of 19 (32%) clients suggested that changes in depression led changes in activation, all of which were obtained from BA clients.

Independent samples *t*-tests were conducted to determine whether significant differences existed between the mean BADS predicts BDI and BDI predicts BADS correlations by condition. It was predicted that on average, a stronger BADS predicts BDI correlation would be observed in the BA condition, given that a strong association was expected to be found between the activation in a given session and depression scores at the following session. However, no significant difference between conditions was found on either type of cross-lagged correlations.

A paired samples *t*-test was also conducted to determine whether, for this sample, observed changes for this sample was perhaps more attributable to one temporal relation (e.g., BADS leads BDI) over the other (e.g., BDI leads BADS). However, a significant difference was not observed.

Discussion

Study 1

Festival participants were found to be in better mental and functional health than clinic participants. Although most participants across sites were experiencing high

depression symptoms, clinic participants were experiencing higher symptoms than participants recruited at the festival. Clinic clients were also more likely to report poorer functional health generally and physical health specifically compared to festival goers. As might be expected given relatively lower depressive symptoms and better functional health, festival participants tended to be more activated and engaged in life than did their clinic recruited counterparts. This is congruent with BA theory, which would predict that participants with lower depressive symptoms would be found to be more engaged in life. Consistent with these findings and despite the fact that participants at both sites indicated that religion was important in their lives, individuals at the festival reported greater participation in religious activities than their clinic counterparts.

In line with study recruitment aims, participants at both recruitment sites showed a preference for Spanish, as most opted to complete study questionnaires in the language. Participants tended to be in the young adult to middle age ranges. The sample generally consisted of female participants. However, the clinic sample consisted of a greater proportion of females than did the festival sample. This is consistent with findings that Latinas are more likely to seek mental health services than Latinos (Vega et al., 1998). Their greater inclusion in the clinic subsample may be explained by a greater availability of female clients at the clinic from which to recruit. Festival goers had lived in the U.S. for a greater number of years than clinic clients, possibly suggesting greater acculturation among the former subsample. However, it is important to note that this represented a small effect.

Just under three-fourths of the sample was of Mexican descent. This is consistent with a the Pew Hispanic Center's demographic profile of Hispanics/Latinos in

Wisconsin, which indicated that 71% of Hispanics/Latinos are of Mexican origin based on the 2010 Decennial Census (Pew Research Hispanic Center, 2010). The Puerto Rican subsample may be larger than expected given that Caribbean origin individuals account for just over 18% of the Wisconsin Hispanic/Latino population. The unusually large Puerto Rican subsample may be explained by the ethnic breakdown by recruitment site. Whereas under half of the clinic recruited sample consisted of Puerto Ricans, less than 10% of the festival recruited sample was of this ethnic background. The greater number of Puerto Ricans recruited at the clinic may possibly be explained by potentially higher rates of service use stemming from higher rates of depression and other mental health concerns within this subgroup (Alegria et al., 2006). Given the nature of the festival (i.e., celebration of Mexican heritage), the high recruitment rate of Mexican participants was not surprising.

In general, festival participants were of higher socio-economic status, as indicated by educational attainment, employment status, and annual income indicators. Although representing a small effect, festival participants were on average more educated. Also, even though unemployment was common within both subsamples, it was less so among festival participants. Moreover, twice as many individuals were employed full time at the festival than clinic site. The average annual income reported by festival participants was nearly triple that of the clinic subsample. Greater reported annual income may be at least partially explained by marital status as festival participants were more likely to be married or cohabitating. Differences were not found between the samples regarding the likelihood of having children or the number of children had.

Participants were of Mexican origin and female with a Spanish language preference even after having resided within the U.S. for over a decade. In addition, participants recruited at the festival seemed to have a greater quality of life as exhibited by markers of health, activity and life engagement, and socio-economic status. The exception to this was the average self-reported level of depressive symptoms experienced, which was high given the use of a standard cut-off point. The inconsistent result may be attributed to the measurement instrument used. Although strong empirical support exists for the CES-D as a reliable measure to assess a number of depression characteristics (e.g., type and duration; Knight, Williams, McGee, & Olaman, 1997) for use across demographic categories (e.g., race, gender, and age; Roberts, Vernon, & Rhoades, 1989), it has been shown to produce false positives ranging from 15% to 20%. Use of a higher cut-off point might have been indicated (Boyd, Weissman, Thompson, & Myers, 1982; Zich, Attkisson, & Greenfield, 1990).

The purpose of this study was to evaluate the internal consistency reliability and construct validity of the Spanish version of the BADS short form, which has demonstrated strong psychometric properties with English-speaking U.S. samples. Taken together, the study provided support for the Spanish short version's internal consistency reliability and limited support for its construct validity with a sample of Latinos.

The BADS-SF demonstrated acceptable nearing good internal consistency (IC) reliability. This is congruent with findings from the validation of the short form with English-speaking samples, which showed that the 9 items demonstrated good IC. However, unlike the original validation study, results of the current study suggested that IC would improve with item deletion. The IC of the Spanish version would reflect good

internal consistency with the removal of either of 2 items (i.e., Items 6 or 8, which load on the Avoidance factor), the strength of which would increase by eliminating both items. Good internal consistency was also observed for the Activation subscale and although deletion of an item (i.e., 9) would improve its reliability, the gain is negligible. The Avoidance subscale, however, showed poor internal consistency, which would remain in that range even after removal of the item (i.e., 8) contributing the least to its IC. The removal of Item 8 should be considered given the detrimental effect it has on the total scale and the Avoidance subscale's ICs.

Support was garnered for the validity of the measure's constructs given that the expected associations with related constructs were found. The measure of activation showed an inverse relationship with depression, in accordance with the original short form validation study and consistent with the BA model prediction. Greater activation and life engagement was related to lower depressive symptoms. The concurrent validity of subscales was also obtained as the same pattern was observed. The BADS' relationship with the functional health scale lent further support for its concurrent validity, as greater activation and life engagement was positively related to greater functional general and physical health.

Although criterion-related validity results suggested the construct validity of the Spanish version of the BADS-SF, further and more stringent analyses did not. As indicated by most indices of overall model fit, the two-factor model identified in the Manos et al. (2011) validation study was not replicated with the current sample data of Spanish-speaking Latinos. The assumption cannot be made that the model generalizes to a large segment of the U.S. population. Thus, the use of the BADS with this

demographic group is not recommended as empirical support for its validity as an acceptable measure of activation and avoidance with this demographic group was not obtained. However, the results obtained may be specific to the procedures implemented in evaluating the two-factor model with this sample. Further evaluation of the two-factor model that corrects for potential methodological problems is needed.

Several methodological decisions may have contributed to the poor fit of the BADS-SF related to model specification, sample data, and model estimation. Although the evaluation of the two-factor solution was conducted based on substantial empirical and theoretical grounds, a solution with more or less factors may demonstrate better model fit, such as a one-factor solution. Further, the relationship between the indicators and latent factors may have been incorrectly specified. For instance, it could be that an indicator loaded on Activation should also be loaded on the Avoidance factor, or that the indicator loads well on the Avoidance factor but not the factor to which it was designated. Misspecification may also be due to the incorrect assumption that the covariation among indicators that load on the same factor is solely due to the latent construct being measured and is not a result of systematic measurement error. As indicated above, this assumption was made in specifying the two-factor BADS short form model.

The adequacy of the sample size was determined based on guidelines that are inherently limited. These are based on models and data that are different from those used by applied researchers, and therefore such rules of thumb lack generalizability. Moreover, the size of the sample required will depend on a number of components of the study's design. The sample data showed some violation of assumptions. In particular, the assumption of multivariate normality was not fully tenable because, although kurtosis

was acceptable, data were skewed. The violation of this assumption holds implications for model estimation given that the use of the ML estimation method is contingent on meeting this assumption. Although the assumption was not entirely violated and ML is robust to minor departures in normality, an alternative estimation method may provide more accurate goodness-of-fit statistics and reliable standard errors of parameter estimates.

In further evaluating the factor structure of the BADS with the current sample, the following steps are recommended. Evaluation of the standardized residuals and modification indices may help identify potential sources of strain that may inform model re-specification. Correlated errors may be present. These will need to be identified and included in the re-specified model. These errors may be reflected in large standardized residuals, modification indices, and EPC values. In addition, a method for determining whether the current sample size is suitable should be employed in order to determine whether adequate power can be achieved and whether parameter estimate precision can be attained. The Satorra and Saris power analysis approach is the most commonly used. Finally, use of an alternative estimation method better suited for non-normal continuous data is the robust ML. In contrast to the other commonly used estimators (i.e., weighted least squares), behaves well with relatively small sample sizes.

Given the potential and existing limitations identified in the procedures used to evaluate the 9-item BADS' factor structure, the conclusion that the model does not fit the sample data and that the scale may not be a valid measure for the population under study may be premature. Although the fit indices suggested poor model fit as a whole, some did suggest acceptable overall model fit.

