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The impact of a transdiagnostic risk factor on willingness to seek treatment among Black students

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THE IMPACT OF A TRANSDIAGNOSTIC RISK FACTOR ON WILLINGNESS TO SEEK TREATMENT AMONG BLACK STUDENTS

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Abstract

Anxiety and depressive disorders are among the most commonly diagnosed psychiatric disorders, yet they remain under-treated in the U.S. Further, Black adults are significantly less likely that non-Hispanic White adults to seek or receive mental health services. Intolerance of uncertainty (IU), a risk factor for developing and maintaining anxiety and depressive symptoms, may be negatively related to the decision to seek treatment and sociocultural variables related to treatment-seeking behaviors may impact this relation. The decision to seek treatment is composed of several subcomponents, including readiness to change (RTC) and willingness to seek treatment. Thus, the current study examined the relations between IU, willingness, and RTC anxiety/depression problems and the moderational roles of key sociocultural variables (i.e., cultural mistrust [CM], medical mistrust [MM], perceived discrimination [PED]) in these relations among 161 Black undergraduates with anxiety/depression-related problems. Contrary to prediction, IU was significantly positively related to willingness and to RTC. The sociocultural variables were not significantly related to willingness or RTC. However, there was a significant IU X PED interaction such that IU was positively related to willingness among students with low PED but not high PED. Additionally, there were significant IU X CM and IU X PED interactions such that IU was positively related to RTC among students with high CM (not low CM), and low PED (not high PED). Results highlight the importance of considering the interplay between psychological vulnerability factors (in this case, IU) and sociocultural variables when striving to identify factors related to treatment seeking behaviors among anxious and/or depressed Black students.

Chapter 1: Introduction and Literature Review

Epidemiological data indicates that symptoms of anxiety and depression are becoming more prevalent among university students (Mackenzie et al., 2011). Data from the American College Health Association-National College Health Assessment (ACHA-NCHA) indicate that the percent of students who report significant interference from experiencing depressive/anxiety symptoms has risen from 14% in 2003 to 16% in 2008, with some groups (i.e., women) of students experiencing rates as high as 18% (ACHA-NCHA, 2005, 2009). Notably, anxiety and depressive symptoms are significantly related to academic impairment (e.g., less academic productivity, greater time missed from class, lower test performance; Edwards & Trimble, 1992; Heiligenstein, Guenther, Hsu, & Herman, 1996).

Although anxiety and depressive disorders are among the most prevalent psychiatric disorders, they remain under-treated in the United States (U.S.; Rice & Miller, 1998; Shelton, Davidson, Yonkers, & Koran, 1997). Less than 10% of individuals with anxiety disorders seek help from mental health professionals and only 21% of individuals with anxiety disorders accurately perceived the need for psychological treatment (Mojtabai, Olfson, & Mechanic, 2002). Additionally, less than 20% of individuals with major depressive disorder seek professional help and only one half of individuals with depressive disorders accurately perceived the need for treatment (Mojtabai et al., 2002). Further, the majority of individuals who do seek treatment for anxiety or depressive disorders usually do so after long delays, with average delays in treatment seeking ranging from seven to 20 years (Wang et al., 2005a). Given these rising rates of anxiety and depression among undergraduates and the associated academic impairment associated with anxiety and depression among undergraduates, it is important to identify risk

factors associated with treatment-seeking behaviors as such research can inform intervention and campus outreach efforts to decrease the occurrence of interfering depressive/anxious symptoms.

Black students experience rates of anxiety and depressive symptoms comparable to that of their White peers (Rosenthal & Schreiner, 2000). Yet, there is a paucity of research examining treatment-seeking behaviors of Black students with anxiety and depressive symptoms. This is problematic given that racial/ethnic disparities exist in treatment-seeking behaviors amongst adults with anxiety or depressive disorders. To illustrate, Black individuals are significantly less likely than non-Hispanic White individuals to seek or receive outpatient counseling/psychotherapy or psychopharmacological treatment for depressive or anxiety disorders (Alegría et al., 2008; Harris, Edlund, & Larson, 2005; Keyes et al., 2008; Lasser, Himmelstein, Woolhandler, McCormick, & Bor, 2002; Olfson & Klerman, 1992; Sussman, Robins, & Earls, 1987; Wang et al., 2005a; Wang et al., 2005b). Black persons are less likely than non-Hispanic White individuals to seek professional treatment for depressive symptoms (Sussman et al., 1987).

Black individuals are instead more likely to seek informal help from churches or close friends/family alone or in combination with professional help when experiencing distress (e.g., Neighbors, 1988). However, treatment seeking among members of the Black community may also be affected by the type of problems experienced, as Black individuals are more likely to seek treatment when they are experiencing emotional distress related to physical conditions than when they are experiencing emotional problems/distress alone (Neighbors & Jackson, 1984). Several factors may influence an individual's decision to seek treatment. One model of psychological treatment seeking among Black youth discusses the importance of examining

factors such as problem identification, process of seeking help (i.e., coercive versus voluntary process), and service selection (i.e., informal help, school counselors, and formal mental health services) when examining treatment seeking (Cauce et al., 2002). The model highlights the importance of examining several aspects of the decision to seek treatment (including service selection) among African American adults.

Despite the clear disparities in treatment utilization among the Black community, little research has examined the influence of sociocultural variables on treatment-seeking behaviors among Black students. The majority of the research on mechanisms underlying the help-seeking disparity discusses the effect of culturally influenced attitudes towards mental health treatment, including research on individual and network-induced mental health stigma, the role of informal help seeking, acculturation, and coping in isolation (Ayalon & Alvidrez, 2007; Blank, Mahmood, Fox, & Guterbock, 2002; Delphin & Rollock, 1995; Knifton et al., 2010; Lindsey et al., 2006; Lindsey & Marcell, 2012; Nadeem et al., 2007; Obasi & Leong, 2009), suggesting that culturally influenced attitudes towards mental health treatment are often barriers to seeking formal treatment among Black individuals. Additional factors such as cultural mistrust, medical mistrust, and perceived discrimination have also been associated with less treatment utilization in the Black community (Ayalon & Alvidrez, 2007; Casagrande, Gary, LaVeist, Gaskin, & Cooper, 2007; Whaley, 2001b).

However, no studies have examined the combined effect of cultural mistrust, medical mistrust, and perceived discrimination on key factors related to treatment seeking behaviors among Black students. Thus, the current study focused on cultural mistrust, medical mistrust, and perceived discrimination while controlling for ethnic identity (i.e., the degree to which an individual identifies with those whom they share a common cultural background, traditions,

behaviors, and beliefs; Chavez & Guido-DiBrito, 1999) given that ethnic identity is positively related to cultural mistrust, medical mistrust, and perceived discrimination (Branscombe, Schmitt, & Harvey, 1999; Phelps, Taylor, & Gerard, 2001; Shelton et al., 2010) and given that variation in cultural attitudes and beliefs exist within a racial/ethnic group, primarily due to varying levels of ethnic identification (Mossakowski, 2003). Further, ethnic identity is associated with lower service utilization among some ethnic/racial groups (e.g., Latino adults; Keyes et al., 2012). However findings from the few studies that have examined the impact of ethnic identity on help seeking among Black individuals indicate that ethnic identity is associated with less self-stigma associated with seeking psychological treatment among Black students (Cheng, Kwan, & Sevig, 2013) and greater rates of drug related treatment seeking among substance using Black individuals (Longshore, 1999). These findings suggest that there is a positive relation between ethnic identity and treatment seeking among Black individuals, and the current study sought to examine the impact of the key sociocultural variables above and beyond this factor.

It may be that anxiety- and depression-related risk factors work synergistically with these sociocultural factors to predict treatment-seeking behaviors. Specifically, experiencing greater levels of anxiety/depression-related vulnerability factors and the sociocultural variables may in turn negatively impact treatment-seeking behaviors among Black students. Understanding the relationship between culture-related factors and psychopathology is a vital future direction of the medical and clinical community. Theoretical perspectives such as the biopsychosocial model (i.e., a hierarchically arranged continuum that integrates systems of biology from the simplest elements to the most complex) indicate the need for considering the effects of cultural and subcultural factors on psychopathology and how these relationships may influence clinical practice (Engel, 1980). Given that reviews of the anxiety and depression literature indicate the

need for culturally influenced conceptualizations of psychopathology among Black adults (Hall, Bansal, & Lopez, 1999; Hunter & Schmidt, 2010; Ward & Mengesha, 2013), an important next step is to examine the interplay between transdiagnostic vulnerability factors and culture-specific factors that contribute to less willingness to seek anxiety/depressive treatment among Black adults.

