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Disparities in Psychosocial Functioning in a Diverse Sample of Adults with Anxiety Disorders

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Abstract

Anxiety disorders are associated with psychosocial functional impairments, but no study has compared how these impairments might vary by ethno-racial status. We examined whether minority status was uniquely associated with functional impairments in 431 adults with anxiety disorders. Functioning was measured in the rater-assessed domains of: global assessment of functioning (GAF); global psychosocial functioning; work, relationship, and recreational functioning; and, self-reported: life satisfaction, mental health functioning, physical functioning, and disability status. After controlling for demographic and clinical variables, results revealed evidence of disparities, whereby African Americans (AAs), particularly those with low income, had worse GAF, worse global psychosocial functioning, and were more likely to be disabled compared to non-Latino Whites. Latinos, particularly those with low income, had worse global psychosocial functioning than non-Latino Whites. Results suggest AAs and Latinos are at increased risk for functional impairments not better accounted for by other demographic or clinical variables.

Keywords

Anxiety Disorders; Psychosocial Functioning; Minorities; Risk Factors

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1. Introduction

Anxiety disorders are the most common class of psychiatric disorders, with over 28% of the population meeting criteria for an anxiety disorder at some point in their lifetime (Kessler, Chiu, Demler, Merikangas, & Walters, 2005). Undoubtedly, the manifestation of anxiety symptoms and correlates of their severity have important implications for treatment decision-making. Additionally, anxiety's relationship to psychosocial impairments in functioning and correlates thereof are important to clinicians and patients alike, particularly because data show that impairments persist even when symptoms reduce (Stout, Dolan, Dyck, Eisen, & Keller, 2001).

In this study, we define psychosocial functional impairments as reductions in mental functioning, ability to work, to complete activities of daily living (e.g., housework, recreational activities), or to have satisfying relationships at one's expected level. It is well established that functional impairments are associated with anxiety disorders (e.g., (Beard, Weisberg, & Keller, 2010; Olatunji, Cisler, & Tolin, 2007; Sherbourne, Wells, Meredith, Jackson, & Camp, 1996)). This has been shown in studies focused on single disorders (e.g., Generalized Anxiety Disorders (GAD) (Weisberg et al., 2010); Social Anxiety Disorder (SAD) (Eng, Coles, Heimberg, & Safren, 2001)) as well as studies of individuals with multiple disorders. Examination of psychosocial functioning in individuals with comorbid conditions is particularly relevant to clinicians given the high rates of anxiety and mood disorder comorbidity (Brown, Campbell, Lehman, Grisham, & Mancill, 2001; Goisman, Goldenberg, Vasile, & Keller, 1995; Kessler et al., 1996; Rodriguez et al., 2004). Comorbidity is important to functioning and should be taken into account in any study focusing on potential correlates of functioning. There is limited research comparing functioning across adults with multiple anxiety disorders. However, in a study of 539 primary care patients with anxiety disorders, although all anxiety disorders had impacts on specific domains of health-related quality of life, only Posttraumatic Stress Disorder (PTSD) and Major Depressive Disorder (MDD) uniquely predicted worse functioning on all self-reported and interviewer-administered measures of functioning, suggesting PTSD and MDD might be most likely to exert negative effects on outcomes relative to other disorders (Beard et al., 2010).

1.1 Ethno-racial findings in mental health disparities

Relevant to understanding the role of ethno-racial diversity in mental health is the growing literature that examines how mental health disparities (MHDs) differentially impact ethno-racial minorities compared to non-Latino Whites (Whites). The Institute of Medicine defines ethnicity/race-related health disparities as, "Racial or ethnic differences in the quality of healthcare that are not due to access-related factors or clinical needs, preferences, and appropriateness of intervention," (IOM, 2002). A number of similar definitions have since expanded on the IOM's definition, including those by the U.S. Department of Health and Human Services and the Agency for Healthcare Research & Quality, focusing on differences in health outcomes across ethno-racial groups not better accounted for by other factors. In this study, we use a similar definition, in which we conceptualize one facet of MHDs as the persistence of functional impairments associated with ethno-racial status, after controlling

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for demographic and clinical covariates. These disparities could be based on individual preference or in the quality of healthcare or healthcare providers.