Important to note is that the quality of the sample data is not tenable. It is difficult to assess the success of the systematic procedures adopted in helping to identify and remove poor responders from the sample. Moreover, it is possible that those removed from the sample shared characteristics and constituted a subsample. For instance, if a common problem was respondent lack of familiarity with completing paper questionnaires containing likert scales, then the remaining sample may consist of more educated participants. If poor responders had provided cleaner data and had been included in the sample, they may have impacted the results. Future efforts at evaluating the BADS-SF with samples of this demographic population will need to identify better data collection procedures that are more likely to produce unbiased samples.

Given the clear differences between the recruitment site populations across a number of demographic and clinical characteristics, conducting the analytic plans separately might have shed light on the current findings. Specifically, it is possible the model would fit the data provided by one subsample better than the other. Given that the clinic sample was more depressed, demonstrated poorer functional health outcomes, and was less education, it is possible that they had more difficulty completing the scale and produced more invalid responding.

Differences in acculturation-related variables further suggest that testing the model by recruitment site may be advantageous. Participants recruited at the festival may be more acculturated, as suggested by two indicators of acculturation, greater length of time residing in the U.S. and higher SES. Length of time in the U.S. has been used to operationally define socialization into American culture and society (e.g., Vega et al., 1998; Norris, Ford, & Bova, 1996). SES has been identified as an important correlate of

acculturation (Negy &Woods, 1992). Indeed, the positive association between the two

variables has been found among Latinos across SES indicators. Moreover, it is often

controlled for when examining the impact of acculturation on a given variable (e.g.,

Cuellar & Roberts, 1997). If Latinos recruited at the festival are in fact more acculturated

to the U.S., they may share greater cultural variance with the Manos et al. (2011)

validation study samples than Latinos recruited at the clinic. Festival participants'

seemingly stronger Spanish language preference does not necessarily suggest low U.S.

acculturation. Although Latinos recruited at the festival may be highly acculturated to

the U.S., they may be simultaneously and similarly acculturated to the country of origin,

as suggested by a bidimensional model of acculturation (Marin & Gamba, 1996). These

potentially meaningful differences may indicate that evaluating the measure with the

festival subsample only may produce a more valid test of its underlying model.

Additional considerations for further evaluating the two-factor model with Latino

samples generally and the current sample specifically have been identified. In designing

a future study to examine the validity of the BADS, data collection methods that are more

likely to produce quality, unbiased data will need to be implemented. Administration of

the BADS by the investigator may address the potential problems of low literacy, lack of

familiarity with the self-report questionnaire method, or random responding. In addition

to modifying the procedures to conduct CFA in the future, further evaluation of the fit of

the two-factor solution with the current sample may be best conducted using festival data,

if the sample can be enlarged as the current sample size lends insufficient power. These

steps may produce more encouraging results of the measure's generalizability to Latinos.

If demonstrated, future studies will need to establish the tool's measurement equivalence.

In order to meaningfully compare the results obtained from non-Latino White and Latino responders, it will need to be shown that the BADS measures the same construct with members of these cultural groups.

Study 2

The study objective was to supplement the results of the previous set of analyses by examining the psychometric properties of the Spanish version of the 9-item BADS with a small sample of depressed Latinos. Specifically, this involved further evaluation of the measure's internal consistency reliability and criterion-related validity, as well as an initial evaluation of its predictive validity. Unlike previous findings, results of the current study do not lend support for the scale's internal consistency reliability. Although some support for the measure's construct validity was obtained from an evaluation of criterion-related validity, supportive findings were not garnered from an examination of its predictive validity using single-subject and group methods.

The sample mostly consisted of low-income, female participants of Mexican descent of approximately 38 years of age. Most participants were unemployed. Primarily foreign born, the average participant had resided in the U.S. for over fourteen years. Over half of the participants were highly depressed at the start of treatment and over a third dropped out of therapy.

Overall, the short form demonstrated very poor internal consistency reliability, as the nine items did not correlate well with each other. Furthermore, whereas two items showed a moderate relationship with the total scale, four did not show any association. Even though item deletion would result in some improvement, the gain would not be meaningful as the scale's internal consistency would remain in the poor range. Poor

internal consistency was also found for both subscales. Although item deletion would lead to some improvement, the Avoidance subscale internal consistency would continue to be questionable. The Avoidance subscale's internal consistency was unacceptable and could not be meaningfully improved. Taken together, the scale's internal structure is poor, suggesting that the items do not measure the same constructs, and it cannot be considerably improved through item deletion.

Observed associations between the BADS short form and criterion measures are partially supportive of the scale's concurrent validity. As predicted by the BA treatment model, greater activation was found to be associated with lower depression, as measured by a self-report instrument. These findings are both consistent with concurrent validity results of the BADS-SF validation study (Manos et al., 2011) and those of Study 1. However, these findings were not replicated with an interview-based depression assessment instrument. Also in line with the BA model, greater activation was found to be positively associated with greater quality of life, as indicated by enjoyment and life satisfaction. Greater activation was positively related to greater general functional health but in contrast to the results of Study 1, it was not associated with greater physical health. Surprisingly, the Activation subscale was not associated with any of the criterion measures with the current sample even though in Study 1, the subscale showed strong and moderate associations with depression and functional health, respectively. These findings are also inconsistent with results obtained by Manos et al. (2011), which showed large associations between the Activation subscale and a measure of depressive symptoms (i.e., CES-D) as well as with the same measure of quality of life (i.e., QLESQ). However, results of the Avoidance subscale were consistent with predictions

based on the treatment model, as decreases in avoidance were related to decreased depression and increased quality of life and functional physical health.

Regression analyses were conducted to examine whether activation, as measured by the BADS, could account for observed decreases in depression at the end of acute treatment independent of depression at the start of treatment and treatment modality. According to the psychopathology model of depression, increases in healthy behaviors and decreases in avoidance result in decreases in depressive behaviors. This represents a simplified description of a behavioral model of depression. However, it provides background for the hypothesis that increases in healthy behaviors and decreases in avoidance, hence activation, account for improvements in depression associated with psychotherapy generally. Behavioral changes that encompass activation can be said to occur in treatments other than BA, such as CBT. Although the aim of CBT is to modify cognition to alleviate depression, the changes in thinking are often intended to lead to changes in behavior, such as engagement in non-depressed behaviors and less avoidance behaviors. Thus, analyses aimed to determine whether activation explained changes in depression irrespective of treatment could shine light on the construct's validity as a predictor. However, activation was not found to explain the observed depression changes, as measured either by self-report or interview-based measures, at the end of acute treatment or six to nine months after. Thus, support for the construct validity of the measure was not found as the BADS-SF did not predict depression scores.

According to the BA treatment model, activation mediates depression change. More specifically, BA treatment is theorized to increase levels of activation which explain later decreases in depression. Single subject data were used to evaluate whether

activation predicted depression scores from session to session. Changes in activation were expected to lead changes in depression within the BA treatment group more so than within the TAU condition given that activation is BA's theorized mechanism of change and such a mechanism was not specified for the comparison condition. However, support for activation as a stronger predictor of depression scores for the BA condition than for the TAU condition was not found. Specifically, the association between the average activation score at a given session and a depression score at the following session was not different for the BA condition than it was for the TAU condition. However, important to note is that, overall, a greater number of statistically significant correlations suggesting that activation led changes in depression was observed compared to correlations supporting the opposite temporal relation. Moreover, nearly all of these correlations were observed within the BA condition. No evidence was found to suggest that one temporal relation better accounted for change across sessions than another independent of condition. In other words, there was no difference between the average BADS leads BDI and BDI leads BADS cross-lagged correlations. Given these results and that the BADS is hypothesized to measure activation, the measure's predictive validity was not fully supported. Thus, single-subject data lend limited support for the measure's construct validity.

Future evaluation of the measure's internal consistency should involve use of an alternative method. Although the Cronbach's alpha is the most commonly used and reviewer accepted measure of item homogeneity (Sijtsma, 2009), it has been argued that the use of alpha as a measure of internal consistency is not justified. Given that alpha is

commonly used in applied research, it is recommended that a supplemental method be identified and employed.

Consistent with previous findings of the BADS short form's concurrent validity, the current study also produced some supportive findings. However, results of an evaluation of depression and activation using the HRSD showed unexpected findings as an association was not found. This finding may be questionable as the Spanish version of this measure did not perform as expected with the current sample. Namely, outcome results were inconsistent with the results of the self-report measure of depression change; a viable explanation has not been produced. Therefore, lack of support for the concurrent validity of the nine items using this measure should take this into consideration.

Lack of support for the measure's predictive validity stemming from results of the regression analyses may be at least partially attributed to the small sample size. Future investigation of the BADS as a predictor of depression change should be conducted with a sufficiently powered sample. In fact, based on more conservative guidelines for determining the adequacy of the sample size, the current sample was considerably underpowered ($N > 50 + 8m$, m = number of independent variables; Tabachnick and Fidell, 2007). In addition, results may have been detrimentally influenced by problems associated with the use of the HRSD noted above. Future regression analyses should evaluate whether activation predicts depression scores for the BA condition only.

