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Two-Year Course of Generalized Anxiety Disorder, Social Anxiety Disorder, and Panic Disorder in a Longitudinal Sample of African American Adults

Nicholas J. Sibrava¹, Courtney Beard², Andri S. Bjornsson³, Ethan Moitra¹, Risa B. Weisberg¹, and Martin B. Keller¹

¹Warren Alpert Medical School of Brown University, Providence, RI ²McLean Hospital and Harvard University Medical School, Belmont, MA ³University of Iceland, Reykjavik, Iceland

Abstract

Objective—Anxiety disorders are the most common group of psychiatric disorders in adults. In addition to high prevalence, anxiety disorders are associated with significant functional impairment, and published research has consistently found them to have a chronic course. To date, very little research has explored the clinical characteristics and prospective course of anxiety disorders in racial and ethnic minority samples. The aims of this paper are to present clinical and demographic characteristics at intake and prospective two-year course findings in a sample of African American adults.

Methods—Data are presented from 152 African Americans diagnosed with generalized anxiety disorder (GAD, $n = 94$), social anxiety disorder (SAD, $n = 85$), and panic disorder with agoraphobia (PDA, $n = 77$) who are participating in the Harvard/Brown Anxiety Research Project-Phase II (HARP-II). HARP-II is an observational, prospective, longitudinal study of the course of anxiety disorders. Participants were interviewed at intake and annually for 2 years of follow-up. Probabilities of recovery over two years of follow-up were calculated using standard survival analysis methods.

Results and Conclusions—Survival analyses revealed a chronic course for all anxiety disorders, with rates of recovery of 0.23, 0.07, and 0.00 over two years for GAD, SAD, and PDA, respectively. These rates of recovery were lower than those reported in predominantly Non-Latino White longitudinal samples, especially for SAD and PDA, suggesting that anxiety disorders may have a more chronic course for African Americans, with increased psychosocial impairment and high rates of co-morbid Axis-I disorders. Clinical implications of these findings are discussed.

Keywords

anxiety disorders; longitudinal course; African American; recovery; social phobia; social anxiety disorder; generalized anxiety disorder; panic disorder; agoraphobia

Correspondence concerning this article should be addressed to Nicholas J. Sibrava, Department of Psychiatry and Human Behavior, Butler Hospital, 345 Blackstone Blvd, Providence, RI 02906. nicholas_sibrava@brown.edu.
 Nicholas J. Sibrava, Department of Psychiatry and Human Behavior, Warren Alpert Medical School of Brown University; Courtney Beard, Department of Psychiatry, McLean Hospital, Harvard University Medical School; Andri S. Bjornsson, Department of Psychology, University of Iceland; Ethan Moitra, Department of Psychiatry and Human Behavior, Warren Alpert Medical School of Brown University; Risa B. Weisberg, Department of Psychiatry and Human Behavior, Department of Family Medicine, Warren Alpert Medical School of Brown University; Martin B. Keller, Department of Psychiatry and Human Behavior, Warren Alpert Medical School of Brown University. Dr. Weisberg has received grant support from Pfizer, Inc. in the past year.

Anxiety disorders are the most common group of mental health illnesses (Kessler, Chiu, Demler, Merikangas, & Walters, 2005), and their impact on those afflicted has been well documented (see e.g., Cougle, Keough, Riccardi, & Sachs-Ericsson, 2009). Research on the course of these disorders is important given the implications for prognosis, treatment development and treatment planning, and such research is even more imperative for understanding the course of anxiety disorders in traditionally underrepresented minority groups. To date, very little research has explored the clinical features of anxiety disorders in African Americans, and even less data exist regarding the clinical course and outcome of anxiety pathology in this population. The aims of the current study are to present clinical and demographic characteristics at intake and two-year course findings on Generalized Anxiety Disorder (GAD), Social Anxiety Disorder (SAD) and Panic Disorder with Agoraphobia (PDA) in a sample of African Americans.

Retrospective studies have indicated a relatively chronic course of these disorders, with studies frequently reporting duration of illness of 20 years or more (e.g., Mancuso, Townsend, & Mercante, 1993; Wittchen, Carter, Pfister, Montgomery, & Kessler, 2000; Wittchen, Fuetsch, Sonntag, Muller, & Liebowitz, 2000) with a low probability of recovery (e.g., 38% in one study; Chartier, Hazen, & Stein, 1998). However, retrospective studies have inherent limitations such as recall biases. There are relatively few prospective studies of the course of these disorders, and they reveal similar patterns of course as found in the retrospective studies (e.g. 36% in one study; Vriends et al., 2007). For most of these studies (e.g., Swoboda, Amering, Windhaber, & Katschnig, 2003) the course of illness is only assessed at baseline and then once, at follow-up, which fails to take into account changes in symptomatology in the long periods between assessments (Ramsawh, Raffa, Edelen, Rende, & Keller, 2009).

The most comprehensive short-interval prospective study of anxiety disorders is the Harvard/Brown Anxiety Research Project (HARP). In the first wave of HARP, 711 participants who met criteria for at least one of the following disorders were followed: panic disorder with or without agoraphobia (PD/PDA), social anxiety disorder (SAD), and generalized anxiety disorder (GAD) (Bruce et al., 2005). After the first two years of follow-up, the probability of recovery was 0.25 for GAD, 0.20 for SAD, 0.60 for PD, and 0.23 for PDA (Bruce et al., 2005; Keller, 2006; Keller et al., 1994; Yonkers, Warshaw, Massion, & Keller, 1996). The Primary Care Anxiety Project (PCAP), a study of anxiety in primary care patients, which used similar methodology as in HARP, found the probability of recovery after 2 years to be 0.39 for GAD, 0.31 for SAD and 0.16 for PDA (Beard, Moitra, Weisberg, & Keller, 2010; Francis et al., 2007; Rodriguez et al., 2006).