Despite the field's knowledge of functional impairments secondary to anxiety and mood psychopathology, very little research has been devoted to understanding how these impairments might vary according to ethno-racial status, particularly in comparing Whites to ethno-racial minorities or comparing one minority group to another minority group. This is of particular public health significance given that currently African Americans (AAs) and Latinos each comprise approximately 13% of the population, and by 2030, it is projected that approximately 35% of the U.S. population will be of these backgrounds (20% Latino and 15% AA; (Census, Online)). Findings from the National Comorbidity Survey-Replication (NCS-R) on the English-speaking U.S. population have estimated the lifetime prevalence of anxiety disorders to be approximately 25% in Latinos, 24% in AAs, and 29% in Whites (Breslau, Kendler, Su, Gaxiola-Aguilar, & Kessler, 2005), suggesting that similarly large proportions of English-speaking minorities are at risk for anxiety psychopathology compared to Whites. In the National Survey of American Life (NSAL; (Jackson et al., 2004)), which was a large epidemiologic study designed to be comparable to the NCS-R but with increased attention to ethno-racial minority populations, results indicated that the prevalence of GAD, SAD, and Panic Disorder (PD) was similar in AAs compared to Whites, but PTSD was more prevalent in AAs (Himle, Baser, Taylor, Campbell, & Jackson, 2009). Non-English speakers were not included in the NSAL. Another large epidemiological study of health outcomes in diverse groups was the National Latino and Asian American Study (NLAAS; (Alegria et al., 2004)). This study included monolingual Spanish-speaking Latinos; results generally indicated that non-English speaking Latinos had better mental health (Alegria, Shrout, et al., 2007). In sum, these data suggest that anxiety disorders are equally prevalent across ethno-racial groups, with some variability among Latinos depending on acculturation to the U.S. Thus, MHD findings that show worse outcomes in minorities are particularly alarming because they raise the question: Why are psychiatric outcomes worse in minorities if these disorders are similarly common across groups?

In the MHD literature, AAs have been found to have poorer health and health outcomes than Whites (Williams, 2005). Further, although AAs and Latinos report similar risk of having a psychiatric disorder, those who become ill report retrospectively more chronic disorders (Breslau et al., 2006). This suggests that there might be underlying factors that put certain ethno-racial groups, particularly underserved minorities, at increased risk for negative health outcomes. We believe consideration of MHDs is also pertinent to the study of functional impairments, as ethno-racial status might be a significant correlate of impairment not attributable to clinical diagnosis or other demographic variables, such as age, income, or education level.

However, only three studies have compared functioning in adults with anxiety disorders across ethno-racial groups. Archival data from Vietnam veterans, who met self-reported criteria for PTSD, showed that AAs had increased marital discord and lower subjective well-being compared to Whites, whereas no significant functioning differences were found in Latinos vs. Whites (Ortega & Rosenheck, 2000). However, upon closer examination of a

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subset of data from this sample consisting of 260 individuals assessed for PTSD using *DSM-III-R* structured diagnostic interviews (SCID), Lewis-Fernández et al. (Lewis-Fernandez et al., 2008) found no consistent pattern of functional differences across ethno-racial groups and that clinician-rated functioning showed minimal variability across groups. Despite decreased anxiety disorder prevalence found in the NSAL's minority cohorts compared to Whites, data indicated that AAs had greater impairment in functioning as measured by illness severity and disability (Himle et al., 2009). Although suggestive of disparities in functioning, the data are mixed and clearly more research is needed to better understand how functioning might differ according to ethno-racial status. Moreover, very few studies compared AAs to Latinos, suggesting a need for further research to determine if there are ethnic/racial differences among minorities.

1.2 Rationale for the present study

This study aimed to examine correlates of psychosocial functional impairment in AAs, Latinos, and Whites, as measured by self-report, rater-assessment, and disability status. We examined the unique variance accounted for by demographic variables, such as ethno-racial status, and clinical variables, including the unique impact of clinical diagnoses in a sample in which >80% of participants had >1 Axis I disorder. We compared each minority group to Whites in separate models and also compared both minority groups to each other. We hypothesized that among the clinical diagnoses examined, PTSD and MDD would be the most likely to be predictive of psychosocial functional impairments. We also hypothesized that AAs and Latinos, relative to Whites, would be at increased risk of functional impairments not better accounted for by other demographic or clinical variables. Given the paucity of research comparing AAs to Latinos, we explored functional differences, with no directional hypotheses, to determine if the minority subgroups would show unique vulnerabilities.

2. Methods

2.1 Participants

This study used cross-sectional data from participants in the Harvard/Brown Anxiety Research Project-Phase II (HARP-II), the first prospective, observational, longitudinal study to describe the characteristics and course of anxiety disorders in AA, Latino, and White individuals. HARP-II inclusion criteria were a current diagnosis of at least one or more of the following anxiety disorders: Panic Disorder without a history of Agoraphobia (PD), Panic Disorder with Agoraphobia (PDA), Agoraphobia without a history of Panic Disorder (AWOPD), SAD, PTSD, or GAD. Obsessive-Compulsive Disorder and Specific Phobia were not eligibility diagnoses. Presence of MDD was not an eligibility criterion but was a diagnosed comorbid condition in over 40% of the sample. Participants were at least 18 years of age at intake, English speaking, and willing to complete informed consent for participation. Exclusion criteria were the presence of an organic brain syndrome, a history of schizophrenia, or current psychosis. The study protocol was approved by the study site's institutional review board. HARP methods are described in detail elsewhere (Weisberg, Beard, Dyck, & Keller, 2012). As HARP-II data collection is ongoing, analyses were limited to baseline data from 431 individuals.