Intolerance of Uncertainty

Intolerance of uncertainty is defined as a transdiagnostic risk factor for anxiety and depression in which individuals believe that uncertainty is stressful and upsetting and that ambiguous situations are negative and should be avoided (Buhr & Dugas, 2002). Individuals who are intolerant to uncertainty perceive ambiguous information as threatening, and high rates of IU can often lead to inaction or avoidance of ambiguous situations (Carleton, Norton, & Asmundson, 2007; Dugas, Freeston, & Ladouceur, 1997). IU was initially linked to the development and maintenance of worry and generalized anxiety disorder (Buhr & Dugas, 2006; Dugas, Buhr, & Ladouceur, 2004; Dugas et al., 1997; Dugas, Marchand, & Ladouceur, 2005; Dugas, Schwartz, & Francis, 2004). However, IU is related broadly to anxiety and depression (Boelen & Reijntjes, 2009; Carleton et al., 2014; Carleton et al., 2012; Holaway, Heimberg, & Coles, 2006; Tolin, Abramowitz, Brigidi, & Foa, 2003; Yook, Kim, Suh, & Lee, 2010). Additionally, IU is a malleable factor that affects the development and maintenance of anxiety and depression (Boswell, Thompson-Hollands, Farchione, & Barlow, 2013; Dugas & Ladouceur, 2000; Ladouceur, Gosselin, & Dugas, 2000; Mahoney & McEvoy, 2012). As such, IU may be an important factor to target as it may be influenced by learning coping skills in treatment and this intervention may lead to improved attitudes about psychotherapy among individuals who report negative opinions about treatment within the Black community.

The experience of IU was examined amongst several racial/ethnic groups to ascertain whether the groups performed similarly on the Intolerance of Uncertainty Scale (IUS; Norton, 2005). The scores on the IUS were similarly internally consistent across each of the measured groups (i.e., Black, White, Hispanic/Latino, and Southeast Asian). Further, the IUS was significantly correlated with measures of worry/generalized anxiety and the magnitude of these correlations were also consistent across groups. The factor structure of the IUS among the groups were noted such that the item responses of Black participants loaded onto a 5-factor structure, as was the case for White participants. However, the 5-factor solutions that emerged for Black participants differed greatly from White participants (with a mean Coefficient of Congruence between groups= .20) and there were several items that loaded on multiple factors as well as poor factor interpretability between the two groups. Taken together, these data suggest that IU is experienced by both Black and White individuals, but the way in which it is experienced may vary as a function of race.

It is plausible that Black individuals with higher IU may be more likely to avoid and less willing to seek psychological treatment as it may pose as an ambiguous situation (e.g., uncertainty regarding whether therapy will work for them, uncertainty whether White therapists will understand their point of view). Further, it may be that Black individuals with higher levels of IU are more likely to experience greater cultural and medical mistrust, as they may be wary of uncertain cultural/medical situations. Black individuals with higher levels of IU may also perceive more situations as discriminatory if they interpret ambiguous interactions with people of other races as threatening. Thus, it may be that Black individuals who report higher levels of IU and higher levels of cultural mistrust, medical mistrust, and/or perceived discrimination avoid seeking psychological treatment as treatment may pose as an uncertain situation where they

experience mistrust due to their beliefs about medical institutions, beliefs about the overall U.S. society, and/or perceiving a greater number of events as discriminatory. Yet no known studies have examined the relationship between IU and willingness to seek treatment among any racial groups. Indirect evidence supports this hypothesis. There is a positive association between IU and mistrust of medical professionals in a predominantly White sample with high health anxiety (Norr, Albanese, Oglesby, Allan, & Schmidt, 2015). Further, high rates of perceived discrimination and cultural mistrust are related to anxiety/depressive psychopathology (Bell & Tracey, 2006; Landrine & Klonoff, 1996), suggesting that IU may also be related to these sociocultural variables and may work synergistically with these variables to impact treatment-seeking behaviors.

Cultural Mistrust

Cultural mistrust is defined as the tendency to distrust White individuals and the majority group culture in the U.S. as a result of direct or vicarious exposure to racism or discrimination (Benkert, Peters, Clark, & Keves-Foster, 2006; Terrell & Terrell, 1981; Trachtenberg, Dugan, & Hall, 2005). Cultural mistrust, previously known as "healthy cultural paranoia" (i.e., a cultural response style resulting from experiences with racism from the majority group culture in the U.S.; Whaley, 2001a), is considered adaptive as Black individuals develop mistrust to defend against discriminatory treatment and oppression that is a result of institutionalized racism (i.e., differential access to the goods, services and opportunities of society by race; Jones, 2000) in the U.S. (Ashby, 1986). However, along with cultural mistrust comes several negative health behaviors. To illustrate, among Black individuals, high levels of cultural mistrust are correlated with less trust in one's healthcare provider (Benkert et al., 2006). Less trust in healthcare providers may then result in a decrease in willingness to seek treatment amongst Black

individuals. Further, greater levels of cultural mistrust are related to early termination of treatment relationships between Black patients and non-Black counselors, decreased help-seeking behaviors (e.g., contacting mental health clinics; Leong, Wagner, & Tata, 1995; Phelps et al., 2001), and greater negative views and expectations of White counselors (Grant-Thompson & Atkinson, 1997; Nickerson, Helms, & Terrell, 1994; Thompson, Worthington, & Atkinson, 1994). Specifically, within a sample of Black students, cultural mistrust is related to expectations that counseling services provided by White counselors are less relevant and impactful (Nickerson et al., 1994). It follows that as a result of these negative attitudes towards help-seeking behaviors, willingness to seek treatment may be negatively impacted.

Despite indirect evidence that cultural mistrust may impact treatment-seeking behavior, no known studies have directly examined the effect of cultural mistrust on willingness to seek psychological treatment among Black adults with elevated anxiety/depression. Yet, Black persons with elevated anxiety/depression may be especially likely to experience cultural mistrust. Both high and low levels of cultural mistrust were associated with lesser levels of psychological health and well-being, whereas positive personal well-being was related to moderate levels of cultural mistrust (Bell & Tracey, 2006). It therefore follows that Black individuals with greater anxiety/depression may also experience greater cultural mistrust and this mistrust may be related to less willingness to seek anxiety/depression treatment.

Medical Mistrust

Medical mistrust is defined as mistrust of the medical care system and health professionals that is often associated with underutilization of health services and less satisfaction with healthcare (Brandon, Isaac, & LaVeist, 2005; Hall, Dugan, Zheng, & Mishra, 2001; LaVeist, Nickerson, & Bowie, 2000). Individuals who endorse greater negative attitudes

towards the medical community are less likely to seek medical treatment and report less treatment adherence and satisfaction with medical treatment they do receive (Bogart, Bird, Walt, Delahanty, & Figler, 2004). Further, lack of trust in mental health provider, a component of medical mistrust, was identified as a key barrier to service utilization (Thompson, Bazile, & Akbar, 2004b). Additionally, rates of medical mistrust tend to be higher within the Black community than the wider U.S. population (Brandon et al., 2005; LaVeist et al., 2000; Sheppard, Mays, LaVeist, & Tercyak, 2013).

Little research has examined the relationship between medical mistrust and symptoms of anxiety or depression. HIV specific-medical mistrust (e.g., believing HIV is genocide against Black individuals) was linked to depressive symptoms (Bogart, Wagner, Galvan, & Banks, 2010). Further, medical mistrust was linked to greater levels of health anxiety (Fergus, 2014). Medical mistrust is theorized to be positively related to neuroticism (Hammond, 2010), a personality trait linked to worry, rumination, anxiety, and depression (Muris, Roelofs, Rassin, Franken, & Mayer, 2005). Yet currently there are no studies that have examined the direct relation between medical mistrust and anxiety/depressive symptoms and how this relation may impact willingness to seek psychological treatment among Black individuals.

Perceived Discrimination

Perceived racial discrimination is associated with several negative health behaviors within the Black community including number of days delayed, no-showing for appointments, never seeking attention for medical problems, and poor adherence to medical care (Casagrande et al., 2007). Perceived racial discrimination is significantly negatively related to trust in the medical community and predicts dissatisfaction with healthcare (Green, 1995; LaVeist et al., 2000). Greater anxiety and depressive symptoms are associated with greater levels of perceived

discrimination amongst Black adolescents (Phinney, Madden, & Santos, 1998). Relatedly, experiences of discrimination are related to greater anxiety psychopathology and psychological distress (Jackson et al., 1995; Landrine & Klonoff, 1996). Further, greater perceived discrimination is related to greater depressive symptoms, greater psychological distress, and less general well-being (Pascoe & Smart Richman, 2009). Taken together, these results suggest that a Black adult's perception of discrimination may also be related to greater anxiety/depressive symptoms and willingness to seek mental health services.

The Current Study

The current study attempts to contribute to the literature on willingness to seek psychological treatment among Black undergraduates with elevated anxiety or depressive symptoms in several ways. First, the current study is the first known examination of factors related to the following aspects of treatment seeking behaviors amongst Black undergraduates with pathologically elevated anxiety or depression: willingness to seek treatment and RTC. We hypothesized that IU and the sociocultural variables would be negatively related to willingness to seek treatment and to RTC (as measured by the University of Rhode Island Change Assessment-readiness to change index [URICA-RCI]; McConnaughy, Prochaska, & Velicer, 1983). Second, the study aimed to elucidate the relationship between IU and the sociocultural vulnerability factors (i.e., cultural mistrust, medical mistrust, perceived discrimination) to examine whether these relations work synergistically to influence willingness to seek treatment and RTC among Black students. We hypothesized that there would be a significant IU by sociocultural variable interaction such that students with higher levels of IU and higher levels of the sociocultural variables would report less willingness to seek psychological treatment and less RTC.