Previous studies on the course of these anxiety disorders have been conducted on primarily non-Hispanic White samples; 97% in HARP (Bruce et al., 2005) and 88% in PCAP (Francis et al., 2007). Very little is known about the course of anxiety disorders in minority samples (Breslau et al., 2006; Breslau, Kendler, Su, Gaxiola-Aguilar, & Kessler, 2005). It is imperative that studies be conducted with minority samples with anxiety disorders, given that the course of illness may be significantly different in these populations, and consequently, treatment interventions may have to be adjusted accordingly.

Anxiety disorders affect an estimated 25% of the African American population (Breslau et al., 2005), and thus are a significant mental health concern. Although anxiety disorders are common in this population, the overall conclusion from different epidemiological studies comparing African Americans to Whites is that anxiety disorders are in general less prevalent among the former than the latter (Breslau et al., 2005; Himle, Baser, Taylor, Campbell, & Jackson, 2009; Huang et al., 2006). However, Himle and colleagues (Himle et al., 2009) demonstrated, using data from both the National Survey of American Life

(NSAL) and the National Comorbidity Survey-Replication (NCS-R), that when anxiety disorders are present among African Americans, they are usually more severe and more disabling compared to Whites. Furthermore, Breslau and colleagues (2005) found that although anxiety disorders were not as prevalent among African Americans as they were among Non-Hispanic Whites, they were more persistent in the African American population even after taking socioeconomic status into account. However, that finding was based on a one-time retrospective assessment, in which participants were asked to assess duration of illness. Hunter and Schmidt (2010) argue, in their comprehensive review of factors explaining anxiety psychopathology in African American adults, that the assessed difference in anxiety disorder prevalence between Whites and African Americans is in fact a measurement error, which is mostly due to awareness of racism and ensuing cultural mistrust, along with enhanced stigma of mental illness among African Americans, which results in underreporting of anxiety symptoms. However, those African Americans that do report such symptoms report more severe psychopathology and greater impairment in functioning compared to Whites, in part because perceived discrimination and perceived stigma of mental illness have a direct impact on their experience, but also because of other environmental variables such as lack of resources to access quality mental health care (Hunter and Schmidt, 2010).

The aims of the current study, which reports on Phase II of HARP (HARP-II) were to assess the clinical characteristics (such as functioning and co-morbidity) and demographic variables of a sample of African Americans with SAD, GAD, or PDA, and to assess the two-year course of these disorders prospectively. This study represents the first to prospectively test the hypothesis put forward by Breslau (Breslau et al., 2005) that while anxiety disorders may have slightly lower prevalence rates in African American samples, they appear to be more persistent over time. We also chose to examine the course of comorbid major depressive disorder (MDD) over two years in this sample in order to determine rates of MDD recovery, and to provide a comparison by which to interpret the patterns of course in anxiety. Previous studies have found that MDD demonstrates patterns of course unique from anxiety disorders, with MDD having a higher rate of recovery (Bruce et al., 2005). Taken together, this report presents a first look at the clinical course of these anxiety disorders among African Americans, assessed prospectively, and factors that may affect the experience of suffering from these anxiety disorders in this population.

Method

Data were obtained from the ongoing Harvard/Brown Anxiety Research Project-Phase II (HARP-II). HARP-II is a prospective longitudinal observational study of anxiety disorders. A detailed description of the aims and methods for HARP-II has been previously published (Weisberg, Beard, Dyck, & Keller, 2012). The current study utilized a subsample of the HARP-II study comprising African American participants diagnosed with *DSM-IV* anxiety disorders. The institutional review board of Brown University approved HARP-II, and all participants provided written informed consent prior to enrollment in the study.

Participants and Procedure

Participants were 152 African American adults (age 18 or older) enrolled in the HARP-II to date (target enrollment = 175). Criteria to be enrolled in HARP-II included being diagnosed with at least one of the following anxiety disorders, as assessed by the Structured Clinical Interview for DSM-IV (SCID-IV; First, Spitzer, Gibbon, & Williams, 1996; see below): Post-Traumatic Stress Disorder (PTSD), SAD, PD, PDA, and GAD. To be eligible for the study, participants needed to be at least 18 years of age and English speaking. Participants were excluded from the study if they were diagnosed with schizophrenia, suffering from

active psychosis, had an organic mental disorder, or lacked English language proficiency such that they could not understand study procedures. Initially, participants were recruited exclusively via referrals from multiple clinicians in New England, including the greater Providence, Rhode Island area, and Boston and Worcester, Massachusetts. After several months of relying exclusively on this referral-based approach, recruitment was expanded to include advertisement in newspapers, the Internet, and postings on area mass transit. Given our catchment area, the resulting sample represents a primarily urban population. Individuals interested in participating contacted the study after seeing an advertisement or receiving a referral. Potential participants were first briefly screened over the phone for the presence of anxiety symptoms. The only initial ineligibility at this phone screening was due to a lack of endorsement of anxiety symptoms or the presence of psychotic symptoms. Subsequently, we employed targeted enrollment for the African American group, as preliminary examination of some key demographic variables showed a restricted range of certain demographic variables. For example, after discovering that our sample of African American participants were significantly more likely to be older, unemployed, have lower incomes and low education levels, we attempted to schedule more intake interviews with African American participants under the age of 35 who were employed, graduated from college, and had incomes above \$35,000. Individuals who were eligible and endorsed any anxiety symptoms at screening were invited for an intake interview. Participants were compensated \$60 for participating in intake interview, which was, on average, three hours in duration. At the end of the intake interview, participants who met all inclusion and none of the exclusion criteria were enrolled in the study.

