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Panic Symptoms and Anxiety Sensitivity in African Americans

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PANIC SYMPTOMS AND ANXIETY SENSITIVITY IN AFRICAN AMERICANS

By

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ABSTRACT

Despite the growing population of ethnic minority groups in the United States, there have only been a few investigations of the differential manifestation of psychopathology in these groups. The limited existing literature suggests important differences between African Americans and European Americans with respect to several aspects of anxiety psychopathology. A set of analyses was conducted to investigate differences between African Americans and European Americans in panic attack symptoms, the latent structure of anxiety sensitivity, and the predictive ability of anxiety sensitivity subscales. Consistent with previous reports, African Americans endorsed greater vigilance to physical symptoms and higher levels of anxiety sensitivity. Factor analytic results did not support previously identified latent structures of anxiety sensitivity in either of the samples. However, hierarchical regression results suggest racial differences in the predictive validity of subscales from two different models. These findings are discussed including consideration of cross-cultural construct validity issues and the clinical and research implications.

PANIC SYMPTOMS AND ANXIETY SENSITIVITY IN AFRICAN AMERICANS

The Census Bureau estimates that the number of ethnic minority individuals will double by the year 2050, making minority groups more than half of the US population (U.S. Bureau of the Census, 2004). Additionally, African Americans comprise 12% of the United States (US) population (33.9 million people). Theorists, researchers, and policy makers have begun to recognize the importance of examining racial and ethnic differences in mental health (Clark, Anderson, Clark, & Williams, 1999; Kirmayer, 2001; Neal & Turner, 1991; U.S. Department of Health and Human Services [USDHHS], 2001). As a result, research in minority mental health has increased significantly in recent decades (Sue & Chu, 2003). Some notable findings about the role of ethnicity in psychopathology have accumulated. However, further work is needed in order to understand the implications of racial differences in the development, maintenance, and treatment of disorders.

Good and Kleinman (1985) identified anxiety disorders as differing cross-culturally in phenomenology. In particular, it has been suggested that somatic or physical symptoms are culture-specific idioms of distress (Kirmayer, 2001). Panic disorder is characterized by recurrent, unexpected panic attacks and a persistent concern about the implications and future occurrence of attacks (APA, 1994). Because it is a fear of the implications of physical symptoms associated with anxiety, panic disorder has been called the “fear of fear” (Reiss & McNally, 1985). Thus, panic disorder represents a specific area we might expect to see cross-cultural differences. Draguns and Tanaka-Matsumi (2003) recognized this stating “it is somewhat paradoxical that anxiety related phenomena across cultures have been studied less intensively and extensively than depression or schizophrenia” (p. 766). In fact, anxiety psychopathology in African American individuals, and specifically panic disorder, is one area where we see interesting findings that require further scrutiny and interpretation.

Epidemiological data comparing prevalence rates of panic disorder in European Americans and African Americans has yielded mixed results. A few large epidemiological surveys have suggested roughly equivalent lifetime prevalence rates of panic disorder in European Americans and African Americans (Friedman & Paradis, 2002). However, the more recent National Comorbidity Survey-Replication (NCS-R) results indicate African Americans are at significantly lower lifetime risk for panic disorder than European Americans (odds ratio = .3-.6; Kessler, Chiu, Jin, Ruscio, Shear, & Walters, 2006). This is consistent with the findings that African Americans have lower lifetime prevalence rates for all anxiety disorders, a finding supported by analyses of the Environmental Catchment Area (ECA), National Comorbidity Survey (NCS), and NCS-R (Breslau et al., 2005).

In addition to epidemiological differences, studies suggest differences in the manifestation of specific symptoms between African Americans and European Americans with panic disorder. A reanalysis of ECA data by Horwath, Johnson, and Hornig (1993) reported that African Americans with panic disorder had reported higher lifetime incidence of hot and cold flashes as well as tingling in the hands and feet.

More recent studies have also indicated that African Americans diagnosed with panic disorder rate the tingling and numbing in the extremities during panic attacks as more *intense* than European Americans (Friedman & Paradis, 2002; Smith, Friedman, Nevid & Jeffrey, 1999). These same data suggest African Americans have more intense fears of dying or going crazy as a result of panic attacks. As a potential explanation for these differences, Friedman and Paradis (2002) suggested that African Americans show greater fear of physical symptoms because of the higher rates of health problems related to these symptoms in African American communities (diabetes, heart conditions etc.). Additionally, they suggest that because of disproportionately lower socioeconomic status (SES) levels that contribute to poorer health outcomes, African Americans may experience more negative life consequences as a result of behavioral and physical loss of control. Finally, Friedman and Paradis (2002) contend that stigma about mental illness in the African American community contributes to African Americans with panic disorder reporting more intense physical sensations.

Another indication that panic disorder manifests differently in African Americans is the differences found in the psychometric properties of measures of anxiety sensitivity, a well-documented risk factor for panic and panic disorder (Schmidt, Zvolensky, & Maner, 2006). The Anxiety Sensitivity Index (ASI; Reiss, Peterson, Gursky, & McNally, 1986) is a self-report measure most commonly used to assess levels of anxiety sensitivity. Carter, Miller, Sbrocco, Suchday & Lewis (1999) found that the typical 3-factor model of the ASI (Zinbarg, Barlow, & Brown, 1997) including physical concerns, mental incapacitation, and social concerns, did not provide a good fit to data from an African American sample in confirmatory factor analysis. Instead, exploratory factor analysis suggested a 4-factor model in which social concerns became a part of a mental incapacitation factor along with factors tapping fears of unsteadiness, cardiovascular concerns, and emotional control. Additionally, the emotional control factor had the lowest correlations to other measures of anxiety including the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) and the state version of the State-Trait Anxiety Inventory (STAI-S; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). In a similar study using a measure of anxiety sensitivity in adolescents, Lambert, Cooley, Campbell, Benoit, & Stansbury (2004) reported a lack of differentiation of items tapping social concerns. Both researchers concluded African Americans' concerns about others' perception of anxiety symptoms, may be more related to the other concepts tapped by the ASI, including fears of incapacitation or losing mental and physical functioning, rather than social evaluation. Moreover, the Lambert et al. (2004) analysis was consistent with prior studies of childhood anxiety sensitivity suggesting overall higher levels of this risk factor in ethnic minority children than European American samples (Rabian, Embry, & MacIntyre, 1999; Silverman, Fleisig, Rabian, & Peterson, 1991). The finding of higher anxiety sensitivity in African Americans and differential factor structure needs further investigation.