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2.2 Procedures

Following a telephonic screen for eligibility criteria, an initial intake interview was conducted. Diagnostic status and eligibility at intake were assessed with the Structured Clinical Interview for DSM-IV Axis I Disorders-Non-Patient Version (SCID-IV-NP; (First, Spitzer, Gibbon, & Williams, 1996)). The SCID B/C screening module was also used to screen out patients with psychosis. Interviews were conducted by highly trained bachelor's- and master's-level clinical interviewers with a high degree of reliability (α>0.80).

2.3 Measures

2.3.1 Demographics Questionnaire—The demographics questionnaire probed for participants' self-reported ethnicity and race, as well as work/disability status, income, highest education level, relationship status, and other demographic variables. Disability status was defined as meeting federal government guidelines for disability, which included receiving some form of governmental assistance.

2.3.2 Longitudinal Interval Follow-Up Evaluation (LIFE; (Keller et al., 1987))—The LIFE is an interviewer-administered assessment that collects detailed information on disorder symptoms, psychosocial functioning, and treatment status. The interviewer uses the LIFE to rate participants' psychosocial functioning in several domains including employment, housework, and student work; interpersonal relationships with spouse, children, parents, siblings, and friends; and recreation. Using this information, the interviewer rates the individual's current level of global psychosocial functioning, taking into consideration everything the interviewer knows about the individual's education, social background, and level of functioning in the areas of work, self-satisfaction, interpersonal relations, and gender. At baseline, ratings of these psychosocial functioning domains are made for the month prior to the intake interview, using a 5-point rating scale. A rating of 1 indicates "very good or high functioning with no impairment." A rating of 2 indicates "good or satisfactory functioning with no impairment." Ratings of 3–5 indicate "fair functioning with mild impairment," "poor functioning with moderate impairment," and "very poor functioning with severe impairment," respectively. Additionally, the LIFE guides interviewers in rating participants' overall mental health and functioning using the Global Assessment of Functioning (GAF) scale. Interrater reliability and long-term test-retest reliability for the LIFE showed good reliability for the psychosocial functioning and GAF ratings with interclass correlation coefficients ranging from 0.58 to 0.91 for overall agreement across the LIFE psychosocial functioning scales (Keller et al., 1987; Warshaw, Keller, & Stout, 1994). Finally, participants are asked to provide self-assessed overall life satisfaction.

2.3.3 The Medical Outcomes Study 36-Item Short-Form Health Survey (MOS SF-36 (Ware & Kosinski, 2001))—The MOS SF-36 is a widely used self-report measure of health-related quality of life and functioning. The 36-item measure yields a separate Physical Component Score (PCS) and Mental Component Score (MCS). The PCS is a composite of the following SF-36 scales: physical functioning, bodily pain, role limitations due to physical health problems, and general health. The MCS is a composite of role limitations due to personal or emotional problems, social functioning, vitality (energy/

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fatigue), and general mental health. Possible scores on the PCS and MCS range from 0 to 100, with higher scores indicating better functioning. The SF-36 also has 8 subscale scores, but to simplify analyses and minimize our number of correlates, we focused on these two summary scores (labeled hereafter as self-reported mental health and physical functioning). The SF-36 has demonstrated excellent internal consistency, construct validity, and acceptable psychometric properties in diverse samples (McHorney, Ware, Lu, & Sherbourne, 1994; McHorney, Ware, & Raczek, 1993). In our sample, Chronbach's alpha for the SF-36 was: 0.11 for AAs, 0.25 for Latinos, and 0.29 for Whites.

2.3.4 Treatment—Information regarding psychopharmacological and outpatient psychotherapy treatment was collected based on self-report from participants at baseline. For this study, psychiatric medication usage was defined broadly as taking any psychiatric medication at baseline. Psychotherapy was defined as any outpatient individual, couples, or family treatment. Following Stein et al. (Stein et al., 2011), we characterized the adequacy of pharmacotherapy for anxiety disorders received. We defined adequacy based on three variables: medication type, dosage, and duration. M. Stein kindly provided us the appropriate anxiety medications and dosages used by his group, which we followed without modification.

2.4 Statistical analysis

Multivariate regression analyses were conducted using SPSS software. To examine if MHDs differed depending on participants' age, education level, and income, we used marginal stratification to account for the main effects of these demographic variables and their interaction with ethno-racial status. We compared AAs to Whites, Latinos to Whites, and AAs to Latinos, in separate models to control for demographic differences between groups, and used models conducted in two stages. First, each *preliminary model* used multivariate stepwise linear regression to screen for main effects of ethno-racial status, stratified age, stratified education, and stratified income and to assess for interaction effects between each of these stratified demographic variables and ethno-racial status (see *Descriptive analyses* below). Next, each *final model* controlled for significant main and interaction effects found in the *preliminary model* and used a stepwise approach to examine main effects of a number of clinical variables. That is, we forced all demographic and clinical variables into the model before testing for the specific effects of ethno-racial status to determine if ethno-racial status was a unique correlate after controlling for other possible correlates. In total, we examined the following correlates: ethno-racial status; stratified age; stratified education; stratified income; and being In-the-U.S.-as-a-Child (IUSC) (as defined by (Alegria, Sribney, Woo, Torres, & Guarnaccia, 2007) as being born in the U.S. or immigrating to the U.S. before the age of 6. This variable was not used in AA vs. White analyses given that 97% of both cohorts were born in the U.S. (see Table 1)). We also examined current psychopharmacologic treatment; current outpatient psychotherapy; earliest age of index anxiety disorder onset; and the following Axis I disorders: PTSD, GAD, SAD, PD, PDA, AWOPD, and MDD. To control for type I error in the final model, we adjusted the significance levels for entry and retention in the final stepwise models to 0.01 and 0.05, respectively.