Cross-lagged correlation analyses lent limited support for the predictive validity of the BADS, as more statistically significant BADS leads BDI cross-lagged correlations were found in the whole sample and these were primarily observed within the BA condition. However, unlike what was predicted and taking to consideration all

correlations (i.e. significant and non-significant), this temporal relationship was not observed more among individuals treated with BA than those provided with TAU.

Session-by-session data may be more sensitive to documenting when in the course of treatment activation and depression changes take place. In the case of the current study, it offered an opportunity to observe changes within the span of approximately one week. However, much can take place within one week. Changes in activation that then lead to changes in depression can occur within the week, and may not be reflected at the time of self-report. For instance, a client may have been highly activated early in the week, then experienced improvements in depression, and reduced the level of activation by the end of the week, which coincided with his or her next session. The client may not consider the measure's instructions that request that he or she consider the last week and instead, may report activation based on the previous two or three days. Thus, future studies of activation as a predictor of depression throughout BA treatment should be designed to be more sensitive to these changes by increasing the number of data collection points in between sessions.

Summary

Taken together, support for the measure's reliability and validity with Spanish-speaking Latinos is mixed. The results of Study 1 provided support for the scale's internal consistency reliability and some support for the scale's concurrent validity, but the scale's two factor structure was not validated with the confirmatory factor analysis (CFA) employed. In applied research, it is not uncommon to observe the need to re-specify a CFA models to obtain a valid fit, and this process was not undertaken as part of this project. Given the need to consider model re-specification and thus, further

evaluation of the BADS-SF two-factor model, the conclusion that the model does not fit the sample data is premature. Furthermore, there was some indication of meaningful differences between the festival and clinic samples. In particular, it was observed that participants at the two sites may have had significant cultural differences, with the festival sample being more similar to the original BADS-SF validation sample, which was comprised primarily of English-speaking non-Latino White individuals. The finding led to the hypothesis that further evaluation of the measure's psychometric properties would require making a distinction between more and less acculturated Latinos. Given that the festival participants might share cultural similarities with the English-speaking sample, a logical next step in further evaluating the measure might be to investigate the re-specified model with a festival sample. However, exploring this hypothesis requires a larger sample than the one obtained and can therefore not be conducted at this time.

Results obtained in Study 2 with the depressed clinic sample suggested low internal consistency reliability. There was some support for the scale's concurrent validity and limited support for its predictive validity. Findings obtained through aggregated data analyses indicated that the BADS does not predict outcome scores. Single-subject data suggested that activation change led depression change to a statistically significant degree for over half of participants whose session data were examined, almost all of whom were in the BA condition. However, scores on the BADS do not lead changes in depression within the BA condition more than in the TAU condition and in examining the sample as a whole, no evidence was found that activation led depression change more than depression led activation change.

To summarize, in Study 1 the BADS psychometric properties were acceptable as it relates to both internal consistency reliability and construct validity. Factor analysis results are considered inconclusive given methodological limitations and meaningful differences observed among participants at the two sites. As the measure stands, its factor structure may be replicated in data obtained from a sample with cultural similarities to the original validation sample. In Study 2, in which clinic site data were used, the measure did not perform as strongly as in previous research. Internal consistency was lower than acceptable, the associations found with related measures in previous studies were not replicated, and the measure's predictive value was not demonstrated.

The question of why the BADS-SF was not fully supported by data obtained from Spanish-speaking participants, particularly in Study 2, stems from these findings. One possibility is that the translation of the BADS-SF items presents some limitations. It may be that the translated items do not capture the meaning of the items as they were developed in English or that the syntax utilized interferes with participants' ability to determine what is being asked. Item translation merits further consideration as a possible contributor to the measure's performance. However, results obtained across the two studies suggest that the explanation lies elsewhere as the measure demonstrated acceptable psychometric properties in Study 1.

Another potential explanation for the measure's performance may be that the nature of the constructs varies across cultures. The Avoidance subscale raises this concern in particular given its performance across the two studies. Specifically, in Study 1 the subscale's internal consistency was low and in Study 2 it was poor. Although the

avoidance items may be well translated, the nature of the avoidance construct may be different for Spanish-speaking Latinos than for their English-speaking counterparts. As indicated earlier, the experience, meaning, and expression of symptoms are in fact not universal (Kleinman & Good, 1986). Although avoidance may be a phenomenon relevant to Latino depression, the behavioral manifestations of avoidance among Latinos may be distinct. Shared culture or other factors (i.e., needs determined by SES) may influence which avoidance behaviors are acceptable and expressed (Crocket et al., 2005).

Items 6 ("Most of what I did was to escape from or avoid something unpleasant.") and 8 ("I engaged in activities that would distract me from feeling bad.") made limited contributions to internal consistency in particular. These items may be reflective of functional avoidance, a more proactive form of avoidance that has been observed in depressed clients at the clinic. Although depressed, the clients demonstrate engagement in day to day activities. Participants may remain engaged given the need to meet basic needs. For instance, a depressed woman may attend work without missing a day due to the need to provide for her children. As previously noted, participants were largely low income, particularly those recruited at the clinic. Participants may also remain engaged because escape and distraction are considered adequate and perhaps ideal solutions to counteract the depression and may be encouraged by members of a person's social support system and the community at large. Given this, clients may not engage in or may be less likely to engage in simple avoidance, manifested in behaviors reflective of "shutting down."

The potential difference in the manifestation of avoidance between Latinos and non-Latino White individuals has implications for measuring the construct. The items

used to assess avoidance may need to be considered for modification or deletion. For instance, given that items 6 and 8 may measure functional avoidance, their replacement with items that measure simple avoidance may be indicated. Further consideration of this issue in further evaluating the measure will need to be considered, especially in light of the possibility that simple avoidance may be a stronger predictor of depression.

Yet another possibility is that the analysis of Latino depression, namely its proposed congruence with a behavioral understanding of depression, is misconceived. The short form of the BADS was evaluated with a Spanish-speaking sample given the conclusion that the model of depression underlying BA mapped on to the Latino experience. Given this, it was further concluded that the constructs of activation and avoidance might conceivable play a role in Latinos' depression. The evidence acquired through these findings could be taken to suggest that the conclusion was incorrect. However, such a conclusion would be considered premature and severe given that some support for the measure was acquired.

Also important to consider is that challenges may have arisen with the administration of the scale. In particular, participants may have been negligent in their responding, an issue that might be especially relevant among clinic participants in Study 2. In addition to completing periodic, full assessments, participants were asked to complete questionnaires from week to week. However, there is no evidence for this position. Another possibility is that issues related to low education and lack of familiarity with self-report instruments led to invalid responding. However there is no evidence for this position either. Whether or not administrative challenges played a role in producing problematic data is unclear. However, the development of protocols for the

collection of date for future evaluation of the measure will benefit from identification of

potential obstacles of this nature.

Table 1

Study 1 Participant Demographic and Clinical Characteristics

Characteristic	Clinic (*n* = 92)	Festival (*n* = 93)	Full sample (*N* = 185)
Preferred langauge**	83 (90.2)	92 (98.9)	175 (94.6)
Gender: *n* (% female)**	75 (81.5)	58 (62.4)	133 (71.9)
Age: *M* (*SD*)	35.72 (10.33)	36.48 (11.4)	36.1 (10.86)
Employment Status: *n* (%)**			
Unemployed	60 (65.2)	41 (44.1)	101 (54.6)
Employed full-time	16 (17.4)	35 (36)	51 (27.6)
Employed part-time	14 (15.2)	16 (17.2)	30 (16.2)
Income: *M* (*SD*)**	$11,533 ($11,431)	$29,160 ($26,528)	$22,990 ($23,886)
Highest grade completed: *M* (*SD*)	10.34 (3.29)	11.41 (3.2)	10.89 (3.28)
Marital status: *n* (%)**			
Common law relationship	24 (26.1)	16 (17.2)	40 (21.6)
Married	28 (30.6)	56 (60.2)	84 (45.4)
Separated	6 (6.5)	4 (4.3)	10 (5.4)
Divorced	12 (13)	1 (1.1)	13 (7)
Widowed	1 (1.1)	0 (0)	1 (.5)
Never married	17 (18.5)	14 (15.1)	31 (16.8)
Children: *n* (% yes)	83 (90.2)	75 (80.6)	158 (85.41)
No. of children: *M* (*SD*)	3.42 (3.65)	2.8 (1.79)	(2.9)
No. of children living with participant: *M* (*SD*)	2.42 (1.82)	2.3 (1.43)	(1.65)
Years in US: *M (SD)**	15.48 (11.61)	20.17 (13.87)	17.83 (12.97)
Latino subgroup identity: *n* (%)**			
Mexico	52 (56.5)	85 (91.4)	137 (74.1)
Puerto Rico	40 (43.5)	8 (8.6)	48 (25.9)
Religious Preference: *n* (%)			
Catholicism	59 (64.1)	81 (87.1)	140 (75.7)
Protestantism	4 (4.3)	0 (0)	4 (2.2)
Other	22 (23.9)	8 (8.6)	30 (16.2)
No religious preference	6 (6.5)	4 (4.3)	10 (5.4)
Importance of religion[a]: *M* (*SD*)	6 (1.6)	5.9 (1.49)	5.97 (1.54)
Engagement in religious activities[b]: *M* (*SD*)	3.63 (2.1)	4.48 (1.92)	4.07 (2.05)