To summarize, there is significant evidence to suggest panic attacks and panic disorder have differential expression in African Americans (Friedman & Paradis, 2002; Horwath et al., 1993; Smith et al., 1999). Despite repeated reports that African Americans score higher on measures of anxiety sensitivity

(Lambert et al., 2004; Rabian et al., 1999; Silverman et al., 1999), the literature lacks explicit discussion of differences in absolute levels of anxiety sensitivity between African American and European American adults. Moreover, differences in the structure of the ASI in African Americans have been reported (Carter et al., 1999; Lambert et al., 2004). However, to our knowledge, no studies have examined the relationship between the ASI latent factors derived from African Americans and the actual endorsement of panic attacks in adults. Finally, despite potentially higher rates of anxiety sensitivity, epidemiological data suggests African Americans have lower or comparable rates of panic attacks and panic disorder (Kessler et al., 2006). These issues represent an overall lack of understanding about anxiety sensitivity and panic in African Americans.

The present research attempted to both replicate and extend investigations of panic phenomenology and anxiety sensitivity in African Americans. The first aim was to investigate differences in specific symptoms and overall ASI scores. The first main hypothesis was that, as indicated by previous data (Friedman & Paradis, 2002; Horwath et al., 1993; Smith et al., 1999), African Americans would endorse the following symptoms at higher rates than European Americans: hot and cold flashes, tingling in the hands and feet, fear of death or serious illness, and fear of going crazy.

The second aim was to investigate anxiety sensitivity in African Americans as compared to European Americans including overall scores and the latent structure of the ASI. For this study, additional data was added to the sample used to consider specific symptoms. We hypothesized that African Americans would have overall higher levels of anxiety sensitivity as measured by the ASI. In addition, we predicted that confirmatory factor analyses (CFA) of the ASI comparing the fit of the 4-factor model (Carter et al., 1999) and the original 3-factor model (Zinbarg et al., 1997) in both African Americans and European Americans would indicate that these models fit differently depending on the sample. Specifically, we predicted the 4-factor model would provide a better fit to the data for the African American sample relative to the 3-factor model, whereas the 3-factor model would provide a better fit to the data for the European American sample relative to the 4-factor model. To our knowledge, this is the first investigation using the ASI that included two groups and two models in such a way that permits comparison of the fit of both models for both groups.

Moreover, we conducted a novel test of the predictive validity of the ASI latent factors by examining the relationship between factors in each of the models and a variety of anxiety symptoms in a subset of the sample for which longitudinal data were available. We hypothesized that in an African American sample the 4-factor model would significantly predict multiple symptoms of anxiety whereas the 3-factor model would not. Additionally, we predicted that in African Americans the two subscales consisting of items related to physical concerns, cardiovascular concerns and fears of unsteadiness, would uniquely predict the endorsement of a variety of symptoms of anxiety above and beyond the other subscales. In the European American sample we expected the 3-factor model would predict the endorsement of specific symptoms of anxiety, whereas the 4-factor model would not. Although these analyses were predominantly exploratory in nature, we expected some general trends in the findings from

the European American sample. In particular, rather than specific scales proving significance regardless of the domain, the subscales would be logically consistent with the content of the dependent variables in a European American sample.

Race and Specific Symptom Endorsement

Method

Participants. The data included in analyses concerning specific symptoms were collected from undergraduate participants ($N = 881$) enrolled in introductory psychology classes at Florida State University. The sample was relatively young ($M = 18.97$, $SD = 1.8$) and predominantly female (65%). In this sample, 13.5% of the participants self-identified as African American and 86.5% as European American. Demographic information for this sample is provided in Table 1.

Measures. Two measures that ask participants to rate the intensity of specific symptoms of panic were used in these analyses. *The Body Vigilance Scale* (BVS; Schmidt, Lerew, & Trakoski, 1997) is a 4-item self report questionnaire. The first three items assess attentional focus, perceived sensitivity, and time devoted to assessing internal bodily sensations using an 11-point Likert scale. The fourth item includes separate ratings using an 11-point Likert scale for each of the 15 physical sensations described in the *Diagnostic and Statistical Manual of Mental Disorder* (DSM-IV; American Psychiatric Association, 1994). Generally, ratings for the 15-items are averaged to yield one overall score for Item 4, however for the purposes of the current study, endorsements of specific BVS items were analyzed as well. The BVS has demonstrated internal consistency and adequate test-retest reliability (Olatunji, Deacon, Abramowitz, & Valentiner, 2007; Schmidt et al., 1997). In the current sample, the BVS demonstrated very good internal consistency ($\alpha = .84$).

The *Panic Attack Questionnaire–Revised* (PAQ-R; Norton, Dorward, & Cox, 1986) is a self-report measure designed to assess the presence, frequency, and duration of panic attacks as well as the severity and distress associated with specific symptoms. The PAQ-R provides a description of a panic attack based on the DSM-IV criteria. Only participants that indicate they have experienced a panic attack provide additional information including severity of specific symptoms during both typical and 'worst ever' panic attacks. The PAQ-R has demonstrated test-retest reliability (Margraf & Ehlers, 1988) and construct validity (King, Gullone, Tonge, & Ollendick, 1993; King, Ollendick, Mattis, Yang, & Tonge, 1996).

Procedure. Participants completed the BVS and the PAQ-R in return for course credit. The measures were completed in classrooms with 20-30 participants after giving informed consent and under the supervision of research assistants. Whereas all of the participants received the BVS, only a subsample received the PAQ-R.

Results

Descriptive Statistics. Analyses were conducted to compare the African American and European American samples with respect to age and gender. Independent *t*-test indicated African Americans in the

sample were slightly older on average (M =19.44, SD = 2.41) than European Americans (M =18.90, SD = 1.50); t (132.59) = -2.35, p = .02 (two-tailed). The magnitude of this difference (mean difference = -.53, 95% CI: -.98 to -.08) was moderate (d = -.27), however the actual difference is only about half a year and is not likely to be of practical importance.[1] A chi-square test for independence indicated no significant difference in the proportion of females in the African American sample (70%) and the European American sample (63%), X^2 (2, n = 1106) = 2.73, p = .26, phi = .05.

Specific Symptoms. The results of the comparisons of specific symptoms are summarized in Table 2. In order to investigate group differences in the experience of specific symptoms during panic attacks participants completed the PAQ-R. There was no significant difference in the number of individuals who endorsed having had a panic attack between the African American (15.8%) and European American (15.6%) samples as measured by the PAQ-R, X^2 (2, n = 330) = .37, p = .83, phi = .03. Hypotheses about specific symptom endorsements were assessed using a series of independent t-tests for those endorsing a panic attack. There were no significant differences between groups on any of the hypothesized symptoms. Because analyses were limited to individuals who had endorsed panic attacks in the subgroup that had completed the PAQ-R, only small samples of both African Americans (n = 9) and European Americans (n = 29) were included in these analyses. The effect sizes for endorsement of some of the items, including tingling (d = .17), fear of death or serious illness (d = .24), and fear of going crazy (d = .02) were small. Given the small subsample size, it is likely that the analyses would have been able to detect only moderate to large effects.