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3. Results

3.1 Descriptive analyses

In this manuscript, only those individuals solely self-identifying as being a member of one of the three cohorts were included. Ethno-racial group membership was not mutually exclusive in our overall study. All participants self-identifying as Hispanic/Latino or African American/Black were included in the Latino or AA cohorts, respectively. The White group self-identified as White and as Non-Latino (see (Weisberg et al., 2012) for further details). In total, the sample consisted of 144 AAs, 115 Latinos, and 172 Whites. Demographic data suggest the total sample is of a low socioeconomic background, as a majority in all ethno-racial groups earns <$20,000/year and is not employed (see Table 1). The three ethno-racial groups were comparable on most demographic indicators, including gender, income, education, marital status, and disability status. However, the AA group was older ($F(2)=8.14$, $p<.001$). Given the potential impact of demographic variables on psychosocial functioning, our *preliminary model* screened for the main effects of age, education, and income and their interaction with ethno-racial status. Using marginal stratification, we dichotomized age, education, and income into the following groups: (a) age: <38 years old vs. ≥38 years old (chosen because it represented a mean and median split in the sample); (b) education: ≤high school graduate vs. more education; and, (c) income: <$20,000/year vs. ≥ $20,000/year.

Clinical characteristics are presented in Table 2. Overall, this is a highly comorbid sample with high rates of treatment. No significant differences in the likelihood of receiving outpatient psychotherapy were found, but Whites had higher rates of psychiatric pharmacotherapy compared to both groups ($\chi^2(2)=13.26$, $p<.001$). Further, it should be noted that a small proportion of participants were receiving adequate pharmacotherapy for anxiety, with AAs being significantly less likely to be receiving adequate pharmacotherapy (AAs: 17%; Latinos: 33%; Whites: 32%; $\chi^2(2)=4.16$, $p<.05$; see (Beard et al., in progress) for further details). We defined adequacy based on three variables: medication type, dosage, and duration using appropriate anxiety medications and dosages used by Stein and colleagues (Stein et al., 2011). Chi-square analyses revealed that the AA group had significantly higher rates of PTSD ($\chi^2(2)=8.45$, $p=.015$); otherwise, the three ethno-racial groups did not differ on baseline diagnoses.

3.2 African American vs. non-Latino White Analyses

Functional outcomes that were correlated with being AA are presented in Table 3, with only the significant correlates in the final models reported ($p<.05$). Overall, after controlling for other demographic and clinical variables, AAs were significantly more likely to have lower rater-assessed GAF and global psychosocial functioning, to be disabled, and to have better self-reported mental health functioning. Notably, in comparison of AAs and Whites at high and low income levels, AAs earning <$20,000 per year were at particular risk for lower GAF.

3.2.1 Rater-assessed functioning—Results revealed significant clinical correlates of reduced functioning, regardless of ethno-racial group. Relative to other diagnoses, PTSD

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was associated with worse GAF, lower global psychosocial functioning, lower work functioning, and lower recreational functioning ($p<.005$). MDD was associated with worse GAF, lower global psychosocial functioning, lower work functioning, lower interpersonal relationship functioning, and lower recreational functioning ($p<.001$).

3.2.2 Self-reported functioning—Self-reported life satisfaction, mental health functioning (MCS), physical functioning (PCS), and disability were examined. AAs were significantly more likely to be disabled than Whites ($p<.001$). Older age was associated with better mental health functioning but reduced physical functioning and greater likelihood of being disabled ($p<.001$). Higher income was associated with improved physical functioning ($p=.001$). Lower education was correlated with disability status ($p= .008$). MDD predicted worse life satisfaction, and worse self-reported mental health and physical functioning ($p\leq.005$), and the presence of GAD was associated with lower mental health functioning ($p=.006$). Finally, individuals receiving pharmacotherapy were more likely to be disabled ($p=.001$).

3.3 Latino vs. non-Latino White Analyses

Functional outcomes that were correlated with being Latino are presented in Table 4, with only the significant correlates in the final models reported ($p<.05$). Overall, after controlling for other demographic and clinical variables, Latinos were significantly more likely to have lower rater-assessed global psychosocial functioning. In comparison of Latinos and Whites at high and low income strata, low income Latinos were at the most risk for having impaired global psychosocial functioning.