Table 1 (continued)

Study 1 Participant Demographic and Clinical Characteristics

Characteristic	Clinic (*n* = 92)	Festival (*n* = 93)	Full sample (*N* = 185)
CES-D: *M (SD)***	27.26 (14.83)	19.35 (10.71)	23.28 (13.48)
CES-D symptom severity: *n* (% high)	64 (69.6)	57 (61.3)	121 (65.4)
BADS-SF: *M* (*SD*)**	27.8 (6.9)	31.52 (6.89)	29.73 (7.12)
Activation: *M* (*SD*)*	14.41 (7.79)	18.25 (6.47)	16.4 (7.37)
Avoidance: *M* (*SD*)*	13.52 (5.43)	13.2 (5.7)	13.36 (5.55)
SF-36 items: *M* (*SD*)**	2.77 (.71)	3.18 (.5)	2.99 (.64)
Physical health: *M* (*SD*)**	2.74 (.72)	3.16 (.51)	2.96 (.65)

Note. CES-D = Center for Epidemiologic Studies Depression Scale, BADS-SF = Behavioral Activation for Depression Scale - Short Form, SF-36 = Short Form 36-item Health Survey. [a]Scale 1-7, where 7 = very important. [b]Scale 1-7, where 7 = a lot of participation. * p < .05, ** p < .01.

Table 2

Study 1 Internal Consistency Coefficients for the 9-item BADS

	Corrected Item-Total Correlation	Scale Variance if Item Deleted	Squared Multiple Correlation	Alpha if Item Deleted
Item 1 (Reversed)	.67	77.87	.49	.75
Item 2	.68	75.39	.61	.74
Item 3	.65	74.81	.57	.75
Item 4	.58	78.06	.55	.76
Item 5	.68	73.63	.62	.74
Item 6 (Reversed)	.2	88.91	.2	.81
Item 7 (Reversed)	.53	76.54	.37	.76
Item 8 (Reversed)	-.04	96.76	.16	.83
Item 9	.49	80.46	.36	.77

Note. $\alpha = .79$, $s^2 = 98.99$, $n = 173$.

Table 3

Study 1 Internal Consistency Coefficients for the BADS-SF Subscales

	Corrected Item-Total Correlation	Scale Variance if Item Deleted	Squared Multiple Correlation	Alpha if Item Deleted
Activation[a]				
Item 2	.76	35.47	.6	.83
Item 3	.69	35.63	.53	.85
Item 4	.73	35.61	.56	.84
Item 5	.76	34.03	.6	.83
Item 9	.57	38.6	.35	.88
Avoidance[b]				
Item 1 (reversed)	.36	15.84	.24	.47
Item 6 (reversed)	.4	14.34	.16	.44
Item 7 (reversed)	.42	12.99	.27	.41
Item 8 (reversed)	.2	16.2	.09	.6

Note. [a]$\alpha = .87$, $s^2 = 54.33$, $n = 179$. [b]$\alpha = .56$, $s^2 = 22.98$, $n = 179$.

Table 4

Study 1 Correlations of the Association between the BADS-SF and Criterion Measures

	BADS-SF Total Score	BADS-SF Factor 1 Activation	BADS-SF Factor 2 Avoidance
CES-D	-.67** (*n* = 173)	-.58** (*n* = 179)	.47** (*n* = 179)
SF-36 subset	.56** (*n* = 163)	.49** (*n* = 169)	-.39** (*n* = 166)
Physical Component Summary	.57** (*n* = 163)	.5** (*n* =163)	-.4** (*n* = 166)
General health (Item 2)	.19* (*n* = 172)	.2** (*n* = 178)	.03 (*n* = 178)

Note. *p < .05, **p < .01

Table 5

Sample Data for CFA for the BADS Two-Factor Model

	Activation					Avoidance			
	BDSF2	BDSF3	BDSF4	BDSF5	BDSF9	BDSF1	BDSF6	BDSF7	BDSF8
BDSF2	1.000								
BDSF3	.630	1.000							
BDSF4	.590	.666	1.000						
BDSF5	.705	.598	.648	1.000					
BDSF9	.539	.410	.462	.510	1.000				
BDSF1	-.492	-.391	-.365	-.448	-.272	1.000			
BDSF6	-.191	-.140	-.106	-.103	-.238	.270	1.000		
BDSF7	-.322	-.397	-.268	-.353	-.270	.361	.379	1.000	
BDSF8	-.012	.023	.033	-.055	-.028	.150	.311	.222	1.000
M	3.36	2.52	3.35	3.35	3.76	3.21	3.18	3.6	3.29
SD	1.74	1.85	1.77	1.88	1.76	2.05	2.03	2.03	2.13
n	184	180	185	184	185	184	184	179	185

Table 6

Parameter Estimates for the Two-Factor BADS Model

Path	Parameter	Unstandardized Solution		Standardized Solution	
		Estimate	SE	Estimate	SE
Act -> BDSF2	λ_1	1.0 (fixed)		.8318	.03
Act -> BDSF3	λ_2	.9629	.0875	.7572	.038
Act -> BDSF4	λ_3	.9132	.0838	.7521	.0385
Act -> BDSF5	λ_4	1.0830	.0863	.8358	.0296
Act -> BDSF9	λ_5	.7246	.0889	.5975	.0537
Avo -> BDSF1	λ_6	1.0 (fixed)		.8709	.0551
Avo -> BDSF6	λ_7	.2826	.1105	.2161	.0806
Avo -> BDSF7	λ_8	.8503	.1323	.5846	.0617
Avo -> BDSF8	λ_9	.0219	.1165	.0157	.0838
BDSF2 -> error 1	δ_1	.9303	.1373	.3081	.0499
BDSF3 -> error 2	δ_2	1.441	.1849	..4267	.0575
BDSF4 -> error 3	δ_3	1.3375	.1706	.4343	.0579
BDSF5 -> error 4	δ_4	1.0573	.1579	.3015	.0495
BDSF9 -> error 5	δ_5	1.9749	.2278	.6429	.0642
BDSF1 -> error 6	δ_6	.6029	.2351	.2415	.0960
BDSF6 -> error 7	δ_7	3.0884	.3366	.9532	.0348
BDSF7 -> error 8	δ_8	2.6376	.3302	.6583	.0721
BDSF8 -> error 9	δ_9	3.6531	0.3939	.9998	.0026
Act <-> Avo	$\square_3$	1.5214	.2299	.7650	.0588

Table 7

Study 2 Participant Demographic and Clinical Characteristics

Characteristic	BA (*n* = 21)	TAU (*n* = 21)	Full Sample (*N* = 42)
Age: *M* (*SD*)	38.67 (11.7)	36.6 (9.53)	37.66 (10.62)
Gender: *n* (% female)	16 (76.2)	18 (85.7)	34 (81)
Country of Origin: *n* (%)			
Mexico	14 (66.7)	15 (71.4)	29 (69)
Puerto Rico	6 (28.6)	3 (14.3)	9 (21.4)
Other	1 (4.8)	2 (9.5)	3 (7.1)
Marital status: *n* (%)			
Common law relationship	6 (28.6)	6 (28.6)	12 (28.6)
Married	5 (23.8)	6 (28.6)	11 (26.2)
Separated	3 (14.3)	4 (19)	7 (16.7)
Divorced	3 (14.3)	0 (0)	3 (7.1)
Widowed	0 (0)	1 (4.8)	1 (2.4)
Never married	3 (14.3)	2 (9.5)	5 (11.9)
Income: *n* (%)			
≤ $10,000	9 (42.9)	10 (47.6)	19 (45.2)
$10,001 - $20,000	6 (28.6)	5 (23.8)	11 (26.2)
$20,001 - $30,000	2 (9.5)	3 (14.3)	5 (11.9)
$30,001 - $40,000	1 (4.8)	2 (9.5)	3 (7.1)
Employment Status: *n* (% unemployed)	11 (52.4)	12 (57.1)	23 (54.8)
Years of schooling: *M* (*SD*)	10.5 (3.05)	8.86 (4.24)	9.78 (3.65)
Born and raised in the U.S.: n (% no)	18 (85.7)	15 (71.4)	33 (78.6)
Years in US: M (SD)	12.28 (8.91)	17.44 (11.47)	14.71 (10.37)
Dropout Status: *n* (% no)	16 (76.2)	10 (47.6)	26 (61.9)
No. Sessions Attended: *M* (*SD*)	7.43 (4.49)	4.43 (3.63)	5.93 (4.31)
BDI-II: *M* (*SD*)			
Pre-treatment	34.38 (9.19)	29.24 (10.27)	31.81 (9.97)
Post-treatment	17 (16.73)	18.17 (15.27)	17.47 (15.9)
6-9 Month Follow-up	23.17 (19.39)	17 (15.78)	19.85 (17.46)
BDI-II Severity[a]: *n* (% high)	15 (71.4)	10 (47.6)	25 (59.5)