Because the sample size of individuals who endorsed having had at least one full panic attack was relatively small, we also considered group differences in attention to symptoms of panic attacks as measured by the BVS. Independent-samples t-test indicated a significant difference between groups in overall scores on the BVS, t (131.83) = -2.24, p = .03 (two-tailed), such that the African American sample (M = 15.16, SD = 11.13) reported relatively greater vigilance than the European American sample (M = 12.70, SD = 8.54). The magnitude of the effect was large (d = .39).

These results are also reported in Table 2. A series of independent sample t-tests were completed to examine group differences in specific symptom endorsement. Results indicated significant differences between groups on seven variables representing attention to specific symptoms. African Americans had higher mean scores than European Americans at the $p < .05$ level on the predicted items concerning attention to numbness (d = .59), tingling (d = .62), and hot flashes (d = .49). In addition, African Americans endorsed at higher intensity attention to heart palpitations (d = .51), chest pain/discomfort (d =.96), vision changes (d = .44), and dizziness (d = .66).

Summary

The first goal of this investigation was to examine differences between African Americans and European Americans in the experience of specific symptoms of panic. Because the sample size of individuals who endorsed having a panic attacks was relatively small, we considered group differences in vigilance or attention to these symptoms in the absence of an actual attack. African Americans endorsed

greater attention to symptoms overall. As predicted, African Americans endorsed greater attention to several specific symptoms including numbness, tingling, and hot flashes than European Americans. These findings are consistent with previous reports (Friedman & Paradis, 2002; Horwath et al., 1993; Smith et al., 1999). African Americans also endorsed cardiovascular concerns, including attention to heart palpitations & chest pain, as well as vision changes and dizziness at higher rates.

Table 1

Demographic information by race and sample

Sample	Race			
	European American		African American	
FSU				
	No.	*%*	*No.*	*%*
Gender				
Female	482	63.3	84	70.6
Male	280	36.7	35	29.4
	M	*SD*	*M*	*SD*
Age	18.9	1.50	19.4	2.4
ASI Total Scores	15.8	8.8	17.3	10.4
Ohio				
	No.	*%*	*No.*	*%*
Gender				
Female	185	62.5	28	70.0
Male	111	37.5	12	30.0
	M	*SD*	*M*	*SD*
Age	19.3	4.0	19.7	3.8
ASI Total Scores	15.9	8.4	19.5	8.2
Combined				
	No.	*%*	*No.*	*%*
Gender				
Female	667	63.0	112	70.4
Male	391	37.0	47	29.6
	M	*SD*	*M*	*SD*
Age	19.01	2.5	19.5	2.8
ASI Total Scores	15.8	8.7	17.8	9.9

Note. ASI = Anxiety Sensitivity Index

Table 2

Race and specific symptom endorsement on the PAQ-R and BVS

	European Americans		African Americans			
Variable	*M*	*SD*	*M*	*SD*	*F*	*Cohen's D*
PAQ-R						
Tingling in hands and feet	1.52	1.41	1.78	1.09	.26	.17
Hot and cold flashes	1.24	1.38	1.78	1.30	1.03	.34
Fears of death or serious illness	.66	1.14	1.00	1.51	.50	.24
Fear of going crazy	.97	1.50	1.00	1.73	.00	.02
BVS						
BVS total score	12.70	8.54	15.16	11.13	5.00*	.39
Heart palpitations	1.83	2.18	2.65	2.82	8.70*	.51
Chest pain/discomfort	2.49	2.60	4.27	3.24	30.58**	.96
Numbness	2.34	2.60	3.40	3.07	12.01***	.59
Tingling	2.45	2.52	3.54	3.01	13.19***	.62
Short of breath/smothering	2.55	2.67	3.12	3.12	3.39	.31

Table 2 - continued

	European Americans		African Americans			
Variable	*M*	*SD*	*M*	*SD*	*F Value*	*Cohen's D*
Faintness	2.51	2.71	3.06	3.05	3.29	.31
Vision changes	3.08	2.77	3.89	3.15	7.83**	.44
Feelings of unreality	2.30	2.60	2.70	2.94	1.78	.23
Feeling detached from self	2.27	2.52	2.68	2.90	1.94	.24
Dizziness	2.85	2.70	4.10	3.25	14.89***	.66
Hot flashes	2.14	2.49	3.04	3.25	7.91**	.49
Sweating/clammy hands	2.41	2.75	2.69	3.27	.71	.14
Stomach upset	3.02	2.60	3.24	2.80	.40	.05
Nausea	3.00	2.75	3.44	2.68	1.39	.11
Choking/throat closing	2.77	3.18	3.48	3.29	2.80	.14

Note. PAQ-R = Panic Attack Questionnaire - Revised; BVS = Body Vigilance Scale
**p < .05. **p<.01. ***p<.00.*

Method

Participants. In order to complete factor analytic techniques, the data from the aforementioned database were combined with data from a primary prevention study (see Schmidt, Zvolensky, & Maner, 2006, for details). Participants in this sample were recruited from Columbus, OH metropolitan schools, Ohio State University, and the greater community (N = 395). At entry, this sample was relatively young (M = 19.4, SD = 3.8) and the majority of participants were female (61%). Additionally, in this sample 88% of participants are European American and 12% are African American. The data from a subset of these participants (n = 165) for which longitudinal data is available, were included in hierarchical regression analyses to test the hypothesis concerning the predictive validity of ASI subscales.

Measures. Diagnoses were made using a structured diagnostic interview (SCID-IP; First, Spitzer, Gibbon, & Williams, 1994). Several self-report measures were used to evaluate a variety of symptoms of anxiety. The *Anxiety Sensitivity Index* (ASI; Reiss, Peterson, Gursky, & McNally, 1986) is a 16-item questionnaire that measures fear of symptoms of anxiety. For each item, participants rate from 0 (*very little*) to 4 (*very much*) how much the item is consistent with their usual way of thinking. Previous psychometric investigations have reported a mean of 20 and standard deviation of 9 in college samples (Peterson & Reiss, 1993). Reiss et al. (1986) reported adequate test-retest reliability (r =.74) over a 2-week period and Hayward, Killen, Kraemer, & Taylor (2000) reported adequate test-retest reliability (r =.59) over a 3-day period. Hayward et al. (2000) reported a Cronbach alpha value of .84.