The study also had several secondary aims that would further understanding of the relations of sociocultural factors with anxiety- and depression-related factors. Specifically, the study attempts to extend prior work (Norr et al., 2015) by examining whether IU is related to medical mistrust, cultural mistrust, and perceived discrimination amongst Black individuals. We hypothesized that IU and the sociocultural variables would be positively related. Second, given that previous findings indicate that Black individuals are more likely than White individuals to seek informal help when experiencing psychological distress (McMiller & Weisz, 1996; Neighbors, 1988; Utsey, Adams, & Bolden, 2000), we examined whether IU and the sociocultural variables would be related to seeking informal help from a number of sources (e.g., pastor, friend). We hypothesized that IU and the sociocultural variables would be positively related to seeking informal help from family, given previous findings that indicate the importance of the family unit within the Black community in increasing help- and treatment-seeking behaviors among Black individuals in multiple areas of mental health, including depression (e.g., Breland-Noble, Bell, & Nicolas, 2006).

Third, we examined the relationship between IU and the sociocultural vulnerability factors (i.e., cultural mistrust, medical mistrust, perceived discrimination) and their combined influence on informal help seeking behaviors among Black students. We hypothesized that there would be a significant IU by sociocultural variable interaction such that higher levels of IU and higher levels of the sociocultural variables would be positively related to willingness to seek informal help, given previous findings that suggest that Black individuals who adhere to culturally relevant values are more likely to hold negative views about treatment seeking (Wallace & Constantine, 2005). We further hypothesize that the effects of the interaction terms for the willingness to seek informal help analyses would be greater than the effects of the

interaction terms for the willingness to seek formal help analyses. Fourth, we examined the extent to which IU is related to distress experienced as a result of the anxiety and/or depression related symptoms. We hypothesized that IU and anxiety and/or depression related symptoms would be positively related.

Chapter 2: Method

Participants

Participants were 161 (85.1% female) Black undergraduate students who reported experiencing problems related to their anxiety and depressive symptoms participating in a study of sociocultural variables related to treatment seeking behaviors among college students. The mean age of participants was 20.15 (*SD* = 2.71) and 9% of participants identified as multiracial. Participants were recruited from campuses throughout Baton Rouge (e.g., Louisiana State University, Baton Rouge Community College, Southern University) through advertisements (e.g., flyers, social media postings) and multicultural campus organizations (e.g., recruiting participants during Zeta Phi Beta health awareness meetings, emailing professors to forward the study information to students). Of the 161 participants in the current sample, 56.5% (n = 91) go to Louisiana State University, 19.3% (n = 31) go to Xavier University, 8.7% (n = 14) go to Tulane University, 7.5% (n = 12) go to Baton Rouge Community College, 5.6% (n = 9) go to Southeastern University, 2.9% (n = 3) go to the University of Louisiana at Lafayette, and 0.6% (n = 1) go to Southern University.

Of the 727 participants that began the survey, 1.7% (n = 13) were excluded due to not being between 18 years old and 45 years old, 2.3% (n = 17) were excluded due to not being an undergraduate student, 22.1% (n = 162) were excluded due to not identifying as Black/African American, 12.6% (n = 92) were excluded due to not experiencing problems related to their anxiety/depression, 5.4% (n = 40) were excluded due to currently receiving treatment for their anxiety and/or depression, 23.7% (n = 173) were excluded due to not being located in Southern Louisiana and/or attending a Southern Louisiana college/university, 9.4% (n = 69) were excluded due to not completing the full survey. Thus the final sample consisted of 161 participants with

73.9% of the sample reporting clinically elevated symptoms of anxiety and/or depression as measured by the Brief Symptom Inventory (Derogatis & Melisaratos, 1983).

Procedures

The survey was administered via www.qualtrics.com, a secure data collection website. At the beginning of the survey, interested participants completed screening questions to determine eligibility. Eligible participants completed study measures. Participants provided informed consent before beginning the self-report measures. Additionally, a Certificate of Confidentiality was obtained from the National Institute of Mental Health to further protect participants' confidentiality. LSU psychology students were compensated with research participation credit. All other participants received $10 compensation for their participation. Further, in order to avoid order effects that may negatively impact a student's answers on the dependent variables of interest (i.e., willingness to seek treatment, informal help, RTC), we adjusted the order of measures to assess the dependent variables at the beginning of the survey and the independent variables (i.e., IU, sociocultural variables) that we hypothesized would impact the dependent variables towards the middle and end of the survey. The order of measures that was utilized in the current study is presented below.

Measures

Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983). The BSI is a 53-item self-report questionnaire used to assess depression, anxiety, and general symptoms of distress in clinical and nonclinical samples. Participants rated the degree to which they have experienced symptoms (e.g., "Feelings of worthlessness") in the past week on a 0 (not at all) to 4 (extremely) scale. The Global Severity Index (GSI) is a composite score of the nine subscales that make up the BSI. The GSI and scores from the depression, anxiety, and somatization

subscales have shown to be reliable indicators of clinically elevated distress, depression, and anxiety (Skeem et al., 2006). An elevated score on the GSI or any of the aforementioned subscales is characterized by *T* scores ≥ 63 and reflect clinically significant symptom expression (Endermann, 2005). This cut-score was previously normed on a relatively large sample (32.8%) of Black adults ranging in age from 19 to 50 (Derogatis & Melisaratos, 1983). The BSI demonstrated good internal consistency and construct validity, convergent validity, and criterion validity amongst Black samples (Kaslow et al., 1998) and demonstrated good internal consistency in the current study (Depression subscale: α = .87; Anxiety subscale: α = .85; Somatization subscale: α = .82).

Willingness to schedule a CBT appointment (dichotomous variable). Participants were asked to indicate (yes or no) whether they are willing to schedule a CBT appointment with an outpatient clinic located on LSU's campus.

University of Rhode Island Change Assessment (McConnaughy et al., 1983). The URICA is a 32-item measure developed to evaluate an individual's readiness to change in therapy for a broad range of problems. Participants rated items (e.g., "It might be worthwhile to work on my problem") on a 1 (strongly disagree) to 5 (strongly agree) scale. The URICA was used in an anxiety-disorder population in which it demonstrated excellent reliability and was predictive of treatment retention and outcome (Dozois, Westra, Collins, Fung, & Garry, 2004). The URICA demonstrated internal consistency ranging from poor (α= .64) to good (α= .87) among Black adults (Edwards et al., 2006) and demonstrated acceptable internal consistency in the current study (α = .76). The measure identifies four stages of change readiness: precontemplation, contemplation, action, and maintenance stages. The URICA- readiness to change index (RCI) is calculated by adding the contemplation, action, and maintenance stage

scores and subtracting the precontemplation score. The URICA-RCI was used in prior work among Black samples (e.g., Breland-Noble, 2012) to indicate the degree of readiness to change depression related symptoms in outpatient therapy. The URICA-RCI was utilized in the current study.

Willingness to schedule a CBT appointment (continuous variable). Participants indicated on a 0 (not willing to schedule an appointment) to 10 (definitely willing to schedule an appointment) scale how willing they are to schedule a CBT appointment. This question was successfully utilized in prior research to assess treatment seeking willingness (Buckner & Schmidt, 2009).

General Help-Seeking Questionnaire (GHSQ; Wilson, Deane, Ciarrochi, & Rickwood, 2005). The GHSQ is an 11-item scale developed to evaluate an individual's likelihood of seeking help from a variety of sources. Participants were asked to indicate on a scale of 1 (extremely unlikely) to 7 (extremely likely) how likely they are to seek help informal help for their problems with anxiety and/or depression from a number of sources (e.g., parents, friends, pastor). The GHSQ demonstrated excellent internal consistency in a sample of 268 Black participants (Hedge, Sianko, & McDonell, 2016).

Cultural Mistrust Inventory (CMI; Terrell & Terrell, 1981). The CMI is a 48-item self-report questionnaire used to assess cultural mistrust among Black individuals. Participants rated items (e.g., "Whites are usually fair to all people regardless of race") on a scale of 1 (strongly disagree) to 7 (strongly agree). The CMI demonstrated good internal consistency, convergent validity, discriminant validity, and test-retest reliability among Black adults (Terrell & Terrell, 1981; Whaley, 2002) and demonstrated acceptable internal consistency in the current study ($\alpha = .79$).

Group-Based Medical Mistrust Scale (GBMMS; Thompson, Valdimarsdottir, Winkel, Jandorf, & Redd, 2004a). The GBMMS is a 12-item measure of mistrust for the medical community due to concerns about racial discrimination. Participants rated items (e.g., "Doctors have the best interests of people of my ethnic group in mind") on a scale of 1 (strongly disagree) to 5 (strongly agree). The GBMMS demonstrated good internal consistency and good convergent validity (Shelton et al., 2010; Thompson et al., 2004a) among Black adults, yet demonstrated poor internal consistency in the current study ($\alpha = .55$).