An initial diagnostic interview assessed lifetime psychopathology and functional history using the SCID-IV. Interviews were conducted by bachelor's- and master's-level clinical interviewers and usually took place in single sessions. Participants completed in-person assessments at baseline and once enrolled, participants were contacted for an in-person or telephone follow-up interviews at 1 year and 2 years, using the Longitudinal Interval Follow-Up Evaluation (LIFE; Keller et al., 1987; see below). Participants were paid \$60 for each annual interview completed. Methods for retaining participants over follow-up included a 6-month telephone call to confirm contact information and birthday cards. Additionally, when phone calls were unsuccessful, participants were sent emails, letters, and a designated locator person (named by the participant at intake) was contacted. In some cases, research assistants also searched for current contact information via an online people search service (Intelius), and public death records. Additional information on the detailed procedures of HARP-II, including a flow chart of participant recruitment, can be found in Weisberg et al. (2012).

Measures

Structured Clinical Interview for DSM-IV Axis-I Disorders (SCID-IV; First et al., 1996)—The SCID is a semi-structured, clinician administered diagnostic interview employed at intake to assess current and lifetime history of Axis-I disorders. The interrater reliability of the SCID has been found to be excellent (Cohen's kappa = .85) and it has very good diagnostic accuracy (Ventura, Liberman, Green, Shaner, & Mintz, 1998). Traumatic events at baseline were assessed using a revised version of the Trauma Assessment for Adults (Resnick, Best, & Freedy, 1993).

Longitudinal Interval Follow-Up Evaluation (LIFE; Keller et al., 1987)—The LIFE is an interviewer-administered assessment that collects detailed information on anxiety disorder symptoms, psychosocial functioning, and treatment status, and is used at follow-up interviews to assess disorder course. The LIFE assesses all DSM-IV Axis-I disorders. The LIFE uses a 6-point psychiatric status rating (PSR) scale to indicate the severity of

psychiatric pathology. A PSR of 5 or 6 indicates that the participant meets full DSM-IV diagnostic criteria for a disorder with moderate and severe functional impairment, respectively (i.e., in episode). A PSR of 3 or 4 indicates the participant does not meet full DSM-IV diagnostic criteria for the disorder, but still exhibits notable residual symptoms and impairment to a mild or moderate degree, respectively. A PSR of 1 or 2 indicates that the participant is either completely without symptoms of the disorder, or experiences a negligible number of symptoms on an occasional and transient basis (i.e., full recovery). In the present study, recovery was defined as a period of 8 consecutive weeks at a PSR 1 or 2 for GAD and SAD. For PDA, recovery was defined as 8 consecutive weeks at a PSR 1 or 2 (i.e., no full-criteria panic attacks) and 8 concurrent, consecutive weeks at a PSR 1 or 2 for agoraphobia. For SAD, recurrence was defined as the onset of symptoms at a PSR of 5 or greater for 4 consecutive weeks following a recovery. For PDA, recurrence was defined as, following a recovery, the onset of a) panic disorder symptoms at a PSR of 5 or greater for 4 consecutive weeks (i.e., at least one full criteria panic attack); and b) 4 weeks of concurrent agoraphobia symptoms at a PSR of 4 or greater. For GAD, recurrence was defined as the onset of symptoms at a PSR of 5 or greater for 6 consecutive months following a recovery. The LIFE employs a change point method to anchor participant reports of symptom levels to relevant life events such as birthdays and holidays, resulting in weekly ratings of psychiatric symptom severity. Interrater reliability and long-term test-retest reliability for the LIFE PSR ratings have been found to be good to excellent for all anxiety disorders and major depressive disorder (Warshaw, Keller, & Stout, 1994). The LIFE is also used to collect monthly information on functioning in a variety of areas including family relationships, role functioning, life satisfaction, global social adjustment, and global assessment of functioning (GAF), with good interrater reliability for these items with intraclass correlation coefficients ranging from .59 to .91 (Keller et al., 1987). In a paper exploring the long-term interrater reliability of the LIFE in the HARP-I Study, which employed the same rater training and fidelity monitoring procedures as the current study, Warshaw, Dyck, Allsworth, Stout, and Keller (2001) reported the intra-class correlation coefficients to be good to excellent across disorders, as well as across different raters over time.

Demographics Questionnaire—The Demographics Questionnaire is used to obtain information on the participant's self-reported race and ethnicity, age, gender, country of birth, marital status, educational level, employment and occupation, and sources of financial support.

Treatment History Questionnaire—The treatment history questionnaire is used to assess participants' psychiatric treatment history, including frequency and type of treatments received both currently and lifetime. This measure was adapted from the original treatment section of the LIFE and shows high interrater reliability (Keller et al., 1983). Reliability coefficients ranged from .91 to 1.00 for all treatment modalities except atypical antidepressants, which had kappas in the .66 to .86 range. Treatment information was collected at each follow-up assessment.