Table 7 (continued)

Study 2 Participant Demographic and Clinical Characteristics

Characteristic	BA (*n* = 21)	TAU (*n* = 21)	Full Sample (*N* = 42)
HRSD: *M* (*SD*)			
Pre-treatment	21.05 (3.75)	20.86 (5.33)	20.95 (4.55)
Post-treatment	11 (9.14)	12.83 (9.7)	11.79 (9.26)
6-9 Month Follow-up	16.73 (10.77)	13.14 (8.65)	14.72 (9.6)
HRSD Severity[b]: *n* (% high)	12 (57.1)	12 (57.1)	24 (57.1)
BADS-SF[c]	18.62 (7.04)	23.7 (5.4)	21.1 (6.73)
Activation	6.81 (5.28)	10.95 (2.74)	8.83 (4.68)
Avoidance	11.81 (4.43)	12.43 (4.2)	12.12 (4.28)
SF-12[c]			
MCS	20.1 (5.99)	22.86 (9.16)	21.51 (7.81)
PCS	39.9 (8.94)	44.19 (10.49)	42.1 (9.89)
QLESQ[c]	33.95 (5.37)	34.33 (7.09)	34.15 (6.23)

Note. HRSD = Hamilton Rating Scale for Depression, BADS-SF = Behavioral

Activation for Depression Scale - Short Form, SF-12 = Short Form 12-item Health

Survey, QLESQ = Quality of Life Enjoyment and Satisfaction Questionnaire.

[a]HRSD ≥ 20 = high severity. [b] BDI-II ≥ 29 = high severity. [c]Pre-treatment score.

Table 8

Study 2 Internal Consistency Coefficients for the 9-item BADS

	Corrected Item-Total Correlation	Scale Variance if Item Deleted	Squared Multiple Correlation	Alpha if Item Deleted
Item 1 (Reversed)	-.1	44.85	.31	.53
Item 2	.2	39.35	.31	.43
Item 3	.15	43.09	.2	.45
Item 4	.29	37	.46	.39
Item 5	.12	38.17	.11	.46
Item 6 (Reversed)	.36	32.95	.2	.35
Item 7 (Reversed)	.06	40.97	.3	.48
Item 8 (Reversed)	.3	34.6	.19	.38
Item 9	.4	32.58	.35	.33

Note. $\alpha = .46$, $s^2 = 45.24$, $n = 41$.

Table 9

Study 2 Internal Consistency Coefficients for the BADS-SF Subscales

	Corrected Item-Total Correlation	Scale Variance if Item Deleted	Squared Multiple Correlation	Alpha if Item Deleted
Activation[a]				
Item 2	.34	15.7	.2	.39
Item 3	.14	20.34	.1	.5
Item 4	.49	13.51	.38	.28
Item 5	.08	16.5	.07	.59
Item 9	.37	12.97	.29	.35
Avoidance[b]				
Item 1 (reversed)	.16	13.88	.21	.32
Item 6 (reversed)	.28	10.7	.11	.16
Item 7 (reversed)	.25	12.14	.12	.21
Item 8 (reversed)	.07	13.43	.13	.42

Note. [a]$\alpha = .49$, $s^2 = 21.9$, $n = 41$. [b]$\alpha = .35$, $s^2 = 18.3$, $n = 42$.

Table 10

Study 2 Correlations of the Association between the BADS-SF and Criterion Measures

	BADS-SF Total Score	BADS-SF Factor 1 Activation	BADS-SF Factor 2 Avoidance
BDI-II	-.2 ($n = 41$)	-.11 ($n = 51$)	.46** ($n = 42$)
HRSD	.03 ($n = 41$)	-.16 ($n = 41$)	.21 ($n = 42$)
SF-12			
Mental Component Summary	-.09 ($n = 40$)	.14 ($n = 40$)	-.27 ($n = 41$)
Physical Component Summary	-.3 ($n = 40$)	-.07 ($n = 40$)	-.44** ($n = 41$)
QLESQ	-.08 ($n = 40$)	.19 ($n = 40$)	-.38* ($n = 40$)

Note. *$p < .05$, **$p < .01$.

Table 11

Study 2 BADS Predicts BDI and BDI Predicts BADS Cross-lagged Correlations

	Cross-lagged correlations		No. of data points
	BADS predicts BDI	BDI predicts BADS	
BA			
11	-0.59*	-0.62**	9
14	-0.58*	-0.8***	10
26	-0.78***	-0.65**	8
45	-0.78**	-0.61	8
54	-0.27	-0.19	12
58	-0.63**	-0.81***	11
62	-0.94***	-0.84***	12
68	-0.1	-0.37	12
78	-0.57*	-0.05	12
93	-0.62*	-0.41	11
114	-0.26	-0.01	8
119	-0.68*	-0.08	12
122	-0.5	-0.67*	11
TAU			
17	0.08	0.10	9
40	-0.74*	-0.65	12
41	-0.61	-0.27	8
72	0.24	0.21	12
73	-0.51	-0.46	8
87	-0.42	-0.32	9

Note. *** $p < .01$, ** $p < .05$., * $p < .1$. Analyses were controlled for auto-

correlation. The bootstrapping method was utilized given that it is recommended for

small sample sizes (Borckardt et al., 2008).

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Appendix A
Spanish 19-item Behavioral Activation for Depression Scale (BADS)

Please read each statement carefully and then circle the number which best describes how much the statement was true for you DURING THE PAST WEEK, INCLUDING TODAY.

0 = Not at all 1 2 = A little 3 4 = A lot 5 6 = Completely	**0**	**1**	**2**	**3**	**4**	**5**	**6**
1. I stayed in bed for too long even though I had things to do.	○	○	○	○	○	○	○
2. There were certain things I needed to do that I didn't do.	○	○	○	○	○	○	○
3. I am content with the amount and types of things I did.	○	○	○	○	○	○	○
4. I engaged in a wide variety of activities.	○	○	○	○	○	○	○
5. I made good decisions about what type of activities and/or situations I put myself in.	○	○	○	○	○	○	○
6. I was an active person and accomplished the goals I set out to do.	○	○	○	○	○	○	○
7. Most of what I did was to escape from or avoid something unpleasant.	○	○	○	○	○	○	○
8. I did things to avoid feeling sadness or other painful emotions.	○	○	○	○	○	○	○
9. I tried not to think about certain things.	○	○	○	○	○	○	○
10. I spent a long time thinking over and over about my problems.	○	○	○	○	○	○	○
11. I kept trying to think of ways to solve a problem but never tried any of the solutions.	○	○	○	○	○	○	○
12. I did not see any of my friends.	○	○	○	○	○	○	○
13. I was not social, even though I had opportunities to be.	○	○	○	○	○	○	○
14. I did things to cut myself off from other people.	○	○	○	○	○	○	○
15. I took time off of work/school/chores/responsibilities simply because I was too tired or didn't feel like going in.	○	○	○	○	○	○	○
16. My work/schoolwork/chores/responsibilities suffered because I was not as active as I needed to be.	○	○	○	○	○	○	○
17. I only engaged in activities that would distract me from feeling bad.	○	○	○	○	○	○	○
18. I began to feel badly when others around me expressed negative feelings or experiences.	○	○	○	○	○	○	○
19. I did things that were enjoyable.	○	○	○	○	○	○	○

Appendix B
The Center for Epidemiologic Studies Depression Scale (CES-D)

For the following 20 items, please select the choice that best describes how you have felt over the past week:	Rarely or none of the time (<1 day)	Rarely or none of the time (<1 day)	Occasionally or a moderate amount of the time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.				
2. I did not feel like eating; my appetite was poor.				
3. I felt that I could not shake off the blues even with the help from my family and friends.				
4. I felt that I was not as good as other people.				
5. I had trouble keeping my mind on what I was doing.				
6. I felt depressed.				
7. I felt that everything I did was an effort.				
8. I felt hopeless about the future.				
9. I thought my life had been a failure.				
10. I felt fearful.				
11. My sleep was restless.				
12. I was unhappy.				
13. I talked less than usual.				
14. I felt lonely.				
15. People were unfriendly.				
16. I did not enjoy life.				
17. I had crying spells.				
18. I felt sad.				
19. I felt that people disliked me.				
20. I could not get "going".				