Perceived Ethnic Discrimination Questionnaire (PEDQ; Contrada et al., 2001). The PEDQ is a 22-item self-report measure used to assess perceived racism or ethnic discrimination. Each item begins with the statement "Because of my ethnicity…" and are followed by a phrase describing a form of ethnic discrimination (e.g., "…others implied I must be dangerous"). Participants rated how often each item occurred on a scale of 1 (*never*) to 7 (*very often*). The PEDQ demonstrated adequate internal consistency, good convergent validity, and good discriminant validity (Contrada et al., 2001) and demonstrated excellent internal consistency in the current study ($\alpha = .94$).

Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992). The MEIM is a 14-item measure developed to evaluate an individual's self-identity as a member of an ethnic group, sense of belonging to the group, and their attitudes towards their own group. Participants rated items ("I have a lot of pride in my ethnic group and its accomplishments") on a scale of 1 (strongly disagree) to 4 (strongly agree). The MEIM demonstrated good internal consistency among previous Black student samples (Phinney, 1992) and demonstrated excellent internal consistency in the current study ($\alpha = .90$).

Intolerance of Uncertainty Scale (IUS; English version: Buhr & Dugas, 2002; Original French version: Freeston, Rhéaume, Letarte, Dugas, & Ladouceur, 1994). The IUS is a 27-item self-report measure used to assess IU. Participants rated items (e.g., "Uncertainty makes me uneasy, anxious, or stressed") on a 1 (not at all characteristic of me) to 5 (entirely characteristic of me) scale. The IUS has demonstrated excellent internal consistency (α = .95), test-retest reliability, convergent validity, and discriminant validity (Buhr & Dugas, 2002; Norr et al., 2013). Additionally, the IUS demonstrated good internal consistency and good convergent validity among Black adults (Norton, 2005) and demonstrated excellent internal consistency in the current study (α = .94).

Data Analytic Strategy

First, we examined if demographic variables needed to be included in the regression analyses as covariates by conducting correlation analyses between age, estimated family income, ethnic identity, IU, the continuous measure of willingness to seek treatment, and URICA-RCI scores. As gender is a dichotomous variable (dummy coded: male = 0 and female = 1), an analysis of variance was used to determine if gender was differentially related to the continuous measures of willingness to seek treatment, IU, or URICA-RCI scores. Ethnic identity was positively related to RTC (Table 1) and gender was significantly related to the continuous item assessing willingness to seek treatment, $F(1, 159) = 12.82$, $p < .001$, $f^2 = .08$, such that women were more willing to seek treatment ($M = 4.55$, $SD = 3.15$) than men ($M = 2.13$, $SD = 2.46$).

Variables	1	2	3	4	5	6	7	8	9
1. Age									
2. Estimated family income	-.02								

3. Intolerance of Uncertainty	.02	-.00							
4. Ethnic Identity	-.00	-.06	.06						
5. Perceived Discrimination	.06	-.06	.24**	.10					
6. Medical Mistrust	.07	-.15	.21**	.10	.30**				
7. Cultural Mistrust	.07	-.04	.16*	.31**	.43**	.40**			
8. URICA-RCI	-.13	-.00	.32**	.27**	-.01	-.02	.08		
9. Willingness to Seek Treatment	.12	-.09	.30**	.03	-.03	.05	.00	.29**	
M (SD)	20.16 (2.71)	74484.20 (97959.78)	75.86 (21.71)	3.23 (0.53)	55.22 (23.53)	31.58 (5.14)	178.75 (36.79)	8.35 (1.64)	4.19 (3.17)

Table 1. Correlations among Study Variables

Note. URICA-RCI = University of Rhode Island Change Assessment-readiness to change index; *p < .05, **p < .01

As a result, ethnic identity was included as a covariate for the analyses where RTC was the dependent variable and gender was included as a covariate for the analyses where willingness to seek treatment was the dependent variable. Additionally, correlational analyses were conducted between scores on the CMI, GBMMS, and the PEDQ to assess for multicollinearity. To test the first hypothesis that IU was related to willingness to seek treatment, linear regression was conducted between IUS scores and the continuous measure of willingness to seek treatment scores and logistic regression analyses were conducted between IUS scores and the dichotomous measure of willingness to seek treatment.

To test the second hypothesis that the IU-willingness to seek treatment relation was moderated by the sociocultural variables, hierarchical linear regression analyses were conducted. As the sociocultural variables do not violate the multicollinearity assumption (Table 2), a single regression was conducted including all of the sociocultural vulnerability factors.

Table 2. Test of Collinearity, Skew, and Kurtosis for Moderational Analyses

Primary Moderational Analyses			
Independent variables	Tolerance	Skew	Kurtosis
IU	0.91	0.25	-0.07
MM	0.81	-0.14	0.48
PD	0.75	0.17	-0.66
CM	0.73	-0.29	.41
Dependent variable			
Willingness to seek treatment	-	0.09	-1.07
Secondary Moderational Analyses			
Independent variables	Tolerance	Skew	Kurtosis
IU	0.92	0.25	-0.07
MM	0.80	-0.14	0.48
PD	0.77	0.17	-0.66
CM	0.67	-0.29	.41
Dependent variable			
RTC	-	-0.25	0.95
Informal Help Moderational Analyses			
Independent variables	Tolerance	Skew	Kurtosis
IU	0.92	0.25	-0.07
MM	0.81	-0.14	0.48
PD	0.77	0.17	-0.66
CM	0.73	-0.29	.41
Dependent variables			
Informal help-friend	-	-0.23	-1.01
Informal help-parent	-	-0.21	-1.49
Informal help-family member	-	0.20	-1.05
Informal help-help line	-	0.77	-0.64
Informal help-general practitioner	-	-0.28	-1.24
Informal help-professor	-	0.36	-1.05
Informal help-pastor/priest	-	0.35	-1.21
Informal help-social worker	-	0.54	-1.07

Note. IU = Intolerance of Uncertainty; MM = Medical Mistrust; PD = Perceived Discrimination, CM = Cultural Mistrust; RTC = readiness to change.

The dependent variable was the continuous measure of willingness to seek treatment. Predictor variables were: Step 1: gender; Step 2: the main effects of each sociocultural factor and IU; and Step 3: the interaction of each sociocultural factor and IU. This strategy ensures that effects at Step 3 cannot be attributed to the variance shared with variables in Steps 1-2 (Cohen & Cohen,

1983). For all regression models, the total scores on the IUS, PEDQ, CMI, and GBMMS were centered to reduce multicollinearity and the nature of significant interactions were examined by graphing the regression lines by substituting high (1 SD above the sample mean) and lower (1 SD below the mean) scores on the centered IUS scores and the significant interactions were probed by testing whether each simple slope was significantly different from zero (Cohen & Cohen, 1983).

Given that hierarchical logistic analyses traditionally require at least 10 cases per independent variable (in the current study, n = 40 was required; Peduzzi, Concato, Kemper, Holford, & Feinstein, 1996), our small sample of those who reported being willing to seek treatment at the clinic (*n*= 18) was too small to test any hypotheses using the dichotomous outcome variable. As such, hierarchical logistic regression analyses were not conducted.

If the number of participants who reported being willing to seek treatment at the clinic on the dichotomous measure of willingness to seek treatment is sufficient to detect statistically significant log odds, we planned to conduct logistic regression analyses to determine if the IU-willingness to seek treatment (dichotomous variable) relation was moderated by the sociocultural variables.

To test the third hypothesis that the IU-RTC relation was moderated by the sociocultural variables, hierarchical linear regression analyses were conducted. The dependent variable was the URICA-RCI scores. Predictor variables were: Step 1: ethnic identity; Step 2: the main effects of each sociocultural factor and IU; and Step 3: the interaction of each sociocultural factor and IU. This strategy ensures that effects at Step 3 cannot be attributed to the variance shared with variables in Steps 1-2 (Cohen & Cohen, 1983).

To test the fourth hypothesis that IU is positively related to the sociocultural variables, correlation analyses were conducted between the total scores of the IUS, GBMMS, PEDQ, and CMI. To test the fifth hypothesis that the IU-informal help relation would be moderated by the sociocultural variables, a series of eight hierarchical linear regression analyses were conducted. The dependent variables were eight individual items from the GHSQ that examined eight sources of informal help (Wilson et al., 2005). In order to control for type one error inflation, we utilized the Bonferroni correction for the informal help analyses and adjusted the significance level to be p = .006 (Field, 2005). After utilizing the Bonferroni correction, there were no demographic variables significantly related to the sources of informal help (Tables 3 and 4) and the remaining moderational analyses did not include any covariates.

Table 3. Correlations between sources of informal help and demographic variables.

Predictor variable	Estimated family income	Age	Ethnic identity
1. Friend	.01	-.08	.17
2. Parent	.17	-.05	.02
3. Family member	-.06	-.04	.15
4. Help line	-.10	.10	.09
5. Doctor/General Practitioner	-.05	.04	.05
6. Professor	-.09	-.05	.08
7. Pastor/Priest	-.08	.08	.09
8. Social Worker	-.10	-.09	.17

Note. *p < .006.