The RAND 36-Item Health Survey (RAND; Hays, Sherbourne, & Mazel, 1993)—The RAND is a self-report measure that assesses physical functioning, bodily pain, role limitation due to physical and mental health concerns, general mental health, social functioning, energy/fatigue (vitality), and general health perceptions. Cronbach's alpha for the different domains is excellent, ranging from .78 to .90 (Hays, Marshall, Wang, & Sherbourne, 1994). These domains were combined into two component scales, the Mental Component Summary (MCS) and the Physical Component Summary (PCS; Ware, Kosinski, & Dewey, 2001).

Rater Training and Supervision

Interviews are conducted by clinical interviewers with a bachelor's or master's degree in psychology or a related field. Interviewers complete a rigorous training program, similar to that described by Warshaw et al. (2001), before being certified to conduct intake and follow-up interviews. Training for each type of interview consists of a graduated set of tasks and experiences, beginning with reading relevant papers, studying instruments and instruction booklets, watching training tapes, and reviewing suggestions for handling common interviewing problems. Interviewers then participate in a 1–2 day didactic session and review and discuss videotapes of interviews conducted by experienced interviewers, and conduct mock interviews. New interviewers then directly observe experienced interviewers as they meet with participants and are themselves then directly observed by training supervisors and/or more experienced interviewers. These interviews are also audio or video-recorded, for close review by training supervisors. Only after conducting at least three closely observed and directly reviewed interviews, and being judged by training supervisors as meeting the needed criteria with regard to both content and process of the assessment, are new interviewers certified to collect data independently.

After certification, all clinical interviewers remain closely supervised. HARP-II clinical staff review each diagnosis for each case enrolled in the study at a weekly team meeting. Further, all interviews undergo a rigorous clinical editing process to ensure accuracy of diagnoses. The training supervisor monitors the ratings from each interviewer and provides feedback from periodic audio or video recordings. Poor calibration of a rater with the rest of the team serves as a signal for retraining, extra editing, and any other help as needed.

Statistical Analyses

Data were analyzed using SPSS Version 16.0 (SPSS, 2007). Means, standard deviations, and frequencies were calculated. Longitudinal data were analyzed using standard survival analysis techniques. Kaplan-Meier life tables were constructed for time to recovery analysis. Separate survival analyses were conducted for each disorder, disorders were not prioritized (e.g., primary, secondary, etc), and individuals were allowed to be in multiple disorder classes. Statistical comparisons of survival rates were conducted for each disorder, examining the role of employment, receiving treatment at intake, education, and income on the likelihood of experiencing a recovery over the first two years of follow-up. Data for participants who were lost to follow-up were censored at the last recorded follow-up point. Of the 152 participants assessed at intake, 133 were due for follow-up at the time of data analysis, and data were available for 115 (86.5% of eligible participants). The remaining 18 participants were either unable to be contacted or unable to complete the interview at the time of data analysis. No participants dropped out of the study during the first two-year window of data collection.

Results

Demographic Characteristics

Demographic characteristics of the sample are presented in Table 1. At study intake, participants ranged in age from 18 – 75 years ($M = 41.52$, $SD = 11.49$), and 101 (66.4%) were female. Nearly two-thirds (59.9%) of the sample was single, 9.9% were married, and 29.6% were widowed, divorced, or separated. Approximately 15.2% had not completed high school, 29.6% had earned a high school diploma or equivalent, 36.8% attended at least some college, and 18.4% had earned a bachelor's degree or higher. Only 29.6% of the sample was employed at all at the time of intake, and 36.2% were receiving physical or psychiatric disability benefits.

Clinical Characteristics

Clinical characteristics of the sample are presented in Table 2. The mean age of onset in this sample ranged from 13.56 for SAD ($SD = 9.28$) to 29.34 for PDA ($SD = 13.10$). A majority of the sample (55.3%, $N = 84$) reported a trauma history. Overall, the sample reported high levels of comorbidity, with participants meeting diagnostic criteria for a mean of 5.45 ($SD = 1.91$) lifetime Axis-I disorders, and 3.57 ($SD = 1.68$) current Axis-I disorders at intake. Comorbid mood disorders were also highly prevalent in this sample, with 138 (90.8%) endorsing a lifetime mood disorder, and 82 (53.9%) experiencing a current mood disorder at intake. Among the mood disorders, major depressive disorder (MDD) was the most frequently endorsed, with 84.9% reporting a lifetime history and 49.4% meeting criteria for MDD at intake. A high percentage of the sample had a lifetime history of alcohol and drug dependence (38.8% and 44.1% respectively), but very few met criteria for a current substance use disorder at intake.

Treatment History and Psychosocial Functioning

Overall, 90.1% of the sample reported a lifetime history of receiving some form of mental health treatment, with 78.3% reporting having engaged in individual psychotherapy and 71.1% receiving medication management. At study intake, 57.2% reported receiving some form of mental health treatment, with 33.6% receiving individual psychotherapy and 39.5% receiving medication management. Additional descriptive treatment data are presented in Table 3. Data on psychosocial functioning are presented in Table 4. Overall functioning for the sample was relatively low, as reflected by a mean GAF score of 50.25 ($SD = 7.54$), placing the sample into the serious symptoms and serious impairment range. Global social adjustment, measured on a scale of 1–5 with lower scores indicating greater/healthier adjustment, was also poor for the sample, with a mean of 3.87 ($SD = 0.79$). Similarly, overall life satisfaction was poor for the whole sample ($M = 3.25$, $SD = 0.85$). RAND Health Survey results demonstrated that overall, the sample scored significantly lower than the general population on the mental health composite (MCS), but were not significantly different from population norms on physical health (PCS).