Procedure. In this report, we give only general information about data collection from the Columbus, OH sample (see Schmidt et al., 2006 for details). In general, following written, informed consent participants completed a diagnostic interview (SCID-NP; First et al., 1994). If they had no Axis I disorders, participants completed a battery of self-report measures and were assigned to one of two conditions (treatment or control). Both conditions consisted of watching a 30 min psychoeducation video and 10 min with an experimenter. The active condition was an intervention designed to reduce anxiety sensitivity levels, whereas the control intervention provided information about health and nutrition. College students received course credit for participation. High school and community participants received $25 for the baseline assessment. When possible, these participants were reassessed after approximately 12 months. The follow-up included a readministration of the diagnostic interview, as well as the administration of multiple self-report measures. Participants received $25 for completion of the follow-up evaluations.

The participants in the Florida State University sample completed the ASI and a battery of other self-report measures at a single time-point in return for course credit. These participants completed the measures in classrooms with 20-30 participants after giving informed consent and under the supervision of research assistants.

Data Analysis. In the current study, we used confirmatory factor analyses (CFA) to test two

models of anxiety sensitivity in both an African American sample and a European American sample. As recommended, each model was tested for its respective goodness of fit to the observed data using both relative and absolute fit indices (Hu & Bentler, 1994; Marsh, Bella, & McDonald, 1988). Values were obtained for the chi-square statistic, the root-mean-square error of approximation (RMSEA), the Tucker-Lewis Index (TLI), and the comparative fit index (CFI).

The fit of the 3-factor model specified by Zinbarg et al. (1997) for each of the samples was assessed first. For this model, individual items were loaded onto their respective factors: social concerns (Items 1, 5, 13), mental incapacitation (Items 2, 12, 15, 16), and physical concerns (Items 3, 4, 6, 8, 9, 10, 11, 14). The second model tested was the Carter et al. (1999) model that had been derived from an African American sample. This model included four factors as follows: emotional control (Items 1, 5), mental incapacitation (Items 2, 12, 14, 15, 16), unsteadiness (Items 4, 8, 3) and cardiovascular concerns (Items 6, 9, 10, 11).

For each model, all latent variables were allowed to freely correlate. In order to satisfy the scale-dependency rule, one loading for each latent variable was fixed to the value of 1. As recommended (Kline, 2005), the constrained variables were the same across groups. All CFAs were conducted using the AMOS maximum likelihood analysis, the structural equation modeling software associated with SPSS.

Power Analysis. Analyses were conducted in order to determine the power of the current results, based on the size of the sample used. For each model, an RMSEA based power analysis was conducted using the test of close fit (MacCallum, Browne, & Sugawara, 1996). RMSEA values reflect the probability of rejecting the null hypothesis that the fit is not good. Thus, an RMSEA value of .08 would suggest a good fit. The minimum sample size to achieve power at the .80 level according to the test of close fit is derived based on the model's degrees of freedom. In CFA, the degrees of freedom reflect the number of parameters that must be estimated for each model, which is higher for the 4-factor model than the 3-factor model. As a result, the sample size necessary to satisfy the test of close fit ranged from $N = 142$ to $N = 168$ (p. 144; MacCallum et al., 1996). The estimated power of the analyses of the 3-factor model ($df = 87$) and the 4-factor model ($df = 73$) in both groups ranged moderate to strong (.57 to .87).

Results

Preliminary Analyses. Analyses were conducted to examine potential differences in demographic characteristics and ASI scores between the FSU and the Ohio datasets. Independent *t*-tests indicated no differences between the samples in age, t (372.47) = -1.70, $p = .09$ or ASI total scores, t (1209) = -.53, $p = .60$. Chi-square tests (with Yates' Continuity Correction) indicated comparable gender composition in the samples X^2 (1, 1217) .04, $p = .78$, *phi* = -.01. Descriptive statistics from both the FSU & Ohio samples as well as the combined sample that will be used in CFA analyses are reported in Table 1.

In the combination sample, *t*-tests indicated a trend towards group differences in age, t (372.47) = -1.70, $p = .09$, $d = .18$, such that African Americans ($M = 19.5$, $SD = 2.80$) were slightly older than European Americans ($M = 19.01$, $SD = 2.44$). A Chi-square test for independence (with Yates' Continuity

Correction) indicated no significant association between gender and race, X^2 (1, 1217) 2.97, p = .08, *phi* = .05.

As expected, there were group differences in ASI total scores t (196.02) = -2.44, p = .02, d = .35, such that African Americans scored higher than European American samples. The normality of total ASI scores was examined, as well. There was some indication of skewed distribution in both the African American (S = .634), the European American (S = .847) and the total sample (S = .826). But a similar distribution has been reported in previous investigations, and is thought to represent the true distribution of the construct as measured by the ASI, so no transformations were applied. There was no statistical indication of kurtosis for the (K = .694) for ASI total scores.

ASI Confirmatory Factor Analyses. A total of four CFAs were completed initially. The fit of each model to the data was determined by examination of various fit indices. Chi-square fit indices that are not significant generally indicate the model provides a good fit to the data. However, because the chi-square statistic is highly sensitive to sample size (Byrne, 2001), alternative fit indices were also inspected. These include the χ^2/df ratio in which chi-square is adjusted for sample size; the goodness-of-fit index (GFI; Joreskog & Sorbom, 1981), a standardized index of explained variance; the Bentler comparative fit index (CFI; Bentler, 1990) and the Tucker-Lewis Index (TLI, Bentler, 1990), two sample-based, incremental fit indices; and the RMSEA and its 90% confidence interval (Steiger, 1990), a population-based, parsimony adjusted index. Comparisons of the 3-factor and 4-factor models were examined via the expected cross-validation index (ECVI; Browne & Cudeck, 1989), a fit index that adjusts for model complexity and can be used to rank competing non-hierarchical models in the same sample.

As reported in Table 3, neither the 3-factor model nor the 4-factor model provided a good fit to the data regardless of the sample. A comparison of the ECVI statistic in each group suggests the 3-factor model provided a better fit to the European American sample (.870) than the African American sample (1.975), as indicated by the lower score. In the 4-factor model, ECVI rankings were not in the expected direction. Instead, they suggest the 4-factor model fit the data of the European American sample (1.189) better than the African American sample (1.822). In general, the fit indices suggest both unconstrained models fit similarly poorly to both samples. This provides little information about the effects of group membership on the relationship between ASI indicators and factors. Because of the poor fit of the models to the data, it would be inappropriate to further investigate the latent structure by comparing the fit of the models with or without cross-group equality constraints (Kline, 2005).