Reference: Radloff, L.S. (1977). The CES-D scale: A self-report depression scale for research in the general population. Applied Psychological Measurement, 1, 385-401.

Appendix C
Short-Form 36-item Version 2 Health Survey (SF-36v2)

This survey asks for your views about your health. This information will help you keep track of how you feel and how well you are able to do your usual activities.

Answer every question by circling the answer as indicated. If you are unsure about how to answer a question, please give the best answer you can.

1. In general, would you say your health is:

Excellent	Very good	Good	Fair	Poor

2. Compared to one year ago, how would you rate your health in general now?

Much better now than one year ago	Somewhat better now than one year ago	About the same as one year ago	Somewhat worse now than one year ago	Much worse now than one year ago

3. The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

	Yes, limited a lot	Yes, limited a little	No, not limited at all
a. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports			
b. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf			
c. Lifting or carrying groceries			
d. Climbing several flights of stairs			
e. Climbing one flight of stairs			
f. Bending, kneeling, or stooping			
g. Walking more than a mile			
h. Walking several hundred yards			
i. Walking one hundred yards			
j. Bathing or dressing yourself			

4. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a. Cut down on the amount of time you spent on work or other activities					
b. Accomplished less than you would like					
c. Were limited in the kind of work or other activities					
d. Had difficulty performing the work or other activities (for example, it took extra effort)					

5. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a. Cut down on the					

amount of time you spent on work or other activities

b. Accomplished less than you would like

c. Did work or activities less carefully than usual

6. **During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?**

Not at all   Slightly   Moderately   Quite a bit   Extremely

7. **How much bodily pain have you had during the past 4 weeks?**

None   Very mild   Mild   Moderate   Severe   Very severe

8. **During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?**

Not at all   A little bit   Moderately   Quite a bit   Extremely

9. **These questions are about how you feel and how things have been with you <u>during the past 4 weeks</u>. For each question, please give the one answer that comes closest to the way you have been feeling.**

How much of the time during the <u>past 4 weeks</u>…

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a. Did you feel full of life?					
b. Have you been very nervous?					
c. Have you felt so down in the dumps that nothing could cheer you up?					
d. Have you felt calm and peaceful?					
e. Did you have a lot of energy?					
f. Have you felt downhearted and depressed?					
g. Did you feel worn out?					
h. Have you been happy?					
i. Did you feel tired?					

10. **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.)?**

All of the time   Most of the time   Some of the time   A little of the time   None of the time

11. **How TRUE or FALSE is each of the following statements for you?**

	Definitely true	Most true	Don't know	Mostly false	Definitely false
A. I seem to get sick a little easier than other people					
B. I am as healthy as					

anybody I know
C. I expect my health to
get worse
D. My health is
excellent
Thank you for completing these questions!

Appendix D
Demographics Questionnaire

1. How old are you? _____

2. Are you: _____ male
   _____ female

3. Are you: _____ single
   _____ married
   _____divorced
   _____widowed
   _____cohabitating

4. Children
   a. Do you have children? _____ yes _____ no
   b. How many kids do you have? _____
   c. How many of your kids are living with you?

5. Are you currently employed? _____ yes _____ no

6. If you're employed, what is your annual income? _____

7. What is your religious preference? _____

8. On a scale from 1 to 7, how important is your religion? _____

9. On a scale from 1 to 7, how often do you participate in religious activities?

10. What is the highest grade you completed in school? _____

11. What is your ethnicity?   _____ Mexican
    _____ Puerto Rican
    _____ Other

12. How many years have you lived in the U.S.? _____

Appendix E
Hamilton Rating Scale for Depression (HRSD)

OVERVIEW*:* I'd like to ask you some questions about the past week.

1. DEPRESSED MOOD

DEPRESSED MOOD (sad, hopeless, helpless, worthless)

What's your mood been like this past week?

(0)   absent

Have you been feeling down or depressed?

(1)   **mild:** these feeling states indicated only on questioning <u>and</u> are not the predominant mood state; feels depressed no more than two days <u>or</u> only intermittently**.**

Sad? Hopeless?

(2)   **moderate:** these feeling states spontaneously reported; feels depressed more days than not (i.e., the predominant mood state).

Have you been crying at all?

(3)   **marked:** communicated feeling states non-verbally, i.e., facial expression, posture, voice tendency to weep; some functional impairment**.**

In the last week, how often have you felt this way (PATIENT'S OWN EQUIVALENT)? Every day? All day?

(4)   **severe:** patient reports VIRTUALLY ONLY these feeling states in his spontaneous verbal and non-verbal communication; severe functional impairment.

2. FEELINGS OF GUILT

Have you been especially critical of yourself this past week, feeling you've done things wrong, or let others down? IF YES: What have your thoughts been?

FEELINGS OF GUILT:

(0)   absent

Have you been feeling guilty about anything that you've done or not done?

(1)   self-reproach (whether or not there has been wrongdoing), feels she/he has let people down

Have you thought that you've brought your troubles on yourself in some way?

(2)   ideas of guilt spontaneously expressed.

How often have you had these thoughts? Do these thoughts ever repeat themselves? How much have they bothered you? Are these thoughts uncontrollable? Do these thoughts ever sound like they come from the outside, like hearing someone else's voice? If so, whose voice is it? Do you think you're being punished for something you did?

(3)   Present illness is a punishment; or repeated intrusive guilty thoughts (i.e., ruminations) over past errors or sinful deeds.

(4)   hears accusatory or denunciatory voices and/or experiences threatening visual hallucinations; delusions of guilt.

3. SUICIDE

This past week, have you had any thoughts that life is not worth living, or that you'd be better off dead?

SUICIDE:

(0)   absent

What about having thoughts of hurting or even killing yourself?

(1)   feels life is not worth living

(2)   wishes she/he were dead or thoughts of possible death to self (other than suicidal)

IF YES: What have you thought about? Have you actually done anything to hurt yourself?

(3)   suicidal ideas or specific suicide plan

(4)   attempts at suicide

SUM OF ITEMS 1, 2, AND 3: _____

"Typical" Sleep Items

4. INSOMNIA EARLY

How have you been sleeping over the last week?

Have you had any trouble falling asleep at the beginning of the night?

(Right after you go to bed, how long has it been taking you to fall asleep?)

How many nights this week have you had trouble falling asleep?

INSOMNIA EARLY:

(0)   no difficulty falling asleep

(1)   **mild and/or infrequent**: less than 30 minutes most nights, or if longer no more than twice during the past week.

(2)   **definite and severe**, more than 30 minutes on most nights.

5. INSOMNIA MIDDLE

During the past week, have you been waking up in the middle of the night? If yes, how many nights? How often do you awaken?

Do you get out of bed? What do you do? (Only to go to the bathroom?)

When you get back in bed, are you able to fall right back asleep?

Have you felt your sleeping has been restless or disturbed some nights?

INSOMNIA MIDDLE:

(0)   no difficulty

(1)   **mild/ infrequent:** complains of being restless and disturbed some nights

(2)   **definite and severe:** waking most every night (except for purposes of voiding); difficulty getting back to sleep (i.e., more than 30 minutes most nights) or multiple brief awakenings each night.

6. INSOMNIA LATE

What time have you been waking up in the morning for the last time, this past week?

Is this earlier than you would like?

IF EARLY: Is that with an alarm clock, or do you just wake up by yourself?

INSOMNIA LATE:

(0)   no difficulty

(1)   **mild, infrequent**: wakes earlier than usual some mornings (i.e., 30 minutes earlier than desired) or infrequently (i.e., 1 or 2 mornings).

(2)   **obvious and severe**: wakes 1-3 hours before usual time and is unable to sleep again.

Sum of items 4, 5, and 6:   _____

Atypical Sleep Items

4A. HYPERSOMNIA (Retires earlier and/or rises later)

When do you go to bed?

HYPERSOMNIA (Retires earlier and/or rises later than usual. This does not necessarily mean that the patient sleeps longer, just spends more time in bed.)

Is this earlier than usual (when not depressed) for you?

(0) absent

If yes, how much earlier? (Weekends?)

(1) **mild;** less than 60 minutes

When do you get up?

(2) **obvious and definite;** goes to bed more than 60 minutes earlier on most nights**.**

Is this later when not depressed? (Weekends?)

5A. HYPERSOMNIA (Oversleeping, sleeping more than usual)

Compare sleep length to euthymic and not to hypomanic sleep length.
If this cannot be established, use 8 hours.
Oversleeping - Have you been sleeping more than usual this past week?

HYPERSOMNIA (Oversleeping, sleeping more than usual)

(0) absent

(1) **mild or infrequent:** Oversleeps less than 60 minutes.

If yes, How much more?

(2)   **obvious and definite:** Oversleeps more than 60 minutes most days.

If no, what about weekends?

Sleep length used: (Circle one)

euthymic   8 hours

6A. HYPERSOMNIA (Napping - excessive daytime sleepiness)

HYPERSOMNIA (Napping. Excessive daytime sleepiness.)