Clinical Course of GAD

Mean self-reported duration of GAD in the sample was 17.13 years ($SD = 13.59$) prior to intake. Of the 94 participants who endorsed GAD, 89.4% ($N = 84$) reported that their first episode of GAD remained current to the time of intake. Of the 94 participants with GAD at intake, data for 71 (75.5%) were available for analysis at two-year follow-up (13 are not yet due for a two-year follow up). Kaplan-Meier survival estimates showed (see Figure 1) that participants with GAD had a 0.23 probability of achieving full recovery from their intake episode at some point over two years of follow-up ($N = 15$). Of the 15 participants who experienced recovery, 2 (13.3%) had a recurrence by the end of the follow-up period. No significant differences in survival rates were found for employment ($\chi^2(1) = 1.88$, $p = .171$), receiving any treatment at intake ($\chi^2(1) = 0.33$, $p = .563$), education level (at least high school vs. greater than high school; $\chi^2(1) = 0.02$, $p = .884$), or income (less than \$20,000 per year vs. greater than \$20,000 per year; $\chi^2(1) = 0.80$, $p = .372$).

Clinical Course of SAD

Mean self-reported duration of SAD in the sample was 28.02 years ($SD = 14.31$) prior to intake, with 98.8% reporting that their first episode remained current. Of the 85 participants with SAD at intake, data for 62 (72.9%) were available for analysis at two-year follow-up (9 are not yet due for a two-year follow-up). Kaplan-Meier survival estimates showed that participants with SAD had a 0.07 probability of achieving full recovery from their intake episode over two years of follow-up ($N = 4$). Of the 4 participants who experienced

recovery, 2 (50.0%) had a recurrence by the end of the follow-up period. No significant differences in survival rates were found for employment ($\chi^2(1) = 1.63, p = .201$), receiving any treatment at intake ($\chi^2(1) = 0.23, p = .636$), education level (at least high school vs. greater than high school; $\chi^2(1) = 0.44, p = .509$), or income (less than \$20,000 per year vs. greater than \$20,000 per year; $\chi^2(1) = 2.04, p = .153$).

Clinical Course of PDA

Mean self-reported duration of PDA in the sample was 13.12 years ($SD = 11.50$) prior to intake, with 94.8% reporting that their first episode remained current to the time of intake. Of the 77 participants with PDA at intake, data for 70 (90.9%) were available for analysis at two-year follow-up (4 are not yet due for a two-year follow-up). None of these participants experienced a recovery over two years of follow-up ($N = 0$; Kaplan-Meier survival estimate = 0.00). Because no recoveries were observed in PDA, no further comparisons of survival rates could be conducted.

Course of Comorbid MDD

Of the 75 participants with MDD at intake, data for 62 (82.7%) were available for analysis at two-year follow-up (11 are not yet due for a two-year follow up). Kaplan-Meier survival estimates showed that participants with MDD had a 0.54 probability of achieving full recovery from their intake episode during two years of follow-up ($N = 32$). Of these recoveries, 9 participants (28.1%) had a recurrence of MDD during the two-year follow-up period. No significant differences in survival rates were found for employment ($\chi^2(1) = 0.87, p = .351$), receiving any treatment at intake ($\chi^2(1) = 2.85, p = .091$), education level (at least high school vs. greater than high school; $\chi^2(1) = 0.15, p = .703$), or income (less than \$20,000 per year vs. greater than \$20,000 per year; $\chi^2(1) = 1.43, p = .231$).

Discussion

To our knowledge, this is the first study to present prospective data on the longitudinal course of anxiety disorders in an African American sample. The data indicate that rates of recovery from anxiety disorders in this sample were markedly low for SAD and PDA, suggesting an overall more insidious and chronic course in African Americans than that reported in previous studies examining primarily White participants. Prospective clinical course data on GAD indicated a recovery rate of 0.23 over two years of follow-up, which is comparable to rates of recovery reported in previous investigations of predominantly white samples, with Yonkers and colleagues (1996) reporting a two year recovery rate of 0.25 in HARP-I and Rodriguez et al. (2006) reporting a two year recovery rate of 0.39 in the PCAP study. Despite being associated with the highest rates of recovery in the current sample, however, GAD was associated with high rates of severe ratings of illness severity, low rates of current treatment utilization at intake (54.3%), and a high unemployment rate (66.0%). These findings present an interesting pattern of results that suggest that despite a severe clinical experience, GAD in African American individuals demonstrated somewhat better course over two years of follow-up relative to the other anxiety disorders.

In the current study, SAD was associated with a substantially lower rate of recovery than GAD, with 0.07 probability of achieving full recovery over two years of follow-up. This rate of recovery is also much lower than that reported in previous research with primarily white participants (approximately .20 at two years in HARP-I; Bruce et al., 2005, and 0.31 at two years in PCAP; Beard et al., 2010). Despite the high chronicity of SAD in this sample, only about half (55.3%) were currently receiving treatment at study intake. However, participants with SAD reported high rates of lifetime treatment utilization (95.3%), which underscores the significant impact of SAD on functioning even with treatment. It is important to note

that it is unknown if participants received treatment specifically for SAD or whether the treatment they received would be considered adequate.

PDA was associated with the poorest clinical course in the present study, with a probability of recovery over two years of 0.00 with no observed recoveries. This rate of recovery is substantially lower than recovery rates reported in previous research for PDA (approximately 0.23 at 2 years in HARP-I; Bruce et al., 2005, and 0.16 in PCAP; Francis et al., 2007). Even with a later age of onset and shorter overall duration compared to GAD and SAD, PDA appeared to be associated with a greater burden of illness. Individuals with PDA had high rates of receiving physical or psychiatric disability (54.5%), a high percentage of annual incomes below \$20,000 (76.6%), a high rate of unemployment (80.5%), and the highest utilization of treatment at intake (66.2%).