Variable	Men	Women	*F*	*p*	*d*
	M (SD)				
1. Friend	3.92 (1.44)	4.21 (1.99)	0.48	.489	-0.17

2. Parent	4.63 (1.84)	4.16 (2.39)	0.82	.366	0.22
3. Family member	3.33 (1.61)	3.35 (1.92)	0.00	.967	-0.01
4. Help line	2.33 (1.61)	2.90 (2.01)	1.70	.194	-0.31
5. Doctor/General Practitioner	4.25 (2.11)	4.31 (2.13)	0.01	.905	-0.03
6. Professor	3.33 (1.71)	3.22 (1.98)	0.07	.790	0.06
7. Pastor/Priest	3.67 (2.14)	3.26 (2.08)	0.08	.382	0.19
8. Social Worker	2.63 (1.97)	3.07 (2.07)	0.94	.335	-0.22

Table 4. Sources of informal help by gender.

Note. *$p < .006$.

Predictor variables were: Step 1: the main effects of each sociocultural factor and IU and Step 2: the interaction of each sociocultural factor and IU. This strategy ensures that effects at Step 2 cannot be attributed to the variance shared with variables in Step 1 (Cohen & Cohen, 1983). To examine whether the effect of the interaction terms for the willingness to seek informal help analyses would be greater than the effect of the interaction terms for the willingness to seek formal help analyses, the standardized coefficients between the informal and formal help analyses were compared. To test the sixth hypothesis that IU would be positively associated with anxiety and depression symptoms, correlation analyses were conducted between the total scores of the IUS, BSI-anxiety subscale, BSI-depression subscale, and the BSI-somatization subscale.

Chapter 3: Results

Sample descriptives

As presented in Table 1, age and estimated family income were not significantly related to any of the independent variables.

Predictors of Willingness to Seek Treatment for Anxiety and/or Depression

Cultural mistrust (R^2 = .05, B = -.003, SE = .008, OR = 1.00, p = .689, 95% CI = [0.99, 1.01]), medical mistrust (R^2 = .05, B = .058, SE = .057, OR = 1.06, p = .305, 95% CI = [0.95, 1.19]), and perceived discrimination (R^2 = .05, B = .021, SE = .013, OR = 1.02, p = .121, 95% CI = [0.99, 1.05]) were not significantly related to the dichotomous measure of willingness to seek treatment. None of the sociocultural variables were significantly related to the continuous measure of willingness to seek treatment (Table 1). IU was significantly positively related to the continuous measure of willingness to seek treatment (Table 1) and to the dichotomous measure of willingness to seek treatment (R^2 = .05, B = -.028, SE = .012, OR = 0.97, p = .017, 95% CI = [0.95, 0.99]).

Moderational Analyses

Moderational analyses testing whether the sociocultural variables uniquely moderated the relation between IU and willingness to seek treatment were conducted utilizing one hierarchical linear regression analysis to examine whether the sociocultural variables moderated the relation between IU and willingness to seek treatment (Table 5).

Table 5. Interaction of IU and the sociocultural variables in the prediction of willingness to seek treatment.

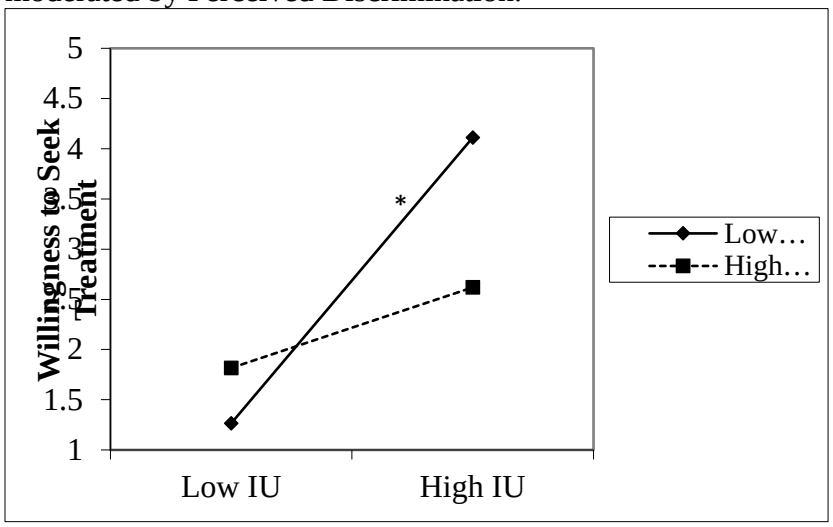
Predictor variable	ΔR^2	ΔF	f^2	β	t	p	sr^2
Step 1: Covariates	.075	12.82	0.08			<.001	
Gender				2.73	3.58	<.001	0.07
Step 2: Main Effects	.078	3.57	0.18			<.001	

Intolerance of Uncertainty				0.29	3.72	<.001	0.08	
Cultural Mistrust				-0.02	-0.19	.847	0.00	
Medical Mistrust				0.02	0.19	.848	0.00	
Perceived Discrimination				-0.07	-0.79	.429	0.00	
Step 3: Interaction Effect	.027	1.63	0.22			<.001		
IU X Cultural Mistrust				0.04	0.41	.683	0.00	
IU X Medical Mistrust				0.04	0.46	.645	0.00	
IU X Perceived Discrimination				-0.20	-2.08	.040	0.02	

Note. IU = Intolerance of Uncertainty. *p < .05.

Step 1 of the regression model accounted for 8% variance in the model. Step 2 of the regression model accounted for 15% of the variance in the model, contributing an additional 7% of the unique variance above and beyond the effect of the covariate. Within step 2 of the model, the main effects of the sociocultural variables were not significantly related to willingness to seek treatment and the main effect of IU was significantly positively related to willingness to seek treatment (Table 5). Step 3 of the regression model accounted for 18% of the variance in the model, contributing an additional 3% of the unique variance above and beyond the main effects. Within step 3 of the model, interactions between IU and medical mistrust and IU and cultural mistrust were not significant above and beyond the main effects (Table 5). The interaction between IU and perceived discrimination was significant above and beyond the effect of the interactions between IU and the other sociocultural variables. The form of the interaction (Figure 1) was examined by inserting ratings of IU (one standard deviation above and below the IU mean) and of perceived discrimination (one standard deviation above and below the perceived discrimination mean) for participants.

Figure 1. Relationship between Intolerance of Uncertainty and Willingness to Seek Treatment moderated by Perceived Discrimination.



Note. PEDQ = Perceived Ethnic Discrimination Questionnaire; IU = Intolerance of Uncertainty; *p = .040.

Among individuals with low perceived discrimination, the simple slope was significant, β = 0.10, p = .003, indicating that IU was positively related to the continuous item assessing willingness to seek treatment. Among individuals with high perceived discrimination, the simple slope was not significant, β = 0.03, p = .441.

Predictors of RTC Anxiety and/or Depression symptoms

Contrary to expectation, the sociocultural variables were not significantly related to RTC scores (Table 1). IU was significantly positively associated with RTC (Table 1).

Secondary Moderational Analyses

Moderational analyses testing whether the sociocultural variables uniquely moderated the relation between IU and RTC were conducted utilizing one hierarchical linear regression analysis (Table 6).

Table 6. Interaction of IU and the sociocultural variables in the prediction of readiness to change.

Predictor variable	ΔR^2	ΔF	f^2	β	t	p	sr^2
Step 1: Covariates	.075	12.82	0.08			<.001	