3.3.1 Rater-assessed functioning—Results revealed the following demographic correlates, regardless of ethno-racial group: lower education attainment was associated with poorer work functioning ($p=.011$), older age was associated with poorer recreational functioning ($p=.002$), and higher income was associated with increased recreational functioning ($p=.015$). Results also showed the following significant clinical correlates of reduced functioning: MDD and PTSD were each associated with worse GAF, work functioning, and recreational functioning ($p<.001$); and PDA was associated with worse work functioning ($p=.002$).

3.3.2 Self-reported functioning—The presence of MDD correlated with lower overall life satisfaction, mental health functioning, and physical functioning ($p\leq.001$). AWOPD was correlated with improved life satisfaction ($p=.001$). Reduced self-reported physical functioning was associated with being older ($p=.005$) and currently receiving pharmacotherapy ($p=.005$). Disability status was associated with being older, having lower income, and lower education attainment ($p<.01$).

3.4 AA vs. Latino Analyses

Results revealed no functional outcomes that were correlated with being AA vs. Latino, after accounting for other demographic and clinical variables. These analyses reproduced findings in the two previous models, indicating that older age, lower income, and being disabled were associated with worse functioning regardless of ethno-racial status. Diagnostically, MDD

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and PTSD were associated with worse functioning in rater-assessed and self-reported domains.

4. Discussion

In this study, we defined mental health disparities (MHDs) as the persistence of functional impairments associated with ethno-racial status, after controlling for demographic and clinical covariates. To the best of our knowledge, this is the first study to compare functioning in multiple life domains, as assessed by self-report and study raters, in a diverse sample of adults with multiple anxiety disorders and comorbid MDD. These findings relate to MHDs, a growing concern as the demographic characteristics of the U.S. continue to evolve and underserved ethno-racial groups become a large part of the population.

4.1 Findings related to MHDs

In comparison of AAs to Whites, AAs showed worse rater-assessed GAF and global psychosocial functioning as well as an increased risk to be disabled. Because we controlled for the effects of other demographic and clinical variables, these results seem to indicate MHDs and are consistent with extant research (e.g., (Himle et al., 2009)). Further, a significant interaction was found between income and AA origin, suggesting AAs with low income were particularly at risk for worse overall symptom severity and functioning. This suggests an additive effect of minority status and low SES, which should be the focus of future research on functioning.

AAs, regardless of demographics, were more likely to self-report good mental functioning. Discrepancies in AA self-reported vs. clinician-assessed impairment have been reported elsewhere. Ortega and Rosenheck (Ortega & Rosenheck, 2000) showed that AAs who thought they had PTSD saw themselves as more impaired than other groups. But, when PTSD was assessed by raters, and thus included AAs who may not have thought they had PTSD and may not have seen themselves as very ill, there were no ethno- racial differences in functioning (Lewis-Fernandez et al., 2008). These findings may be related to coping approaches commonly found in AA cohorts. For instance, active coping techniques, in which action is taken to remove or circumvent life problems and “complaining” is less tolerated, have been found in AA samples and likely influence an individual’s willingness to report mental health symptoms (e.g., (Edwards, Moric, Husfeldt, Buvanendran, & Ivankovich, 2005)). AAs are more likely to use prayer and spiritual practices, in general, than are Whites (Chatters, Taylor, Bullard, & Jackson, 2008; Taylor, Chatters, & Jackson, 2007; Woodward et al., 2009). Thus, turning to religious means of coping might influence attribution of and willingness to report mental health symptoms. Another possible explanation is that AAs have been found to prefer to cope with mental health problems by seeking support from family and friends, making them less likely to report mental health symptoms to healthcare professionals (Snowden, 2001). With known racial biases in diagnosis and treatment of mental illness, AAs could purposefully underreport their mental illness. Studies have shown that AAs are overrepresented in psychiatric hospitals (Snowden, 1999), overdiagnosed for schizophrenia (Loring & Powell, 1988) and underdiagnosed for

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affective disorders (Snowden & Cheung, 1990). Knowledge of these misdiagnoses could deter AAs from participation in the mental health care system.

When we compared Latinos and Whites, we found that being Latino was a unique correlate of worse rater-assessed global psychosocial functioning. As with AAs, our results showed that Latino origin interacted with income such that poorer Latinos had the worst global psychosocial functioning. Because 43% of the Latinos in the study were not In-the-U.S.-as-a-Child and because being IUSC is associated with poor psychological outcomes (Alegria, Sribney, et al., 2007), we examined the impact of this variable on functioning. Results revealed that, in our sample, being IUSC was not a significant correlate of any rater-assessed or self-reported functional outcome. This might be explained by the study's inclusion criteria, which required participants to be English-speaking; this differed from the NLAAS study, which included monolingual Spanish-speakers (Alegria, Sribney, et al., 2007). This may have resulted in a different distribution of age of migration in our sample relative to the NLAAS (i.e., HARP-II may be skewed to younger migrants), leading to limited variability in the effect of age of immigration on functioning status and limited variability in acculturation. English-language fluency is one of the primary indicators of acculturation (Alegria, Sribney, et al., 2007). Moreover, our sample only included a convenience sample of individuals with anxiety disorders, many of whom have been exposed to mental health treatment, as opposed to the NLAAS study, which enrolled a nationally-representative community-based sample of U.S. Latinos; the impact of IUSC on vulnerability to greater impairment may not be as evident in this cohort.