Do you take naps?

(0) absent

If yes, when? How often? How long?

(1) **mild or infrequent**: naps less than 30 minutes**.**

If no, How about weekends?

(2) **obvious and definite:** sleeps more than 30 minutes most days during naps.

Sum of items 4A, 5A, and 6A: _____

SLEEP DISRUPTION TOTAL SCORE: _____
(Enter the sum of items 4, 5, and 6; *OR* the sum of items 4A, 5A, and 6A, whichever is greater)

7. WORK AND ACTIVITIES
How have you been spending your time this past week (when not at work)?

Do you have your normal interest in doing (THOSE THINGS), or do you feel you have to push yourself to do them?

Are you less interested in things like your job, spending time with family, friends or hobbies?

Have you decreased or even stopped doing anything?

IF WORKING: Do you feel you are less efficient or effective at work?

Have you been able to have any fun? How has your ability to feel enjoyment or pleasure been?

WORK AND ACTIVITIES:

(0) no difficulty

(1) thoughts and feelings of incapacity, or disinterest related to activities, work or hobbies; mild and/or intermittent
(2) decreased interest in activity, hobbies or work most days - either directly reported by the patient or indirect in listlessness, indecision and vacillation (feels he/she has to push self to work or engage in activities)
(3) definite decrease in actual time spent in activities or decreased productivity due to depression.
(4) Complete loss of interest. Anhedonia. Stopped working or engaging in routine activities because of depression.

8. RETARDATION
RATING BASED ON OBSERVATION DURING INTERVIEW

RETARDATION (slowness of thought and speech; impaired ability to concentrate; decreased spontaneous motor activity; postural change - slumped, stooped):

(0) normal speech and thought
(1) **mild**: slight flattening of affect, fixity of expression, or minimal slowing of speech and/or spontaneous movements.
(2) **moderate**: monotonous voice, delayed in answering questions, tends to sit motionless.
(3) **severe**: retardation prolongs interview to a marked degree, slowness of movement and gait with diminished associated movement.
(4) **extreme**: depressive stupor, interview impossible.

9. AGITATION
RATING BASED ON OBSERVATION DURING INTERVIEW

AGITATION (restlessness, repetitive "nervous" mannerisms, frequent posture changes, difficulty sitting still):

(0) none
(1) **mild**: fidgety at interview, clenching fists or side of chair, kicking feet.
(2) **moderate**: wringing hands, biting lips, pulling hair, gesturing with arms, picking at hands and clothes.
(3) **severe**: includes features of (2). In addition, cannot stay in chair during interview.
(4) **extreme**: hand-wringing, nail biting, hair-pulling, biting of lips, almost continual pacing. Patient looks bewildered and distraught.

SUM OF ITEMS 7, 8, AND 9: _____

10. ANXIETY PSYCHIC

Have you been feeling especially anxious, nervous, tense or irritable, frightened and/or apprehensive this past week?

Have you had a hard time relaxing this past week?

Have you been worrying a lot about little unimportant things, things you wouldn't ordinarily worry about?
IF YES: Like what, for example?

ANXIETY PSYCHIC:

(0)   no difficulty
(1)   **mild**, i.e., intermittent tension or irritability
(2)   **moderate**: worried, tense, anxious or nervous more often than not; not incapacitated
(3)   **severe**: psychic anxiety symptoms most of the time; anxiety is the predominant mood state, incapacitated by psychic anxiety symptoms.
(4)   **fears expressed without questioning**

11. ANXIETY SOMATIC

In this past week, have you had any of these physical symptoms? READ EACH LIST TO THE RIGHT, PAUSING AFTER EACH THREE FOR REPLY

How much have these things been bothering you this past week? (How bad have they gotten? How much of the time, or how often, have you had them?)

DO NOT RATE IF SYMPTOMS ARE ABSOLUTELY AND UNEQUIVOCALLY RELATED TO A TRANSIENT MEDICAL PHENOMENON (I.E., MENSTRUATION, AN INFECTION, OR ACUTE COCAINE INTOXICATION)

ANXIETY SOMATIC - physiologic concomitants of anxiety, such as: dry mouth, gas, indigestion;
  diarrhea, cramps, belching;

  constipation, heart palpitations, headaches;
  dizziness, hyperventilating, sighing;
  having to urinate frequently, sweating,
   trouble swallowing

(0)   absent

(1)   **doubtful or infrequent**
(2)   **mild**: reports at least several symptoms, which are not marked or incapacitating
(3)   **moderate**: greater number and frequency of symptoms than (2). Accompanied by more severe subjective distress with some impairment of normal functioning
(4)   **severe**: symptoms are numerous, persistent and incapacitating much of the time

12. APPETITE DECREASE

How has your appetite been this past week?　　　DECREASED APPETITE:

(What about compared to your usual appetite?)　　(0)　　none

Have you had to force yourself to eat?　　　　　(1)　　decreased appetite but eating without
　　　　　　　　　　　　　　　　　　　　　　　　　　　　encouragement

Have other people had to urge you to eat?　　　　(2)　　definite decrease; difficulty eating without
　　　　　　　　　　　　　　　　　　　　　　　　　　　　urging

12A. APPETITE INCREASE

Are you definitely eating more than usual?　　　INCREASED APPETITE (Change in appetite
　　　　　　　　　　　　　　　　　　　　　　　marked by increased food intake.)

Have you noticed cravings for specific foods,　　(0)　　absent
such as sweets or chocolates?

　　　　　　　　　　　　　　　　　　　　　　(1)　　**mild**: minimal or slight increase in appetite;
　　　　　　　　　　　　　　　　　　　　　　　　　　food craving

　　　　　　　　　　　　　　　　　　　　　　(2)　　**obvious:** definite and marked increase in
　　　　　　　　　　　　　　　　　　　　　　　　　　food intake.

APPETITE DISTURBANCE SCORE:　_____
(Enter the score for 12 OR 12A, whichever is greater)
SUM OF ITEMS 10 AND 11, PLUS APPETITE DISTURBANCE SCORE: _____

13. ENERGY

How has your energy been this past week?

Do you tire more easily than usual? If yes how much of the time?
Have you felt fatigued?

Do you feel heaviness in your limbs or other parts of your body? How often do you feel this way? How much has it affected you?

ENERGY:

(0)   none

(1)   mild, intermittent, infrequent. Loss of energy, and fatigue.

(2)   definitely present most every day; subjectively experienced as severe

14. LIBIDO

How has your interest in sex been this week? (I'm not asking you about performance, but about your interest in sex - how much you think about it.)
Has there been any change in your interest in sex (from when you were not depressed?)
Is it something you've thought much about?

SEXUAL SYMPTOMS (such as loss of libido):
(0)   absent

(1)   **mild**: some decrease in libido, although not complete or persistent

(2)   **severe**: complete absence/loss of sexual desire

15. HYPOCHONDRIASIS

In the last week, how much have your thoughts been focused on your physical health or how your body is working (compared to your normal thinking)?
Do you complain much about how you feel physically?
Have you found yourself asking for help with things you could really do your self?

IF YES: Like what, for example? How often has that happened?

HYPOCHONDRIASIS:

(0)   absent

(1)   **mild**: some preoccupation with bodily functions and physical symptoms
(2)   **moderate**: much attention given to physical symptoms. Patient expresses thoughts of organic disease with a tendency to somaticize.
(3)   **severe**: convictions of organic disease to explain present condition, e.g. brain tumor
(4)   **extreme**: hypochondriacal delusions often with guilty association, e.g. rotting inside

16. LOSS OF WEIGHT
Have you lost any weight since this
(DEPRESSION) began? IF YES: How much?

IF NOT SURE: Do you think your clothes are
any looser on you?

16A. WEIGHT GAIN
Have you gained any weight since this
(DEPRESSION) began? IF YES: How much?

IF NOT SURE: Do you think your clothes are
any tighter on you?

LOSS OF WEIGHT:

(0)   no weight loss or weight loss associated with
        dieting
(1)   probable weight loss associated with present
        illness
(2)   definite (according to patient) weight loss,
        at least 5 lbs. (2.2 kg) during the episode.

WEIGHT GAIN:

(0)   no weight gain

(1)   probable weight gain associated with present
        illness
(2)   definite (according to patient) weight gain,
        at least 5 lbs. (2.2 kg) during the episode.

WEIGHT CHANGE SCORE: _____
(Enter the score for 16 OR 16A, whichever is greater)

SUM OF ITEMS 13, 14,AND 15, PLUS WEIGHT CHANGE SCORE: _____

17. INSIGHT
RATING BASED ON OBSERVATION

Optional probe: What do you think the
source of your current problem is?