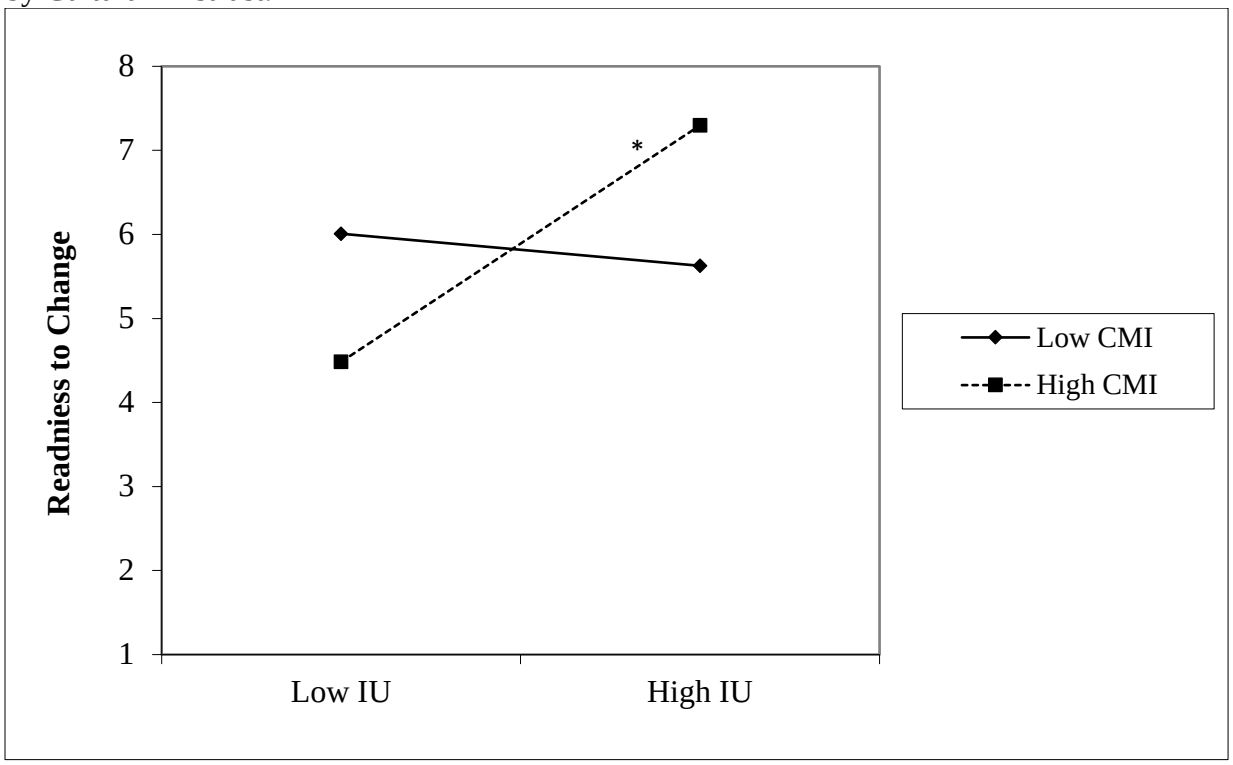
Ethnic identity				0.27	3.49	.001	0.07
Step 2: Main Effects	.109	5.16	0.22			<.001	
Intolerance of Uncertainty				0.34	4.46	<.001	0.11
Cultural Mistrust				0.02	0.24	.813	0.00
Medical Mistrust				-0.09	-1.07	.286	0.01
Perceived Discrimination				-0.10	-1.19	.235	0.01
Step 3: Interaction Effect	.040	2.60	0.29			<.001	
IU X Cultural Mistrust				0.20	2.16	.033	0.02
IU X Medical Mistrust				0.06	0.66	.511	0.00
IU X Perceived Discrimination				-0.23	-2.53	.012	0.03

Note. IU = Intolerance of Uncertainty. *p < .05.

Step 1 of the regression model significantly accounted for 8% of the variance in the model. Step 2 of the regression model significantly accounted for 18% of the variance in the model, contributing an additional 10% of the unique variance above and beyond the effect of the covariate. Within step 2 of the model, the main effects of the sociocultural variables were not significantly related to RTC and the main effect of IU was significantly positively related to RTC (Table 6). Step 3 of the regression model significantly accounted for 22% of the variance in the model, contributing an additional 4% of the unique variance above and beyond the main effects. Within step 3 of the model, the interaction between IU and medical mistrust was not significant above and beyond the main effects (Table 6). Interactions between IU and perceived discrimination and IU and cultural mistrust were significant above and beyond the effect of the interaction between IU and medical mistrust. The form of the interactions (Figures 2 and 3) were examined. Among individuals with high cultural mistrust, the simple slope was $\beta = 0.05$, $p = .051$, indicating that IU was positively related to RTC among those with higher cultural mistrust. However, when not controlling for ethnic identity, the simple slope was $\beta = 0.05$, $p = .016$,

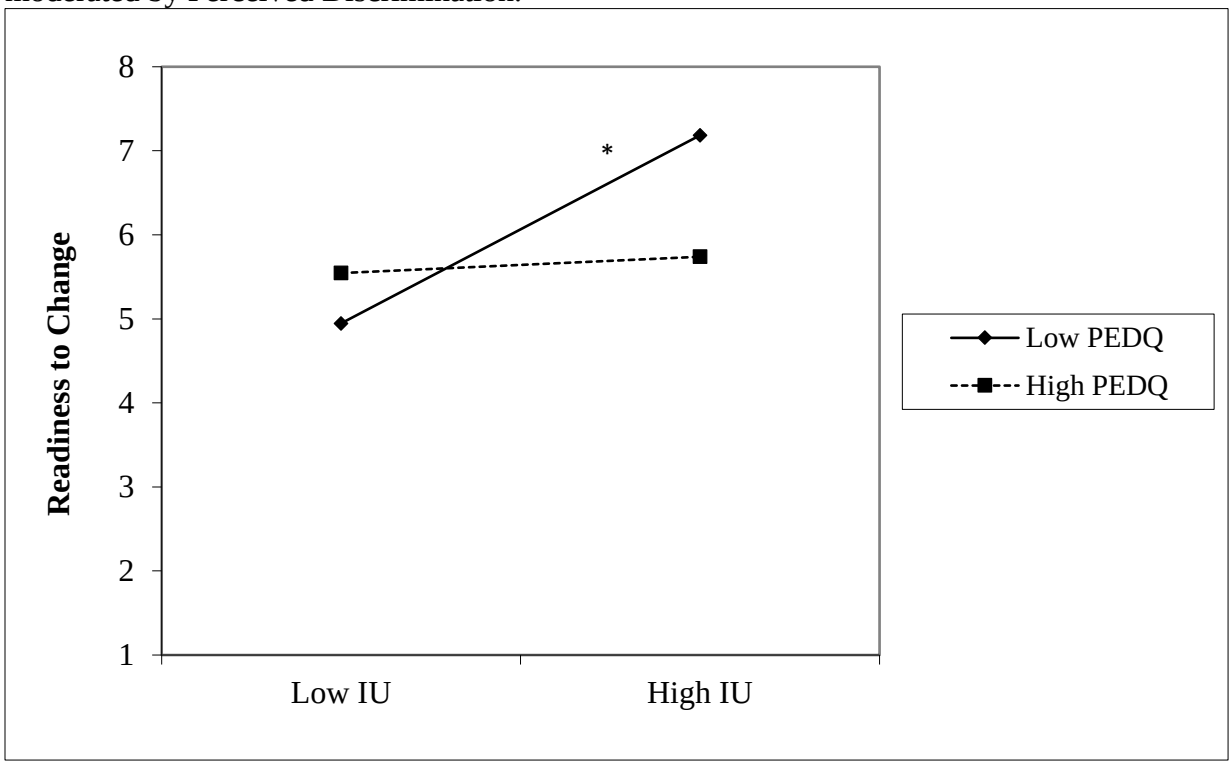
indicating that IU was significantly positively related to RTC among those with higher cultural mistrust. Among individuals with low cultural mistrust, the simple slope was not significant, $\beta = 0.01$, $p = .409$. Further, among individuals with low perceived discrimination, the simple slope was significant, $\beta = 0.05$, $p = .001$, indicating that IU was positively related to RTC. Among individuals with high perceived discrimination, the simple slope was not significant, $\beta = 0.02$, $p = .337$.

Figure 2. Relationship between Intolerance of Uncertainty and Readiness to Change moderated by Cultural Mistrust.



Note. CMI = Cultural Mistrust Inventory; IU = Intolerance of Uncertainty; *p = .033.

Figure 3. Relationship between Intolerance of Uncertainty and Willingness to Seek Treatment moderated by Perceived Discrimination.



Note. PEDQ = Perceived Ethnic Discrimination Questionnaire; IU = Intolerance of Uncertainty; *p = .012.

Predictors of Informal Help Seeking

Step 1 of the regression models for informal help-friend, (3% of the variance), informal help-parent (7% of the variance), informal help-family member (5% of the variance), informal help-help line (2% of the variance), informal help-general practitioner (1% of the variance), informal help-professor (3% of the variance), informal help-pastor (3% of the variance), and informal help-social worker (2% of the variance) did not account for significant variance in the models. Within step 1 of the regression where informal help-parent was the dependent variable, the main effect of the sociocultural variables were not significantly related to informal help-parent, but the main effect of IU was significantly negatively related to informal help-parent (Table 7).

Table 7. Interaction of IU and the sociocultural variables in the prediction of willingness to seek informal help.