Analysis of the clinical course of comorbid MDD in this sample found a recovery rate of 0.54 over two years, which was substantially higher than recovery rates of the anxiety disorders, a pattern that is consistent across other investigations. The rate of recovery of MDD among this African American sample is comparable to those reported in previous investigations comparing course of anxiety and depression in White samples (Bruce et al., 2005; Mueller et al., 1999). These findings suggest that the sample as a whole was not more impaired due to MDD. Rather, this finding suggests that there may be something uniquely impairing about anxiety disorders in African Americans that urgently warrants further investigation. Indeed, future research should endeavor to explore a range of socio-demographic variables of specific relevance to minority populations, including perceived discrimination and racism, cultural variables such as acculturation with respect to majority group values and mores, minority views of the mental health care system, issues regarding access to adequate care, and culture-specific manifestations of mental illness. The lack of significant differences in recovery rates in the current sample as a function of employment, treatment utilization, education, and income levels underscores the importance of exploring these additional socio-cultural variables, as the poorer course of anxiety disorders in this African American sample cannot be explained simply by socio-economic status (SES) factors. Additional comparisons of African Americans with anxiety disorders to SES-matched White anxiety disorder samples will also be an important step to further identify key potential differences between these groups, and to identify unique markers of risk and resilience in minority populations.

Overall, participants in this sample had relatively low SES with regard to income, unemployment, and disability, but in general the sample was not poorly educated. This finding suggests that factors other than poor education, such as the participants' chronic anxiety or discrimination, may be contributing to decreased SES.

Despite the chronicity and severity of anxiety in this sample, nearly half were not receiving any current treatment at study intake, which would still be considered low levels of treatment utilization, even if they were slightly higher than rates reported in previous studies involving African American samples (Brenes et al., 2008). Exploring possible reasons contributing to this underutilization of treatment is important, and may help provide guidance for both public health initiatives and improved efforts by individual and community-level providers that can help to close this gap and work to develop more effective and accessible interventions (NIMH, 2010).

The naturalistic design of this study carries with it both strengths and limitations. Although the study did not manipulate variables that may impact the course of anxiety disorders, the data represent a sampling of what is occurring in the real world. It is important to note, however, that this is not an epidemiological sample. In fact, our convenience sample

consisted of individuals with a low mean income. Therefore our sample may not fully generalize to all African Americans with anxiety disorders. Additionally, although the LIFE has been demonstrated to be a reliable instrument for assessing the longitudinal course of disorders (Keller et al., 1983; Keller et al., 1987; Warsaw, Dyck, Allsworth, Stout, and Keller, 2001), it is possible that more precise and subtle changes in PSRs could be detected with more frequent assessments that reduce the potential for recall errors. Furthermore, while we reported the participants' subjective reports of the chronicity of their disorders, with over 90% reporting that they felt their first episodes remained current, it is important to point out that this assessment is retrospective and subject to significant recall bias. We nonetheless found it compelling that participants deemed their own experience with these disorders to be chronic. Another consideration when assessing these constructs in minority groups is the possibility of culturally-dependent or group-specific meanings of key terms used in assessment, such as fear, worry, stress and panic. Although English fluency was an inclusion criterion in this study, and there is some emerging research that demonstrates that some of our assessment tools are indeed valid across racial groups (e.g., Beard et al., 2011), continued psychometric assessment of these measures in diverse samples will be invaluable to ensure the validity and reliability of their use with these populations.

Despite the fact that this was not an epidemiological study, the current study is critically important as it represents one of the first and most comprehensive attempts to study the course of anxiety disorders in a well-characterized clinical sample of African Americans. With continued follow-up, data from this low-income and severely ill sample will provide insight into factors that may maintain chronicity of symptoms and impaired functioning in individuals most in need of adequate services. This study highlights a number of additional important points for exploration in future research. Because the rates of recovery of anxiety disorders were so low in the current study, we lacked statistical power to perform Cox regressions and test for predictors of recovery or relapse (Concato, Peduzzi, Holford, & Feinstein, 1995). These findings underscore the importance of continued research in this area, with more years of follow-up to allow for greater power to examine these predictors and to discover the mechanisms leading to chronicity in these individuals. These may include important mediators and moderators of course, such as negative affect, fear, exposure to environmental stressors including poverty, trauma, stressful life events, low perceived social status, experiences of discrimination and other previously mentioned socio-demographic variables that are especially pertinent for minority groups, and adequacy of treatment. Indeed, comprehensive measures of these constructs have recently been implemented in HARP-II. It is likely that the relationship between cultural variables and clinical course is a complex one, given the heterogeneity of minority groups. Indeed, no single unified African American or Black group truly exists, and cultural influences can vary substantially by factors such as region of the U.S. and country of origin (e.g. Black Caribbean).