ASI exploratory factor analyses. In order to gain some description of the structure of anxiety sensitivity in both samples and to identify possible explanations for poor model fit, follow up exploratory analyses were conducted using principal components analysis (PCA) with oblique rotation as the primary method. PCA was chosen over other similar data reduction techniques (e.g., principal axis factor analysis; PAF), because it is generally thought to avoid the problem of factor indeterminacy (Gorsuch, 1983; Schonemann & Wang, 1972; Stevens, 1996). While PCA may overestimate the variance accounted for by higher-order factors, indeterminacy, or generation of more than one set of factor scores, represented a

greater distraction from the stated goal of this investigation, which is to compare latent factor structure *across* African American and European American samples. An oblique (Oblimin) transformation was used because of the conceptual and empirical evidence for high correlation between factors. Factor estimations were based on Kaiser's (1961) eigenvalues of one or greater criterion, an examination of the scree plot (Cattell, 1966), and parallel analysis using the Monte Carlo PCA program. Findings from PCA of both samples are summarized in Tables 3 and 4.

In the European American sample, inspection of the correlation matrix indicated the presence of several coefficients of .3 and above, the Kaiser-Meyer-Oklin value was .905, and the Bartlett's Test of Sphericity reached significance, all of which support the factorability of the correlation matrix (Bartlett, 1954). PCA revealed the presence of 3 factors. The overall solution accounted for 52.1% of the variance. Factor 1 accounted for 36.3% of the variance (eigenvalue = 5.81), Factor 2 accounted for 8.2% of the variance (eigenvalue = 1.31), and Factor 3 accounted for 7.6% of the variance (eigenvalue = 1.21). An inspection of the scree plot revealed a distinct break after the second component as well as a break after the third component. The retention of three components for further analysis was supported by results from Parallel Analysis, which showed three components with eigenvalues exceeding the corresponding criterion values for a randomly generated data matrix of the same size (16 variables X 1105 participants). Most items clearly loaded onto a single factor (>.40) according to both pattern and structure coefficients. To a large extent, these factors were consistent with the expected 3-factor model (Zinbarg et al., 1997) for a European American sample.

The items clearly associated with Factor 1 (Items 3, 4, 6, 8, 9, 10 & 14) corresponded to the 'physical concerns' factor. In the expected 3-factor model the physical concerns factor also includes Item 11 ("When my stomach is upset, I worry that I might be seriously ill"). In this analysis, Item 11 had salient loadings (>.3) on Factors 1 and 3. In addition, Item 11 was one of only three items with a communalities value less than .4, indicating it may not fit well conceptually with other items on either Factors 1 or 3. Items 1 and 5 had salient loadings (>.7) and communality values (>.58) on Factor 2. This factor corresponds to the 'social concerns' factor identified in the Zinbarg et al. (1997) 3-factor model. However, in that model, Item 13 ("Other people notice when I feel shaky") was also a part of the social concerns factor. In this sample, Item 13 had salient loadings on both Factor 1 and Factor 3 and a relatively low communality value (.33). The third factor that emerged in this sample was clearly composed of items (2, 12, 15 & 16). These items corresponded to the Zinbarg et al. (1997) 'mental incapacitation' factor. Item 7 ("It embarrasses me when my stomach growls") was not associated with any of the 3 factors derived in the Zinbarg et al. (1997) model. In this sample Item 7 had modest loadings on Factor 1, physical concerns, however the communalities value (.24) suggest it is not conceptually related to other items. In sum, PCA of the European American sample suggests a solution similar to the Zinbarg et al., 1997, 3-factor model of the latent structure of the ASI with some exceptions. Specifically, items 11 and 13 were cross loaded on Factor 1 (physical concerns) and Factor 3 (mental incapacitation).

In the African American sample, the correlation matrix, Kaiser-Meyer-Oklin value (.852) and Barlett's Test of Sphericity ($p < .05$), supported the factorability of the correlation matrix as well. PCA results suggested a 4-factor solution accounted for 59.9% of the variance. Factor 1 accounted for 35.8% of the variance (eigenvalue = 5.73), Factor 2 accounted for 9.1% of the variance (eigenvalue = 1.46), Factor 3 accounted for 7.5% of the variance (eigenvalue = 1.21), and Factor 4 accounted for 7.4% of the variance (eigenvalue = 1.19). An inspection of the scree plot revealed a clear break after the second component, and an additional, but less distinct break after the fourth component. The retention of four components for analysis was supported by results from Parallel Analysis, which showed exactly four components with eigenvalues exceeding the corresponding criterion values for a randomly generated data matrix of the same size (16 variables X 159 participants).

In the African American sample, the items clearly associated with Factor 1 (Items 4, 6, 8, 9, & 10) consist of a subset of the items reported in the first factor that emerged from the European American sample. These items are all components of the physical concerns factor in the 3-factor model. In the 4-factor model, these items are associated with two different factors. Specifically, in the 4-factor model, Item 4 ("It scares me when I feel faint") and Item 8 ("It scares me when I am nauseous") are components of the fears of unsteadiness subscale, whereas Items 6 ("It scares me when my heart beats rapidly"), 9 (When I notice that my heart is beating rapidly, I worry that I might have a heart attack"), and 10 ("It scares me when I become short of breath") are components of the cardiovascular concerns subscale. The second factor that emerged in the African American sample was clearly composed of two items, both of which ask about the extent to which being unable to "keep my mind on a task" is experienced as scary (Item 12) or leads to worry about "going crazy" (Item 2). These items both load on the mental incapacitation subscales of the 3-factor and 4-factor models. The third factor that emerged in the African American sample consisted of two items that ask about the importance of not appearing nervous (Item 1) and staying in control of emotions (Item 5). These two items complete the emotional control subscale of the 4-factor model, and are components of the social control subscale of the 3-factor model. In the European American sample, these items composed the second factor that emerged.

In the African American sample, the pattern coefficients (>.30) indicated Items 3, 7, 11, 14, 15, and 16 were cross-loaded. Items 3 and 14 were associated with both the first factor that emerged, a blend of physical concerns, and the fourth factor that emerged, mental incapacitation. Items 7 and 11 were associated with both the first factor that emerged and the second factor in this sample. In the predicted 4-factor model, Item 7 is not included and Item 11 loads on the cardiovascular concerns subscale. In this sample, Items 15 and 16 were associated with both Factor 2 and Factor 4, whereas in the predicted 4-factor model, these items are both associated with mental incapacitation.

Summary

The second main goal of this study was to gain a better understanding of the effects of race on the latent structure of anxiety sensitivity as measured by the anxiety sensitivity index. We hypothesized that the 4-factor model of the latent structure of the ASI would provide a better fit to the data from an

African American sample, because it had previously been identified through EFA on African American samples (Clark et al., 1999) and has been replicated in an adolescent sample of African Americans (Lambert et al. 2004). Likewise, we expected the 3-factor model would provide a better fit to the data from a European American sample. However, both models demonstrated a comparably poor fit to the data from both samples. Follow up exploratory analyses suggested the latent structure of the ASI for the European American sample is comparable to the structure identified by Zinbarg and colleagues, with the exception of 2 items. Factor analysis of the African American sample seemed to suggest a 4-factor solution as predicted. Inspection of the pattern coefficients of these loadings indicated significant cross-loadings of six items and no conceptual consistency with the 4-factor model proposed (Carter et al., 1999).