Predictor variable	ΔR^2	ΔF	f^2	β	t	p	sr^2
Friend							
Step 1: Main Effects	.031	1.24	0.03			.298	
Intolerance of Uncertainty				-0.17	-2.06	.041	0.03
Cultural Mistrust				0.08	0.83	.407	0.00
Medical Mistrust				-0.02	-0.17	.867	0.00
Perceived Discrimination				0.00	0.01	.990	0.00
Step 2: Interaction Effect	.006	0.32	0.04			.561	
IU X Cultural Mistrust				-0.00	-0.04	.966	0.00
IU X Medical Mistrust				0.08	0.83	.409	0.00
IU X Perceived Discrimination				0.01	0.09	.929	0.00
Parent							
Step 1: Main Effects	.066	2.75	0.07			.030	
Intolerance of Uncertainty				-0.25	-3.07	.003	0.06
Cultural Mistrust				-0.07	-0.78	.439	0.00
Medical Mistrust				0.08	0.91	.363	0.01
Perceived Discrimination				-0.01	-0.06	.951	0.00
Step 2: Interaction Effect	.001	0.05	0.07			.150	
IU X Cultural Mistrust				-0.02	-0.20	.841	0.00
IU X Medical Mistrust				0.03	0.35	.727	0.00
IU X Perceived Discrimination				0.00	0.00	1.000	0.00
Family member							
Step 1: Main Effects	.047	1.92	0.05			.110	
Intolerance of Uncertainty				-0.20	-2.49	.014	0.04
Cultural Mistrust				-0.05	-0.53	.599	0.00
Medical Mistrust				-0.04	-0.50	.615	0.00

Perceived Discrimination				0.08	092	.358	0.01
Step 2: Interaction Effect	.005	0.26	0.05			.311	
IU X Cultural Mistrust				-0.04	-0.39	694	0.00
IU X Medical Mistrust				0.08	0.86	.391	0.00
IU X Perceived Discrimination				-0.00	-0.03	.973	0.00
Help line	ΔR^2	ΔF	f^2	β	t	p	sr^2
Step 1: Main Effects	.017	0.68	0.02			.605	
Intolerance of Uncertainty				-0.02	-0.25	.801	0.00
Cultural Mistrust				-0.09	-0.95	.342	0.01
Medical Mistrust				0.08	0.86	.393	0.00
Perceived Discrimination				0.12	1.28	.203	0.01
Step 2: Interaction Effect	.017	0.89	0.04			.615	
IU X Cultural Mistrust				0.00	0.01	.989	0.00
IU X Medical Mistrust				0.15	1.55	.124	0.00
IU X Perceived Discrimination				-0.04	-0.37	.710	0.02
Doctor/General Practitioner							
Step 1: Main Effects	.008	0.33	0.01			.856	
Intolerance of Uncertainty				-0.06	-0.72	.473	0.00
Cultural Mistrust				-0.06	-0.68	.498	0.00
Medical Mistrust				-0.00	-0.03	.976	0.00
Perceived Discrimination				0.01	0.07	.943	0.00
Step 2: Interaction Effect	.012	0.61	0.02			.868	
IU X Cultural Mistrust				-0.08	-0.75	.457	0.00
IU X Medical Mistrust				0.12	1.23	.220	0.01
IU X Perceived Discrimination				-0.03	-0.31	.757	0.00
Professor							
Step 1: Main Effects	.034	1.38	0.04			.243	

Intolerance of Uncertainty				-0.14	-1.73	.086	0.02
Cultural Mistrust				-0.12	-1.32	.189	0.01
Medical Mistrust				0.12	1.42	.159	0.01
Perceived Discrimination				0.03	0.31	.761	0.00
Step 2: Interaction Effect	.034	1.86	0.07			.139	
IU X Cultural Mistrust				-0.03	-0.33	.744	0.00
IU X Medical Mistrust				0.19	2.11	.037	0.03
IU X Perceived Discrimination				0.02	0.19	.846	0.00
Pastor/Priest	ΔR^2	ΔF	f^2	β	t	p	sr^2
Step 1: Main Effects	.033	1.31	0.03			.267	
Intolerance of Uncertainty				-0.15	1.88	.063	0.02
Cultural Mistrust				0.05	0.54	.593	0.00
Medical Mistrust				-0.08	-0.88	.380	0.00
Perceived Discrimination				-0.01	-0.12	.905	0.00
Step 2: Interaction Effect	.010	0.53	0.04			.455	
IU X Cultural Mistrust				-0.13	-1.24	.218	0.01
IU X Medical Mistrust				0.04	0.46	.649	0.00
IU X Perceived Discrimination				0.07	0.69	.494	0.00
Social Worker							
Step 1: Main Effects	.015	0.58	0.02			.678	
Intolerance of Uncertainty				-0.08	-0.91	.364	0.01
Cultural Mistrust				-0.06	-0.68	.496	0.00
Medical Mistrust				0.11	1.28	.203	0.01
Perceived Discrimination				0.02	0.19	.851	0.00
Step 2: Interaction Effect	.034	1.80	0.05			.360	
IU X Cultural Mistrust				-0.01	-0.11	.911	0.00
IU X Medical Mistrust				0.20	2.19	.030	0.03

IU X Perceived Discrimination	-0.03	-0.28	.779	0.00

Note. IU = Intolerance of Uncertainty; *p < .006.

The main effects of the sociocultural variables and IU did not account for significant variance in any of the other informal help models (Table 7). Step 2 of the regression models for informal help-friend (4% of the variance), informal help-parent (7% of the variance), informal help-family member (5% of the variance), informal help-help line (3% of the variance), informal help-general practitioner (2% of the variance), informal help-professor (7% of the variance), informal help-pastor (4% of the variance), and informal help-social worker (5% of the variance) did not account for significant variance in the model. Within step 2 of the models, the interactions of IU and the sociocultural variables were not significant in any of the informal help models (Table 7). Contrary to our hypothesis, none of the standardized coefficients of the interaction terms for the willingness to seek informal help analyses were greater than the standardized coefficients of the interaction terms for the willingness to seek formal help analyses (Table 7).

Final correlational analyses

To test the hypothesis that IU was positively related to the sociocultural variables, correlational analyses were conducted between the total scores of the IUS, GBMMS, PEDQ, and CMI. Consistent with prediction, IU was significantly positively related to medical mistrust, cultural mistrust, and perceived discrimination (Table 1). To test the hypothesis that IU was positively related to distress as measured by the BSI-anxiety, -depression, and -somatization subscales, correlation analyses were conducted. Consistent with prediction, IU was significantly

positively related to BSI-anxiety ($r = 0.54$, $p < .001$), -depression ($r = 0.61$, $p < .001$), and -somatization ($r = 0.43$, $p < .001$) subscale scores.

Chapter 4: Discussion

The current study is the first to examine the interplay between anxiety/depression related factors and sociocultural factors on treatment seeking behaviors among Black students. Findings provide several key insights. First, given that we observed novel findings that IU was positively related to willingness to seek treatment, it seems that IU is an important factor to examine when discussing treatment seeking behaviors among Black adults with elevated anxiety and/or depression. Second, the novel finding that IU was positively related to RTC suggests that Black students with higher levels of IU may experience higher levels of distress associated with their IU for which they may be ready to change and learn how to manage. Third, there was a significant IU X perceived discrimination interaction above and beyond the impact of the other sociocultural variables, suggesting that IU was positively related to willingness to seek treatment among individuals with low perceived discrimination. These findings are consistent with the literature highlighting the negative impacts of perceived discrimination on health outcomes (e.g., Casagrande et al., 2007; Jackson et al., 1995) given that IU was not related to higher levels of willingness to seek treatment among individuals with high perceived discrimination.

Fourth, the present study provides novel findings that cultural mistrust and perceived discrimination moderated the relation between IU and RTC differentially, suggesting that the impact of the sociocultural variables on the IU-RTC relation vary depending on the examined variable. Specifically, perceived discrimination uniquely moderated the IU-RTC relation such that IU was positively related to RTC among individuals with low perceived discrimination. Individuals who experience low levels of perceived discrimination may be more inclined to feel ready to seek formal help, possibly due to these individuals experiencing fewer concerns about experiencing discrimination in a therapeutic context.

On the other hand, the current study provides novel findings that cultural mistrust uniquely moderated the relation between IU and RTC such that IU was positively related to RTC among individuals with high cultural mistrust, suggesting that Black individuals with high cultural mistrust and high IU report that they are ready to change their anxiety and/or depression. This is consistent with previous work that assert that cultural mistrust is an adaptive factor that Black individuals develop to guard against the negative impact of instances of discrimination and institutionalized racism (Ashby, 1986). Although Black individuals with high cultural mistrust and high IU report being ready to change their anxiety and/or depression, the findings of the current study suggest that this does not translate into more willingness to seek formal help for their anxiety and depressive symptoms.

Fifth, the present study provides novel findings that IU was positively related to the sociocultural variables amongst Black students, extending previous work finding a positive association between IU and mistrust of medical professionals in a predominantly White sample with high health anxiety (Norr et al., 2015). The results suggest that individuals who are more intolerant of uncertainty also experience greater levels of medical mistrust, perceived discrimination, and greater levels of cultural mistrust, perhaps to guard against the negative effects of discrimination. Results of the current study suggest that individuals high in both IU and certain sociocultural variables (i.e., perceived discrimination) also tend to be less willing to seek formal treatment to ameliorate their distress above and beyond the effect of the other sociocultural variables. It is vital that researchers understand this high risk group and the mechanisms that influence their decision to seek treatment in order to reduce treatment seeking disparities within the Black community. Such research may provide further support for the importance and utility of motivational interventions to address the culture-specific barriers to

treatment among this high risk group in order to increase treatment seeking behaviors within the Black community. Sixth, the present study provides novel findings that IU was negatively related to seeking informal help from a parent (Table 7). Results do not support the hypothesis that as a Black individual is more intolerant of uncertainty, they also experience more willingness to seek informal help from a family member (i.e., parent).Further, contrary to our hypothesis, none of the effects (as measured by the standardized coefficients) of the interaction terms for the willingness to seek informal help analyses were greater than the effects of the interaction terms for the willingness to seek formal help analyses.