Finally, results revealed no significant differences in functioning due to minority group status in analyses directly comparing AAs and Latinos. Nonetheless, being AA was associated with more indices of poor functioning (GAF, global psychological functioning, disability) than Latinos (global psychological functioning), relative to Whites. This suggests that the two minority groups share some experiences, especially among AAs and Latinos with low SES who are associated with worse functioning. Potential explanations include experiences of discrimination, which are associated with worse physical and mental health (Borrell, Kiefe, Williams, Diez-Roux, & Gordon-Larsen, 2006; Gee, Ryan, Laflamme, & Holt, 2006; Sellers, Bonham, Neighbors, & Amell, 2009) and lower perceived social status due to being a devalued minority, which can also impact overall health (Alegria, Shrout, et al., 2007). These may be more salient among AAs than Latinos (or other stressors may be at play differentially across minority groups), affecting a broader range of functioning indices among AAs relative to Latinos and Whites. In our sample the magnitude of this effect did not reach statistical significance in the AA vs. Latino analysis. Research with larger, more representative, samples is needed. We also hope that our longitudinal research will fill in some of these gaps. In sum, these data suggest AAs and Latinos are at risk for greater functional impairment compared to Whites, which is not better accounted for by other demographic or clinical variables.

Although we were most interested in the correlation of ethno-racial status and functional impairments, results also revealed that variables related to low SES were correlated with functioning. This is not surprising as a number of studies show that low-SES variables (e.g., reduced educational attainment) are predictive of increased prevalence and severity of

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anxiety disorders (Roy-Byrne, Joesch, Wang, & Kessler, 2009). Being older was associated with better self-reported mental health functioning but worse self-reported physical functioning and being disabled.

4.2 Clinical correlates

Results from all analyses consistently showed that MDD and PTSD were significant correlates of reduced functioning. In our sample, consistent with epidemiological data (Himle et al., 2009), PTSD was more prevalent in AAs (40% vs. 31% in Latinos and 25% in Whites). Given that our AA cohort is older, it is possible that with older age, their likelihood of exposure to traumatic events increased. However, it more likely that AAs are at increased risk for trauma exposure. For example, as compared to Whites, AAs have increased exposure to stressful life events in childhood (McCabe, Clark, & Barnett, 1999). Our data show that AAs reported significantly higher lifetime rates of exposure to acute traumas such as seeing someone killed or injured (63%; χ^2=13.0, p=0.002), followed by the Latinos (48%) and Whites (43%) and that AAs had a significantly higher rate (45%; χ^2=25.74, p<0.001) of having a friend or family member deliberately killed or murdered, compared to Latinos (34%) and Whites (19%). Being in outpatient psychotherapy predicted worse GAF and worse work functioning in the AA vs. White analyses, suggesting those who are in treatment are likely the ones with most severe symptoms and impairment in the important life domain of work. For similar reasons, current psychiatric medication treatment predicted worse physical functioning in the Latino vs. White and AA vs. White analyses, as well as disability status in the AA vs. Latino analyses. Previous research from our group showed that individuals with more severe symptoms and increased functional impairments were those most likely to receive mental health treatment (Weisberg, Dyck, Culpepper, & Keller, 2007). Those data coupled with evidence that people of minority backgrounds are less likely to receive mental health treatments compared to Whites (Atdjian & Vega, 2005; Schraufnagel, Wagner, Miranda, & Roy-Byrne, 2006) suggests that the AAs and Latinos in our sample who received treatment were probably the most severely ill individuals.

4.3 Conclusion

Although these data come from a naturalistic setting and the sample size is relatively robust, this is not an epidemiological study, but rather it is a sample of convenience. Therefore, results might not translate to all adults, particularly minorities, with anxiety disorders. MDD and anxiety disorders were highly comorbid in our sample, with approximately 50% of our sample, across cohorts, meeting criteria for MDD. Although each disorder was entered into our models independently, we acknowledge that mood and anxiety disorders share common symptoms, suggesting that impairments associated with a specific clinical diagnosis might be reflective of overall, underlying negative affectivity and distress.

Another possible factor leading to worse functioning in minorities is that AAs and Latinos were less likely to be receiving pharmacotherapy, and thus, perhaps receiving less treatment is a mechanism behind the worse functioning observed, as treatment might increase individuals' functional abilities. In our sample, only 17% of AAs were receiving adequate medication, compared to 32% of Latinos and 31% of Whites (Beard et al., in progress). This disparity among African Americans appears to be driven in part by the fact that fewer

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African Americans were receiving anti-anxiety medication at all, regardless of the dosage and duration. Unfortunately, we cannot ignore a potential major influence on the attitude of AAs towards physicians who give them medications. There is a long history of mistreatment of AAs by the medical community in the U.S. For example, the Tuskegee experiment in Alabama from 1932 to 1972 was run by the United States Public Health Service as a secret program in which 400 poor AA men with syphilis were followed by physicians to determine the natural course of the disease, without treatment other than fake pills, even though a cure became available in the 1940s. This history of exploitation might influence AAs' trust of medications, especially from a clinic.