In general, the results provided few clues as to the actual latent structure of anxiety sensitivity in African Americans, as measured by the ASI. It is interesting that both previous models that have been supported by several other studies did not fit the data in this sample. One potential explanation is differences both between groups and across studies in the specification of the model for analyses, in particular the selection of variables to constrain for the purpose of identification of the model. In this investigation, the same factor loadings were constrained on both models and across groups for the purpose of a cross-sample comparison of model fit. These items were chosen a priori because previous investigations had demonstrated consistently salient factor loadings (>.8) of the items in both models. However, no prior investigations had sought to fit the models to *two* samples for the purpose of comparison and, while it is unclear, it is unlikely that Zinbarg, Clark, and colleagues all constrained the same factor loadings. The selection of factor loadings can affect the fit of the model to the data. It is important to have large samples of both African Americans and European Americans in which the models are specified in the same way in order to appropriately compare fit.

In general, factor analytic statistical procedures provide evidence of the latent structure of constructs, but do not indicate the predictive power of these constructs (Kline, 2005). The final hypothesis was a test of the predictive validity of the ASI factors identified in previous investigations. We used a subset of the data from the Ohio sample (n = 204) for which multiple follow up self-report measures of anxiety symptoms were available.

Table 3

Confirmatory Factor Analysis of the ASI: Overall Model Fit

			Fit Index						
Model	χ^2	df	χ^2/df	GFI	CFI	TLI	RMSEA	90% CI	ECVI
3-Factor									
EA sample	821.68	87	9.45	.849	.862	.833	.089	.084, .095	.870
AA sample	216.06	87	**2.48**	.764	.841	.808	.097	.081, .113	1.975
4-Factor									
EA sample	1161.98	73	15.92	.772	.783	.729	.119	.113, .125	1.189
AA sample	195.86	73	**2.68**	.771	.840	.800	.103	.086, .121	1.822

Note. Bold items represent $\chi^2/df < 3$. χ^2/df = a ratio of chi-square divided by the degrees of freedom (Kline, 1998); EA = European American; AA = African American; GFI = goodness-of-fit index; CFI = comparative fit index; TLI = Tucker-Lewis Index (also known as the non-normed fit index); RMSEA = root-mean-square-error of approximation; ECVI = expected cross validation index. All χ^2 statistically significant ($p < .001$).

Table 4

PCA with Oblimin Rotation of ASI items in the European American Sample

ASI Items	Pattern Coefficients			Structure Coefficients			Communalities
	I	II	III	I	II	III	
1.	.05	**.70**	.20	.23	.73	.30	.58
2.	-.07	.10	**.79**	.36	.16	.76	.59
3.	**.66**	.19	.08	.73	.31	.44	.57
4.	**.82**	.17	.08	.79	.30	.33	.67
5.	.08	**.75**	-.04	.19	.76	.07	.58
6.	**.83**	-.07	-.02	.81	.07	.41	.66
7.	**.41**	.11	.09	.48	.19	.31	.24
8.	**.70**	.07	-.03	.70	.19	.35	.50
9.	**.49**	-.35	.25	.56	-.24	.47	.47
10.	**.80**	-.13	-.04	.76	.00	.37	.59
11.	.30	-.14	.40	.49	-.05	.54	.37
12.	.10	.13	**.68**	.47	.21	.74	.57
13.	**.34**	.15	.27	.50	.23	.46	.33
14.	.42	-.03	.37	.61	.07	.58	.47
15.	-.13	-.10	**.84**	.30	-.04	.77	.61
16.	.22	-.12	**.57**	.54	.21	.70	.54

Note. N = 1015. Bold items represent salient pattern coefficient loadings (≥ .30) of items that are not cross-loaded. ASI = Anxiety Sensitivity Index.

Table 5

PCA with Oblimin Rotation of ASI items in the African American Sample

ASI Items	Pattern Coefficients				Structure Coefficients				Communalities
	I	II	III	IV	I	II	III	IV	
1.	-.05	.25	**.69**	.06	.13	.31	.71	-.05	.56
2.	-.02	**.84**	.12	.17	.27	.80	.21	-.04	.69
3.	.43	.12	.25	-.34	.64	.45	.37	-.53	.62
4.	**.63**	.04	.15	-.21	.73	.35	.27	-.42	.60
5.	.07	-.12	**.77**	-.08	.17	.02	.77	-.15	.61
6.	**.84**	-.11	.06	-.07	.83	.24	.18	-.29	.70
7.	.37	.48	.02	.21	.50	.58	.11	-.02	.46
8.	**.70**	.05	-.12	-.10	.73	.33	.01	-.30	.56
9.	**.79**	.02	-.05	.25	.72	.25	.05	.03	.57
10.	**.68**	.03	.10	-.14	.75	.34	.22	-.35	.59
11.	.34	.45	-.16	-.14	.53	.60	-.04	-.33	.50
12.	-.04	**.78**	.20	-.13	.33	.82	.30	-.32	.73
13.	-.01	-.03	.02	**-.83**	.22	.17	.09	-.82	.68
14.	.32	.00	.12	-.56	.50	.27	.22	-.66	.55
15.	.01	.55	-.24	-.37	.29	.61	-.13	-.48	.55
16.	.06	.49	.01	-.48	.39	.63	.13	-.62	.63

Note. N = 159. Bold items represent salient pattern coefficient loadings (≥ .30) of items that are not cross-loaded. ASI = Anxiety Sensitivity Index.

Predictive Validity of Competing Anxiety Sensitivity Index Subscales

Measures

In order to examine the cross-sectional and the predictive ability of ASI subfactors, a subset of participants (*n* = 165) completed self-report measures at baseline and follow-up (~ 12 months later). The measures assess constructs that are conceptually related to anxiety sensitivity including cognitive and physical symptoms of anxiety as well as depression. Two general measures of anxiety symptoms were used, the *Beck Anxiety Inventory* (BAI; Beck & Steer, 1990) and the *State-Trait Anxiety Inventory* (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). Although each is a state measure of anxiety, it has been suggested that these measures address different dimensions of the construct. The BAI is a 21-item self-report measure that asks respondents to indicate how much they have been bothered by specific symptoms of anxiety in the past week, these items include somatic symptoms like numbness or tingling, feeling hot, heart pounding or racing, as well as specific fears of dying and of losing control. The BAI is widely used and has reported reliability and consistency (Beck, Epstein, Brown, & Steer, 1988; Gillis, Haaga, & Ford, 1995). The STAI is a 20-item measure on which individuals rate on a 4-point likert scale the extent to which they generally feel like a number of statements including upset, anxious, jittery, over-excited and rattled, and calm. Some items are reverse coded. The STAI is also widely used with good reliability and validity in clinical and college samples (Knight, Waal-Manning, & Spears, 1983).