The results from the current study appear to partially support the work of Breslau (Breslau et al., 2005), who suggested that anxiety disorders in African Americans may have a more persistent course over time. This appeared to be true for SAD and PDA in our sample, but not for GAD, which demonstrated a probability of recovery similar to that reported in previous, mostly White samples. However, these comparisons are limited as they are based on existing data from previous White samples. With further follow-up data, HARP-II will include comparisons with a contemporaneous White cohort. Exploring possible reasons for increased chronicity of anxiety disorders in African Americans may hold essential information regarding risk and resilience factors that can usefully influence treatment development research for these populations. Overall, the current study demonstrates that African Americans with anxiety disorders experience high levels of psychiatric comorbidity, and, based on preliminary comparisons with previously published data, may experience a

more chronic course of illness than Whites with regard to SAD and PDA. Additional investigation into the clinical and socio-cultural variables that underlie this chronicity is needed. This research should also seek to address predictors of treatment utilization and assessment of the quality and adequacy of treatment received in order to identify pathways to improved outcomes in African Americans. Research that advances our understanding of the factors that contribute to the recovery and recurrence, including clinical variables, underlying mechanisms, and moderators and mediators of anxiety disorders in African Americans remains a vital, understudied public health priority.

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Probability of Recovery Over Two Years

Figure 1.

Cumulative probability estimates of recovery in African American participants with GAD, SAD, PDA, and comorbid MDD over two years of prospective follow-up.

Table 1

Demographic Characteristics at Intake

Variable	Total Sample (N = 152)		SAD (N=85)		GAD (N=94)		PDA (N=77)	
	N	%	N	%	N	%	N	%
Age	41.52 (M)	11.49 (SD)	41.59 (M)	12.01 (SD)	40.82 (M)	11.19 (SD)	42.45 (M)	10.40 (SD)
Age Range	18 – 75		18 – 75		19 – 71		19 – 60	
Gender								
Male	51	33.6	28	32.9	31	33.0	23	29.9
Female	101	66.4	57	67.1	63	67.0	54	70.1
Marital Status								
Single	91	59.9	52	61.2	54	57.4	44	57.1
Married	15	9.9	8	9.4	12	12.8	9	11.9
Widowed/Separated/Divorced	45	29.6	25	29.4	28	29.8	23	29.9
Education (highest completed)								
High School or Less	68	44.7	35	41.2	38	40.4	42	54.5
At Least Some College or More	84	55.3	50	58.8	56	59.6	35	45.5
Economic Support								
Income from Job	48	31.6	26	30.6	33	35.1	16	20.8
Spouse	11	7.2	6	7.1	8	8.5	7	9.1
Partner	12	7.9	6	7.1	9	9.6	5	6.5
Family	22	14.5	15	17.6	12	12.8	10	13.0
Unemployment	7	4.6	6	7.1	3	3.2	2	2.6
Welfare	38	25.0	19	22.4	22	23.4	20	26.0
Physical Disability	37	24.3	18	21.2	24	25.5	28	36.4
Psychiatric Disability	38	25.0	18	21.2	20	21.3	30	39.0
Physical or Psychiatric	55	36.2	28	32.9	32	34.0	42	54.5
Physical and Psychiatric	20	13.2	8	9.4	12	12.8	16	20.8
Employment								
Employed	45	29.6	24	28.2	32	34.0	15	19.5
Unemployed	107	70.4	61	71.8	62	66.0	62	80.5

Variable	Total Sample (N = 152)		SAD (N=85)		GAD (N=94)		PDA (N=77)	
	N	%	N	%	N	%	N	%
Annual Income								
<\$19,999/yr	100	65.8	53	62.4	59	62.8	59	76.6
\$20,000 – \$49,999	37	24.3	23	27.1	23	24.5	15	19.5
\$50,000 – \$89,999	8	5.3	5	5.9	6	6.4	1	1.3
\$90,000+	5	3.3	3	3.5	4	4.3	0	0.0
Living Situation								
Alone	50	32.9	23	27.1	29	30.9	30	39.0
Parent/Grandparent	17	11.2	10	11.8	11	11.7	6	7.8
Spouse/Partner	36	23.7	19	22.4	25	26.6	21	27.3
Roommates	11	7.2	8	9.4	7	7.4	3	3.9
With Adult Children	18	11.8	15	17.6	11	11.7	10	13.0
With Children (under 18)	41	27.0	22	25.9	27	28.7	18	23.4

Note: M = Mean, SD = Standard Deviation, SAD = Social Anxiety Disorder, GAD = Generalized Anxiety Disorder, PDA = Panic Disorder with Agoraphobia

Table 2

Clinical Characteristics at Intake

Variable	Total Sample (N=152)			SAD (N=85)			GAD (N=94)			PDA (N=77)		
	N	%		N	%		N	%		N	%	
Age of Onset	-	-		13.56 (M)	9.28 (SD)		23.69 (M)	13.35 (SD)		29.34 (M)	13.10 (SD)	
Duration (years)	-	-		28.02 (M)	14.31 (SD)		17.13 (M)	13.59 (SD)		13.12 (M)	11.50 (SD)	
Severity of Current Episode												
Mild	-	-		28	32.9		20	21.3		17	22.1	
Moderate	-	-		46	54.1		60	63.8		49	63.6	
Severe	-	-		11	12.9		14	14.9		11	14.3	
Duration of Current Episode												
1 st Episode Remains Current	-	-		84	98.8		84	89.4		73	94.8	
Trauma History	84	55.3		48	56.5		52	55.3		49	63.6	
Comorbidity												
Number of Lifetime Axis-I Disorders	5.45 (M)	1.91 (SD)		5.74 (M)	1.84 (SD)		5.88 (M)	1.98 (SD)		6.00 (M)	1.93 (SD)	
Number of Current Axis-I Disorders	3.57 (M)	1.68 (SD)		3.95 (M)	1.68 (SD)		4.13 (M)	1.65 (SD)		4.05 (M)	1.78 (SD)	
Other Comorbid Anxiety Disorder Current	-	-		76	89.4		86	91.5		70	90.9	
HARP Index Disorders Current at Intake												
GAD	94	61.8		51	60.0		94	100.0		45	58.4	
Panic Disorder w/Ag	77	50.7		31	36.5		45	47.9		77	100.0	
Panic Disorder wo/Ag	7	4.6		3	3.5		5	5.3		0	0.0	
Social Anxiety Disorder	85	55.9		85	100.0		51	54.3		31	40.3	
Specific Phobia	61	40.1		35	41.2		38	40.4		31	40.3	
PTSD	57	37.5		32	37.6		37	39.4		38	49.4	
Other Comorbid Disorders Current at Intake												
OCD	37	24.3		26	30.6		27	28.7		22	28.6	