Moreover, we acknowledge that a majority of our MHD findings come from rater-assessed data, potentially indicating rater bias towards minorities. The primary measure for these data was the LIFE, which does not have psychometric data on minority groups or those of low SES backgrounds. This is an important shortcoming as results might be confounded by limitations in the measure we used. However, in the AA vs. White analyses, we did find that disability status, a measure not at risk for rater bias, was linked to ethno-racial status. This is particularly concerning as it appears AAs are more likely to be disabled than Whites, even after controlling for the impact of demographic and clinical variables. Thus, we view this study as an important first step in understanding how AAs and Latinos might be at increased risk for functional impairments compared to Whites. Lastly, we note that categorization of ethno-racial status was based on self-report and it is likely that participants' degree to which they identify with their ethno-racial background might vary. This will be an important variable to assess in future research.

These data indicate that AAs are particularly at risk for psychosocial functional impairments, relative to Whites. Given the preliminary nature of these data, we were unable to examine socio-cultural moderators (e.g., perceived social status, experiences of discrimination, family social support) that might further inform the mechanisms of MHDs but it is likely these variables play a significant role in AAs' (and Latinos') impairments. Perceived / self-reported experiences of ethno-racial discrimination are associated with worse mental health (Borrell et al., 2006; Gee et al., 2006) and the probability of having MDD, GAD (Kessler, Mickelson, & Williams, 1999), or any anxiety disorder (Alegria, Shrout, et al., 2007; Gee, Spencer, Chen, Yip, & Takeuchi, 2007). As noted above, AAs are at increased risk of exposure to trauma. We are in the process of collecting additional data on these socio-cultural variables, which we believe will help to explain the mechanisms of these findings. In addition, we have not yet assessed for the role, if any, of mental health care financing in determining treatment and outcomes.

Our analyses directly comparing AAs and Latinos revealed no differences that were correlated with minority subgroup status, although AAs showed a wider range of impairment indices than Latinos relative to Whites. This suggests that after controlling for other variables, both AAs and Latinos show higher functional impairments than Whites when exposed to anxiety disorders, such as PTSD, and their comorbidities, such as MDD. Given the growing number of AAs and Latinos in the U.S., ongoing attention is needed to better understand the manifestation of anxiety disorders in these traditionally underrepresented groups and to understand how psychopathology exerts unique effects on

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these populations. By gaining insight into unique ethno-racial risk factors for functional impairments, clinicians will be better able to tailor interventions to their patients.

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Highlights

- Examined if minority status was uniquely associated with functional impairments in individuals with anxiety disorders.
- African Americans, particularly those with low income, had worse functioning and increased disability compared to Whites.
- Latinos, particularly those with low income, had worse functioning compared to Whites.
- MDD and PTSD were significant correlates of reduced functioning, regardless of ethno-racial status.
- Minorities are at risk for functional impairments not better accounted for by other demographic or clinical variables.

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Table 1

Demographic Characteristics

	African American N=144	Latino N=115	Non-Latino White N=172
	N %	N %	N %
Gender			
Female	96 (67%)	85 (74%)	104 (61%)
Education			
Less than HS	23 (16%)	27 (23%)	29 (17%)
HS degree or GED	47 (33%)	19 (17%)	39 (23%)
Partial college	37 (26%)	25 (22%)	56 (33%)
Associate's degree	11 (8%)	14 (12%)	20 (11%)
Bachelor's degree	18 (12%)	23 (20%)	20 (11%)
Graduate degree	8 (5%)	7 (6%)	8 (5%)
Marital Status			
Single	85 (59%)	54 (47%)	99 (58%)
Married	14 (10%)	18 (16%)	19 (11%)
Divorced /separated or widowed	45 (31%)	43 (37%)	54 (31%)
Current Employment			
Full-time/Part-time	36 (25%)	42 (37%)	43 (25%)
Unemployed	40 (28%)	25 (22%)	64 (37%)
Physical/Psychiatric Disability	52 (36%)	30 (26%)	48 (28%)
Not employed for other reasons[a]	16 (11%)	18 (15%)	17 (10%)
Annual household income[b]			
Less than $20,000	96 (67%)	61 (53%)	109 (63%)
$20 – 49,999	38 (26%)	38 (33%)	46 (27%)
$50 – 64,999	5 (3.5%)	11 (10%)	5 (3%)
Over $65,000	5 (3.5%)	3 (3%)	12 (7%)
In-the-U.S.-as-a-Child (IUSC)[c]	139 (97%)	66 (57%)	167 (97%)
	M SD	M SD	M SD
Age	42.2** (10.8)	36.1 (10.7)	38.7 (12.3)

** $p<0.001$

[a] Other reasons for not being employed include being a homemaker, retired, or a student.

[b] Numbers do not add up to group totals due to missing data.