The *Penn State Worry Questionnaire* (PSWQ; Meyer, Miller, Metzger, & Borokovec, 1990), a commonly used measure of trait worry, a cognitive component of anxiety was also included. The PSWQ is composed of 16-items that are statements about worry, including “I worry all the time” and “My worries overwhelm me”. The respondent endorses on a 5-point likert scale the extent to which the each statement is “typical” of them. The PSWQ has reported reliability and validity in college and clinically anxious samples (Brown, Antony, & Barlow, 1992).

Given that anxiety is highly correlated with depression (Kessler, 1995) participants also completed the *Beck Depression Inventory-II* (BDI; Beck, Steer, & Brown, 1996). The BDI is a 21-item measure that uses a 4-point scale to assess the extent to which specific depressive symptoms have been experienced in the past two weeks. It has well documented reliability and validity (Beck et al., 1996). BDI Items include physical symptoms of depression (sleep, weight loss, appetite, and energy level) as well as cognitive and emotional symptoms (guilt, anhedonia, and sadness).

Results

Table 6 displays correlations, means, and standard deviations of the main predictor variables and outcome variables. Preliminary analyses were conducted to ensure no violation of distribution assumptions, especially multicollinearity because of the high correlation between the cardiovascular concerns subscale and the fears of unsteadiness subscale in the 4-factor model. For all analyses, the values obtained for two indicators of problematic correlations, tolerance (>.10) and variance inflation factor (VIF; < 10) were within the recommended ranges. Several regressions were conducted to assess

the relative ability of the ASI subfactors to predict scores on a variety of anxiety symptom measures and a measure of depression in both African American and European American samples. The models were analyzed separately because of the significant correlation and overlap in items between theoretically similar subscales in both models. A series of linear regressions were completed to assess the cross-sectional relationship between the subfactor scores and the dependent variables. Analyses were also completed to assess the prospective predictive abilities of the subfactors. In all of the prospective analyses, experimental condition was entered at Step 1, thus any observed effects of the predictor variables cannot be attributed to variance associated with the intervention received (Cohen & Cohen, 1983). Step 2 consisted of the subscale scores based on either the 3-factor or the 4-factor model. Hierarchical regressions were also conducted to determine the predictive ability of the subfactors after controlling for baseline scores on the dependent variables. In these analyses, baseline scores were entered in Step 1 along with experimental condition. In sum, for each dependent variable (BAI, STAI, BDI, & PSWQ) at each of the three levels of prediction (baseline, prospective without controlling for baseline & prospective including baseline control), separate regressions were completed for each sample (African American & European American) with subscales from each model (3-factor & 4-factor).

Cross-sectional model prediction of anxiety symptoms. Results of cross-sectional analyses are reported in Table 7. In the European American sample, both the 3-factor and the 4-factor models were significant predictors of all four variables of interest. The 4-factor model explained a slightly higher percent of variance than the 3-Factor model with respect to the STAI, whereas the 3-factor model explained a slightly higher percent of the variance in BAI, BDI, and PSWQ scores. For each dependent variable, at least one subscale predicted unique variance. On the BAI, unique variance was predicted by the 3-factor social concerns and physical concerns subscale and the 4-factor cardiovascular concerns subscale. On the STAI, unique variance was predicted by the 3-factor mental concerns subscale and the 4-factor mental incapacitation, cardiovascular concerns, and emotional control subscales. On the BDI, unique variance was explained by the 3-factor mental concerns and physical concerns subscales, and the 4-factor mental incapacitation and cardiovascular concerns subscales. On the PSWQ, unique variance was explained by the mental concerns and physical concerns subscales of the 3-factor model, and by the mental incapacitation and fears of unsteadiness subscales of the 4-factor model.

Results from cross-sectional predictions in the African American sample are also reported in Table 7. In this sample, the 3-factor model explained a greater percentage of the variance on BAI and PSWQ scores, whereas the 4-Factor model explained a greater percentage of variance in prediction of STAI and BDI scores. Both the 3-factor and the 4-factor models significantly predicted scores on the BAI and the STAI. The 3-factor mental concerns subscale, and the 4-factor mental incapacitation subscale both predicted unique variance in scores on the BAI. The 4-factor fears of unsteadiness subscale predicted unique variance in STAI scores. Despite no significant relationship between the 4-factor model and BDI scores at baseline, the 4-factor fears of unsteadiness subscale also predicted unique variance in

BDI scores. In the African American sample at baseline, neither the 3-factor model nor the 4-factor significantly predicted PSWQ scores.

Prospective model prediction of anxiety symptoms. Results of prospective analyses conducted with experimental condition entered in step 1 (but without controlling for baseline scores on the variables of interests) are reported in Table 8. In the European American sample, the 3-factor model explained a higher percentage of the variance in BAI scores, but a comparable or slightly lower percentage the variance in STAI, BDI, and PSWQ scores. The 3-factor and 4-factor models significantly predicted scores on BAI, STAI, BDI, and PSWQ. As compared to baseline analyses, fewer subscales demonstrate unique predictive ability including the following: the 3-factor social concerns subscale in prediction of BAI scores; the 3-factor physical concerns subscale in prediction of both STAI and BDI scores; the 4-factor emotional control factor in prediction of BAI scores, the 4-factor cardiovascular concerns factor in prediction of STAI scores; and the 4-factor fears of unsteadiness subscale in prediction of BDI scores.

In prospective analyses, the 3-factor model did not account for the variance in scores on any measures in the African American sample. The 4-factor explained a greater percentage of variance than the 3-factor model in prediction of all dependent variables, but the 4-factor model explained additional variance beyond experimental condition with respect only to scores on the BDI and the PSWQ. In particular, the fears of unsteadiness subscale, significantly predicted unique variance with regard to scores on both the PSWQ and the BDI, while the cardiovascular concerns subscale significantly predicted variance in the opposite direction. Although the 4-factor model subscales as a whole merely trended towards significance in prediction of STAI scores, the fears of unsteadiness factor emerged as a unique predictor in the African American sample.

Results of prospective analyses conducted with both experimental condition and baseline scores entered in step 1 are reported in Table 9. In the European American sample, the 3-factor model again predicted slightly less variance than the 4-factor model with respect to all of the dependent variables except scores on the BAI. The 3-factor model and the 4-factor significantly predicted only scores on the STAI. The 3-factor physical concerns factor emerged as a unique contributor to STAI scores at follow up.