Variable	Total Sample (N=152)		SAD (N=85)		GAD (N=94)		PDA (N=77)	
	N	%	N	%	N	%	N	%
Anxiety NOS	11	7.2	7	8.2	4	4.3	5	6.5
MDD	75	49.3	43	50.6	57	60.6	40	51.9
Any Mood Disorder	82	53.9	46	54.1	61	64.9	44	57.1
Any Eating Disorder	6	3.9	5	5.9	6	6.4	4	5.2
Alcohol Abuse	1	0.7	1	1.2	0	0.0	0	0.0
Alcohol Dependence	6	3.9	5	5.9	2	2.1	3	3.9
Drug Abuse	0	0	0	0.0	0	0.0	0	0.0
Drug Dependence	5	3.3	3	3.5	4	4.3	3	3.9

Notes: M = Mean, SD = Standard Deviation, SAD = Social Anxiety Disorder, GAD = Generalized Anxiety Disorder, PDA = Panic Disorder with Agoraphobia

Table 3

Treatment Utilization – Lifetime and Current at Intake

Variable	Total Sample (N =152)		SAD (N=85)		GAD (N=94)		PDA (N=77)	
	N	%	N	%	N	%	N	%
Lifetime Treatment Utilization	137	90.1	81	95.3	83	88.3	72	93.5
Individual Therapy	119	78.3	74	87.1	72	76.6	61	79.2
Group Therapy	62	40.8	33	38.8	38	40.4	39	50.6
Family Therapy	29	19.1	16	18.8	21	22.3	15	19.5
Medication Management	108	71.1	60	70.6	64	68.1	62	80.5
Self Help	62	40.8	32	37.6	40	42.6	32	41.6
Day Treatment	28	18.4	15	17.6	18	19.1	17	22.1
Inpatient	53	34.9	28	32.9	33	35.1	38	49.4
Residential	29	19.1	16	18.8	17	18.1	16	20.8
Current Treatment Utilization at Intake	87	57.2	47	55.3	51	54.5	51	66.2
Individual Therapy	51	33.6	28	32.9	28	29.8	33	42.9
Group Therapy	11	7.2	8	9.4	5	5.3	5	6.5
Family Therapy	0	0.0	0	0.0	0	0.0	0	0.0
Medication Management	60	39.5	32	37.6	37	39.4	40	51.9
Self Help	32	21.1	13	15.3	19	20.2	18	23.4
Day Treatment	3	2.0	1	1.2	2	2.1	1	1.3
Inpatient	1	0.7	0	0.0	1	1.1	0	0.0
Residential	7	4.6	5	5.9	3	3.2	3	3.9

Notes: SAD = Social Anxiety Disorder, GAD = Generalized Anxiety Disorder, PDA = Panic Disorder with Agoraphobia Table 4. Psychosocial Functioning of the Sample at Intake

Table 4

Psychosocial Functioning of the Sample at Intake

Variable	Total Sample (N = 152)		SAD (N=85)		GAD (N=94)		PDA (N=77)	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
Global Assessment of Functioning	50.25	(7.54)	50.07	(7.62)	49.64	(7.85)	47.77	(7.32)
Global Social Adjustment (1–5)	3.87	(0.79)	3.88	(0.75)	3.96	(0.83)	4.09	(0.81)
	N	%	N	%	N	%	N	%
Very Good	1	0.7	0	0.0	1	1.1	1	1.3
Good	4	2.6	2	2.4	2	2.1	1	1.3
Fair	40	26.3	23	27.1	22	23.4	13	16.9
Poor	75	49.3	43	50.6	44	46.8	37	48.1
Very Poor	32	21.1	17	20.0	25	26.4	25	32.5
Overall Life Satisfaction Rating (1–5)	3.25	(0.85)	3.37	(0.76)	3.42	(0.88)	3.26	(0.99)
	N	%	N	%	N	%	N	%
Very Good	3	2.0	0	0.0	2	2.1	3	3.9
Good	21	13.8	9	10.6	9	9.6	13	16.9
Fair	72	47.4	40	47.1	39	41.4	28	36.4
Poor	45	29.6	30	35.3	34	36.2	25	32.5
Very Poor	10	6.6	5	5.9	9	9.6	7	9.1
RAND Health Survey								
Mental Component Summary (z-score)	-2.19 ^a	(1.46)	-2.31 ^a	(1.57)	-2.59 ^a	(1.37)	-2.13 ^a	(1.55)
Physical Component Summary (z-score)	-0.12	(1.33)	0.03	(1.27)	-0.20	(1.41)	-0.27	(1.30)

Note

^a significantly different from the general population normative sample, SAD = Social Anxiety Disorder, GAD = Generalized Anxiety Disorder, PDA = Panic Disorder with Agoraphobia.