[c] IUSC is defined as being born in the U.S. *or* immigrating to the U.S. prior to age 6

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Table 2

Clinical Characteristics and Psychosocial Functioning

	African American N=144	Latino N=115	Non-Latino White N=172
	N %	**N %**	**N %**
Diagnoses[a]			
Panic Disorder with Agoraphobia	68 (47%)	47 (41%)	91 (53%)
Panic Disorder without Agoraphobia	10 (7%)	7 (6%)	17 (10%)
Agoraphobia w/o hx of Panic Disorder	1 (1%)	6 (5%)	7 (4%)
Generalized Anxiety Disorder	78 (54%)	67 (58%)	101 (59%)
Social Anxiety Disorder	72 (50%)	61 (53%)	91 (53%)
Posttraumatic Stress Disorder	58* (40%)	36 (31%)	43 (25%)
Major Depressive Disorder	66 (46%)	58 (50%)	82 (48%)
Current Psychiatric Treatment			
Psychotherapy	50 (35%)	55 (48%)	70 (41%)
Psychiatric Medication	62 (43%)	65 (57%)	109** (63%)
Receiving adequate pharmacotherapy	25* (17%)	37 (32%)	53 (31%)
	M SD	**M SD**	**M SD**
Number of Current Axis I disorders	3.5 (1.63)	3.3 (1.57)	3.6 (1.73)
Rater-assessed Functioning			
GAF	50.3 (7.40)	51.9 (7.01)	53.3 (5.05)
Global Psychosocial Functioning	3.8 (0.82)	3.7 (0.88)	3.6 (0.89)
Work	4.4 (1.16)	4.1 (1.11)	4.3 (1.16)
Interpersonal Relationships	3.8 (1.12)	3.9 (1.01)	3.7 (1.17)
Recreation	3.0 (1.18)	3.2 (1.19)	3.0 (1.28)
Self-reported Functioning			
Overall Satisfaction	3.2 (0.89)	3.1 (1.19)	3.1 (0.84)
Mental Health Functioning	34.3 (12.70)	30.8 (10.89)	30.6 (11.0)
Physical Functioning	46.1 (11.92)	48.3 (11.61)	46.8 (12.92)

* $p<0.05$

** $p<0.001$

[a] Diagnostic groups are not mutually exclusive.

Note. GAF=Global Assessment of Functioning; Global Psychosocial Functioning=Global Social Adjustment (GSA); Work=Worst work rating from employment, student, or household work activities; Relationships=Worst relationship among family and friendships; Mental Health Functioning= MOS 36-item Short Form Health Survey Mental Component; Physical Functioning=MOS 36-item Short Form Health Survey Physical Component.

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Table 3

Significant predictors in final stepwise linear regression models demonstrating ethno-racial correlates of functioning in African Americans compared to non-Latino Whites.

Correlates	β	SE	t	*P*
Rater-assessed Functioning				
GAF				
Being African American	−0.60	1.70	−4.50	<.001
Education (stratified)	0.11	0.59	2.42	.016
African American × Income (stratified)	0.45	1.19	3.28	.001
MDD	−0.34	0.58	−7.50	<.001
PTSD	−0.27	0.63	−5.85	<.001
Currently in psychotherapy	−0.14	0.58	−3.23	.001
Global Psychosocial Functioning				
Being African American	0.35	0.25	2.49	.013
MDD	0.41	0.08	8.50	<.001
PTSD	0.21	0.09	4.30	<.001
Self-reported Functioning				
Mental Health Functioning				
Being African American	0.13	1.30	2.44	.015
Age (stratified)	0.12	1.31	2.11	.036
MDD	−0.47	1.31	−8.50	<.001
GAD	−0.15	1.31	−2.77	.006
Disability status				
Being African American	0.69	0.11	5.94	<.001
Age (stratified)	0.27	0.05	5.39	<.001
Education (stratified)	−0.13	0.05	−2.68	.008
African American × Income (stratified)	−0.65	0.07	−5.64	<.001
Current psychiatric medication treatment	0.17	0.05	3.34	.001

Note. GAF=Global Assessment of Functioning; MDD=Major Depressive Disorder; PTSD=Posttraumatic Stress Disorder; Global Psychosocial Functioning=Global Social Adjustment (GSA); Mental Health Functioning=MOS 36-item Short Form Health Survey Mental Component; GAD=Generalized Anxiety Disorder; Disability status=physical or psychiatric disability.

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Table 4

Significant predictors in final stepwise linear regression models demonstrating ethno-racial correlates of functioning in Latinos compared to non-Latino Whites.

Correlates	β	SE	t	*P*
Rater-assessed Functioning				
Global Psychosocial Functioning				
Being Latino	0.36	0.26	2.57	.011
Education (stratified)	−0.16	0.09	−3.30	.001
Latino × Income (stratified)	−0.33	0.17	−2.22	.027
MDD	0.41	0.09	8.68	<.001
PTSD	0.28	0.10	5.71	<.001

Note. Global Psychosocial Functioning=Global Social Adjustment (GSA); MDD=Major Depressive Disorder; PTSD=Posttraumatic Stress Disorder.