This is the first known study to test the impact of sociocultural variables and a transdiagnostic risk factor that plays etiological and maintaining roles in anxiety and depressive disorders (Buhr & Dugas, 2002) on factors related to motivation to seek treatment. The findings of the current study have important intervention implications. Mental health professionals may consider actively advertising in areas known to be densely populated by Black students (e.g., Historically Black Colleges/Universities). Increasing awareness of services among Black students is an important first step towards increasing service utilization within this group. Further, given that only 11% of the sample reported being willing to have a therapist contact them and only 2.4% of the sample ultimately sought formal treatment, community outreach programs are sorely needed to highlight formal treatment as an available option for Black students who are experiencing anxiety and/or depression. Additionally, factors such as perceived discrimination, cultural mistrust, and general symptom severity could be noted at the beginning of treatment to inform whether significant periods of session time should be spent discussing motivation to continue attending therapy. Further, future work is warranted to examine the impact of interventions designed to increase motivation to seek formal help among individuals

with both elevated IU and elevated perceived discrimination or low cultural mistrust. Programs such as brief motivational interventions (BMI) or brief cognitive behavioral therapy (CBT) can address the culture-specific barriers to treatment and improve treatment engagement and treatment seeking within the Black community (Breland-Noble, 2012).

The present study should be considered in light of limitations that suggest future directions for work in this area. First, the cross-sectional nature of the data hinders our ability to determine causal relations and prospective work will be an important next step. Second, data were collected via self-report and future studies may benefit from experimental designs. Given that the current study targeted the treatment seeking behaviors of Black students, future work is necessary to determine whether findings generalize to a broader sample of treatment seeking Black adults. Fourth, findings of the current study identified poor internal consistency among the GBMMS items, which assesses medical mistrust, within the current Black student sample. There may have been several reasons that contributed to the inconsistency of responses—students in the current sample were considerably younger and had higher estimated family incomes than Black individuals in the original sample used to validate the GBMMS (Thompson et al., 2004a). As such, it is possible that there are within group cultural differences influenced by socioeconomic status in the perception of medical mistrust among Black adults. Further it may be that college students are less consistent in their reports of medical mistrust as most college students may not have first-hand experiences of discrimination in a medical context given that the majority of students do not require extensive medical care. Future research examining the most psychometrically sound way to measure this construct among Black students is a vital future direction.

Results highlight the importance of considering sociocultural factors and psychosocial vulnerability factors (e.g., IU) when striving to understand factors related to treatment seeking behaviors among anxious and/or depressed Black students. The current study adds to a growing body of research that examines the impact of culture-specific variables and vulnerability factors (e.g., IU) that have been shown to influence health seeking behaviors among Black adults (e.g., Ayalon & Alvidrez, 2007; Lindsey & Marcell, 2012).

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Appendix

ACTION ON PROTOCOL APPROVAL REQUEST

Institutional Review
Board Dr. Dennis
Landin, Chair 130 David
Boyd Hall Baton Rouge,
LA 70803 P:
225.578.8692
F: 225.578.5983
irb@lsu.edu | lsu.edu/irb

TO: Julia Buckner Psychology

FROM: Dennis Landin
Chair, Institutional Review Board

DATE: January 26, 2016

RE: IRB# 3680

TITLE: The Impact of Transdiagnostic Risk Factor on Willingness to Seek Treatment among Black Students

New Protocol/Modification/Continuation: New Protocol_

Review type: Full Expedited X **Review date:** 1/19/2016

Risk Factor: Minimal X Uncertain Greater Than Minimal_

Approved X **Disapproved**

Approval Date: 1/26/2016 **Approval Expiration Date:** 1/25/2017

Re-review frequency: (annual unless otherwise stated)

Number of subjects approved: 169

LSU Proposal Number (if applicable)**:**

Protocol Matches Scope of Work in Grant proposal: (if applicable)

By: Dennis Landin, Chairman

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –
Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. **SPECIAL NOTE: When emailing more than one recipient, make sure you use bcc.**

**All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb*

Consent Form

Study Title:	The Impact of a Transdiagnostic Risk Factor on Willingness to Seek Treatment among Black Students.
Performance Site:	Data will be collected using a secure online data collection program. Management of this study will occur in the Department of Psychology (Audubon Hall Rooms 105, 106, and 110) of Louisiana State University.
Investigators:	Julia D. Buckner, Ph.D., the principal investigator, can be reached at 225-578-4096 Monday-Friday between 9:00 AM and 5:00 PM or at jbuckner@lsu.edu. Kimberlye E. Dean is the co-investigator and can be reached at 225-578-5778 Monday-Friday between 9:00 AM and 5:00 PM or at kdean16@lsu.edu.
Purpose of the Study:	Investigate whether treatment seeking behaviors are impacted by sociocultural and anxiety/depression specific factors among Black undergraduates with elevated anxiety/depressive symptoms.
Participants Inclusion Criteria:	Participants must be African American/Black, undergraduate students between 18-45 years old, not currently in treatment for anxiety/depressive symptoms, currently located in South Louisiana and attending either LSU or a college/university in South Louisiana (i.e., Baton Rouge Community College, Southern University, Delgado Community College, Xavier University, University of New Orleans, Southeastern University, Tulane University, University of Louisiana at Lafayette, and McNesse State University), and experience elevated anxiety and/or depression.
Number of Subjects:	We plan to enroll up to 169 participants.
Study Procedures:	Participants will be asked to complete self-report measures of anxiety, mood, sociocultural factors (e.g., perceived discrimination), and willingness to seek treatment via a secure online data collection program, qualtrics.com. This survey should take up to 60 minutes to complete. If the participant is interested in receiving treatment, participants will be asked to provide their name and contact information and a therapist from our clinic (the LSU Psychological Services Center) will contact the participant.
Benefits:	You may derive benefit from participating in the self-assessment, as participation may increase your awareness of your thoughts, feelings, and behaviors. You may also gain a better understanding of research methodology. In addition, you will be providing researchers with valuable insight that may be used to help others in the future.
Risks/Discomforts:	This study is not known to cause any risk. Some participants may be uncomfortable reporting about their personal thoughts, feelings, and beliefs. Referrals to mental health services will be provided upon survey completion. Confidentiality is protected through the use of secure online service, which is password-protected so that only laboratory personnel can access responses.
Right to Refuse:	Participation in this study is completely voluntary, and you may withdraw from the study at any time without prejudicing your future relations with LSU.

Privacy:	This study is confidential. The LSU Institutional Review Board (which oversees university research with human subjects) may inspect and/or copy the study records. However, your name or other identifying information will not appear on these records. Results of the study may be published, but no names or identifying information will be included in this publication. All personal information obtained in this study will be kept confidential unless legally compelled. Participant's name and contact information obtained in this study will be stored separately from your responses to further protect confidentiality.
Financial Information:	LSU psychology undergraduates will be recruited via LSU psychology department's online survey sign-up system. These students will be compensated with research participation credit. Additional participants will be recruited from the greater LSU undergraduate community and colleges/universities in South Louisiana. Up to 85 participants will be compensated $10 for completion of the survey.
Withdrawal:	Participation in this study is voluntary and you may withdraw from the study at any time without prejudicing your future relations with Louisiana State University.
Alternatives:	If you do not wish to participant in the present study but wish to seek psychological treatment for emotional or psychological problems, we will provide a list of referrals of treatment programs offered at Louisiana State University, but we cannot attest to their efficacy.
Unforeseeable Risks	As with any study, confidentiality is a concern; however, confidentiality risk is unlikely given the steps we have taken to ensure that participant identifying information is kept confidential. This study is confidential. Data will be collected using a secure online service and password-protected access for study personnel.
Certificate of Confidentiality:	To help us protect your privacy, we have obtained a Certificate of Confidentiality from the National Institutes of Health. The researchers can use this Certificate to legally refuse to disclose information that may identify you in any federal, state, or local civil, criminal, administrative, legislative, or other proceedings, for example, if there is a court subpoena. The researchers will use the Certificate to resist any demands for information that would identify you, except as explained below. The Certificate cannot be used to resist a demand for information from personnel of the United States Government that is used for auditing or evaluation of federally funded projects or for information that must be disclosed in order to meet the requirements of the federal Food and Drug Administration (FDA). You should understand that a Certificate of Confidentiality does not prevent you or a member of your family from voluntarily releasing information about yourself or your involvement in this research. If an insurer, employer, or other person obtains your written consent to receive research information, then the researchers may not use the Certificate to withhold that information.
New Findings:	Any new and relevant findings in regards to this study that may influence

your willingness to continue this study will be made known to you.

I may direct additional questions regarding study specifics to the investigators. If I have questions about subjects' rights or other concerns, I can contact Dennis Landin, Institutional Review Board, (225) 578 - 8692, irb@lsu.edu, www.lsu.edu/irb. I agree to participate in the study described above.

I consent: ____

I do not consent: ____

Vita

Kimberlye Dean, a native of Lithonia, Georgia, received her Bachelor's of Science from the University of Georgia. She was accepted into the LSU Clinical Psychology doctoral program in the Fall 2014. She will continue to research anxiety and sociocultural factors upon receiving her Master's Degree in Psychology in May 2017.