INSIGHT:

(0)   acknowledges being depressed and ill OR, if
        appropriate, not currently depressed
(1)   acknowledges illness but attributes cause to
        bad
        food, climate, overwork, virus, need for rest,
        etc.
(2)   denies being ill at all; despite having definite
        symptoms

TOTAL 17-ITEM ADJUSTED HAMILTON DEPRESSION SCORE: _____
(Add the totals at the *bottom* of pages 1, 3, 4, 5, and 6, *PLUS* Item 17)

Appendix F
Beck Depression Inventory – II (BDI-II)

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today.** Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Change in Appetite).

1. 0   I do not feel sad.
    1   I feel sad much of the time.
    2   I am sad all the time.
    3   I am so sad or unhappy that I can't stand it.

2. 0   I am not discouraged about my future.
    1   I feel more discouraged about my future than
    2   I used to be.
    3   I do not expect things to work out for me.
        I feel my future is hopeless and will only get worse.

3. 0   I do not feel like a failure.
    1   I have failed more than I should have.
    2   As I look back, I see a lot of failures
    3   I feel I am a total failure as a person.

4. 0   I get as much pleasure as I ever did from the things I enjoy.
    1   I don't enjoy things as much as I used
    2   to.
        I get very little pleasure from the things
    3   that I used to enjoy.
        I cant' get any pleasure from the things I used to enjoy.

5. 0   I don't feel particularly guilty.
    1   I feel guilty over many things I have
    2   done or should have done.
    3   I feel quite guilty most of the time.
        I feel guilty all of the time.

6. 0   I don't feel I am being punished.
    1   I feel I may be being punished.
    2   I expect to be punished.
    3   I feel I am being punished.

7. 0   I feel the same about myself as ever.
    1   I have lost confidence in myself.
    2   I am disappointed in myself.

9. 0   I don't have any thoughts of killing
    1   myself.
    2   I have thoughts of killing myself, but I
    3   would not carry them out.
        I would like to kill myself.
        I would kill myself if I had the chance.

10. 0   I don't cry anymore than I used to.
    1   I cry more now than I used to.
    2   I cry over every little thing
    3   I feel like crying, but I can't.

11. 0   I am no more restless or would up than
    1   usual.
    2   I feel more restless or would up than
    3   usual.
        I am so restless or agitated that it's hard to stay still.
        I am so restless or agitated that I have to keep moving or doing something.

12. 0   I have not lost interest in other people
    1   or activities.
    2   I am less interested in other people or
    3   things than before.
        I have lost most of my interest in other people or things.
        It's hard to get interested in anything.

13. 0   I make decisions about as well as ever.
    1   I find it more difficult to make
    2   decisions than usual.
    3   I have much greater difficulty in making decisions than I used to.
        I have trouble making any decision.

14. 0   I do not feel I am worthless.
    1   I don't consider myself as worthwhile
    2   as useful as I used to.
        I feel more worthless as compared to
    3   other people.
        I feel utterly worthless.

15. 0   I have as much energy as ever
    1   I have less energy than I used to have.
    2   I don't have enough energy to do very

3   I dislike myself.

3   much.
     I don't have enough energy to do
     anything.

8.   0   I don't criticize or blame myself more
          than usual.
     1   I am more critical of myself than I used
     2   to be.
     3   I criticize myself for all of my faults.
          I blame myself for everything bad that
          happens.

16. 0   I have not experienced any change in
          my sleep pattern.
     1a   I sleep somewhat more than usual.
     1b   I sleep somewhat less than usual.
     2a   I sleep a lot more than usual.
     2b   I sleep a lot less than usual.
     3a   I sleep most of the day.
     3b   I wake up 1-2 hours early and can't get
          back to sleep.

17. 0   I am no more irritable than usual.
     1   I am more irritable than usual.
     2   I am much more irritable than usual.
     3   I am irritable all the time.

20. 0   I am no more tired or fatigued than usual.
     1   I get more tired or fatigued more easily
     2   than usual.
          I am too tired or fatigued to do a lot of the
     3   things I used to do.
          I am too tired or fatigued to do most of
          the things I used to.

18. 0   My appetite is no worse than usual.
     1a   My appetite is somewhat less than
          usual.
     1b   My appetite is somewhat greater than
          usual.
     2a   My appetite is much less than before.
     2b   My appetite is much greater than
          usual.
     3a   I have no appetite at all.
     3b   I crave food all the time.

21. 0   I have not noticed any recent change in
     1   my interest in sex.
     2   I am less interested in sex than I used to
     3   be.
          I am much less interested in sex now.
          I have lost interest in sex completely.

19. 0   I can concentrate as well as ever.
     1   I can't concentrate as well as usual.
     2   It's hard to keep my mind on
          anything for very long.
     3   I find I can't concentrate on
          anything.

Appendix G
Quality of Life Enjoyment and Satisfaction Inventory – Short Form (Q-LES-Q-SF)

Q-LES-Q-SF GENERAL ACTIVITIES

Taking everything into consideration, during the past week how satisfied have you been with your ...

	Very Poor	Poor	Fair	Good	Very
... physical health?	1	2	3	4	5
... mood?	1	2	3	4	5
... work?	1	2	3	4	5
... household activities?	1	2	3	4	5
... social relationships?	1	2	3	4	5
... family relationships?	1	2	3	4	5
... leisure time activities?	1	2	3	4	5
... ability to function in daily life?	1	2	3	4	5
... sexual drive, interest and/or performance?*	1	2	3	4	5
... economic status?	1	2	3	4	5
... living/housing situation?*	1	2	3	4	5
... ability to get around physically without feeling dizzy or unsteady or falling?*	1	2	3	4	5
... your vision in terms of ability to do work or hobbies?*	1	2	3	4	5
... overall sense of well-being?	1	2	3	4	5
... medication?	1	2	3	4	5

(If not taking any, check here _____ and leave item blank)

How would you rate your overall life satisfaction and contentment during the past week?

1	2	3	4	5

Appendix H
SF-12 v2 Health and Well-Being (SF-12)

<u>For each of the following questions, please circle or X the best possible answer.</u>

1.)   In general, would you say your health is:

Excellent	**Very Good**	**Good**	**Fair**	**Poor**

2.)The following questions are about activities you might do during a typical day. Does <u>your health now limit you</u> in these activities? If so, how much?

	Yes, Limited A Lot	Yes, Limited A little	No, Not Limited At All
☐<u>Moderate activities</u>, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf . . .	.☐	☐	☐
☐Climbing <u>several</u> flights of stairs	☐	☐	☐

3.) During the <u>past 4 weeks</u>, how much of the time have you had any of the following problems with your work of other regular daily activities <u>as a result of your physical health</u>?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
☐<u>Accomplished less</u> then you would like	☐	☐	☐	☐	☐
☐Were limited in the <u>kind</u> of work or other activities	☐	☐	☐	☐	☐

4.) During the <u>past 4 weeks</u>, how much of the time have you had any of the following problems with your work or other regular daily activities <u>as a result of any emotional problems</u> (such as feeling depressed or anxious)?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
☐<u>Accomplished less</u> then you would like	☐	☐	☐	☐	☐
☐Were limited in the <u>kind</u> of work or other activities ☐		☐	☐	☐	☐

5.) During the <u>past 4 weeks</u>, how much did <u>pain</u> interfere with your normal work (including both work outside the home and housework)?

Not at all	**A little bit**	**Moderately**	**Quite a bit**	**Extremely**

6.) These questions are about how you feel and how things have been with you <u>during the past 4 weeks</u>. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the <u>past 4 weeks</u> . . .

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
☐**Have you felt calm and peaceful?. . . . .**☐		☐	☐	☐	☐
☐**Did you have a lot of energy? . . . .**☐		☐	☐	☐	☐
☐**Have you felt downhearted and depressed?** ☐		☐	☐	☐	☐

7.) 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.)?

All of the time	**Most of the time**	**Some of the time**	**A little of the time**	**None of the time**

Appendix I
Behavioral Activation for Depression Scale – Short Form (BADS-SF)

Behavioral Activation for Depression Scale – Short Form (BADS-SF)

Please read each statement carefully and then circle the number which best describes how much the statement was true for you DURING THE PAST WEEK, INCLUDING TODAY.

0 = Not at all 1 2 = A little 3 4 = A lot 5 6 = Completely	0	1	2	3	4	5	6
1. There were certain things I needed to do that I didn't do.	○	○	○	○	○	○	○
2. I am content with the amount and types of things I did.	○	○	○	○	○	○	○
3. I engaged in many different activities.	○	○	○	○	○	○	○
4. I made good decisions about what type of activities and/or situations I put myself in.	○	○	○	○	○	○	○
5. I was an active person and accomplished the goals I set out to do.	○	○	○	○	○	○	○
6. Most of what I did was to escape from or avoid something unpleasant.	○	○	○	○	○	○	○
7. I spent a long time thinking over and over about my problems.	○	○	○	○	○	○	○
8. I engaged in activities that would distract me from feeling bad.	○	○	○	○	○	○	○
9. I did things that were enjoyable.	○	○	○	○	○	○	○