In the African American sample, the 4-factor model predicted a greater percentage of variance than the 3-factor model with respect to all of the variables except scores on the BAI which were comparable. Additionally, the 4-factor model significantly predicted BDI and PSWQ scores. In both cases, the fears of unsteadiness subscales predicted unique variance, while the cardiovascular concerns subscale predicted unique variance in the opposite direction. The mental incapacitation subscale also predicted unique variance in PSWQ scores.

Summary

Results from the European American sample at baseline were consistent with previous investigations suggesting various facets of anxiety sensitivity are associated with symptoms of anxiety. In the European American sample, either the 3-factor model or the 4-factor model or both explained additional variance in scores on all of the measures after controlling for experiment condition. In the

African American sample, results were less consistent for both models. Both the 3 and 4-factor models explained greater variance with respect to two of the four dependent variables, and both models explained a statistically significant amount additional variance on the same two measures of general anxiety.

Results from prospective analyses partially support the hypothesis concerning the superior predictive validity of the 4-factor (Carter et al., 1999) model of the ASI in African Americans. When we did not control for baseline scores on the dependent variables in the African American sample, the 3-factor (Zinbarg et al., 1997) model explained additional variance beyond experimental condition for none of the variables. The 4-factor model demonstrated predictive validity for the PSWQ, a measure of chronic worry, and the BDI, a measure of depression. As predicted, the fears of unsteadiness subscale uniquely predicted scores on the BDI, PSWQ, and the STAI. Contrary to predictions, the cardiovascular concerns factor was inversely related to scores on both the BDI and PSWQ.

Controlling for baseline scores on dependent variables resulted in a limited number of significant findings, suggesting the experience of symptoms at one time point was generally a better predictor of symptom endorsement a year later than ASI subscale scores. In the European American sample. the ASI 3-factor and 4-factor subscales were both predictive of scores on only one measure of trait anxiety at follow up, the STAI. Consistent with our hypotheses the 4-factor model demonstrated stronger predictive validity in the African American sample. The most compelling evidence is the prediction of scores on specific measures even after statistically controlling for baseline scores on these measures. In particular, the unsteadiness subscale demonstrated unique predictive validity.

Table 6

Intercorrelations, means, and standard deviations among the primary variables of interest

Measure	Measure														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. BAI (baseline)	-	.26	.21	.30	.12	.50*	.24	.35	.52**	-.01	.18	.49**	.11	.22	-.04
2. STAI (baseline)	.23**	-	.28	.39*	.31	.44*	.02	.21	.34*	.19	.39*	.31	.28	.46**	.08
3. BDI (baseline)	.50**	.32**	-	.36*	.24	.56**	.47*	.58**	.21	.27	.34*	.17	.25	.42**	.17
4. PSWQ (baseline)	.46**	.46**	.57**	-	.12	.66**	-.13	.29	.27	.26	.28	.29	.28	.24	.24
5. BAI (follow up)	.33**	.05	.12	.23**	-	.17	.18	.04	.20	-.18	.04	.21	.08	-.05	-.17
6. STAI (follow up)	.36**	.26**	.47**	.50**	.35**	-	.56**	.71**	.25	-.10	.30	.25	.17	.42	.42
7. BDI (follow up)	.39**	.04	.62**	.37**	.34**	.59**	-	.57**	-.07	-.19	-.08	-.20	-.21	.20	-.30
8. PSWQ (follow up)	.39**	.22*	.39**	.61**	.33**	.64**	.57**	-	.05	.26	.16	-.04	-.06	.52**	.18
9. Mental (3 factor)	.35**	.32**	.45**	.51**	.16	.35**	.28**	.28**	-	.32*	.34*	.95**	.28	.33*	.25
10. Social (3 factor)	.39**	.24*	.26**	.31**	.27**	.30**	.21**	.14	.36**	-	.25	.25	.22	.27	.95**
11. Physical (3 factor)	.45**	.30**	.47**	.52**	.14	.39**	.33**	.30**	.67**	.40**	-	.42**	.94**	.91**	.19
12. Mental (4 factor)	.37**	.33**	.44**	.51**	.17*	.36*	.26**	.28**	.95**	.39**	.75**	-	.35*	.36*	.17
13. Cardio (4 factor)	.42**	.30**	.45**	.44**	.11	.38**	.31**	.29**	.58**	.32**	.90**	.63**	-	.72**	.21
14. Unsteadiness (4 factor)	.41**	.21**	.41**	.50**	.15	.33**	.34**	.26**	.60**	.40**	.87**	.63**	.62**	-	.18
15. Emotional Control (4 factor)	.32**	.26**	.23**	.29**	.24**	.27**	.17*	.15	.30**	.94**	.32**	.33**	.26**	.30**	-
[a]Mean	6.48	44.40	5.40	43.81	5.66	36.06	5.71	42.51	1.17	4.83	5.35	1.92	2.30	2.44	4.12
[a]Standard Deviation	6.26	4.25	5.18	14.53	5.84	8.96	5.04	13.84	1.59	2.50	4.37	2.32	2.41	2.08	2.06
[b]Mean	9.00	44.37	5.29	44.72	6.77	37.00	4.64	42.10	1.51	5.21	7.77	2.13	3.80	3.26	4.54
[b]Standard Deviation	9.51	4.31	4.12	13.38	6.30	9.01	3.99	13.05	2.19	2.27	5.46	2.25	2.98	2.58	2.02

Note. Correlations from the African American sample are above the diagonal. Correlations from the European American sample are below the diagonal. BAI = Beck Anxiety Inventory; STAI = State-Trait Anxiety Inventory; BDI = Beck Depression Inventory; PSWQ = Penn State Worry Questionnaire; [a]European American Sample; [b]African American Sample.
*$p < .05$. ** $p < .01$.

Table 7

Cross-sectional prediction of anxiety symptoms by the 3 and 4-factor models of the ASI

Predictor	*BAI*			*STAI*			*BDI*			*PSWQ*		
	R^2 (*F*)	*t*	*β*	R^2 (*F*)	*t*	*β*	R^2 (*F*)	*t*	*β*	R^2 (*F*)	*t*	*β*
					European Americans (*n* = 280)							
3 Factor	.245 (31.256**)			.119 (14.058**)			.252 (33.184**)			.320 (45.178**)		
Mental		.609	.043		2.728**	.204		3.355**	.233		4.143**	.276
Social		4.259**	.244		1.873	.114		1.100	.062		1.699	.092
Physical		4.468**	.321		1.547	.118		4.151**	.292		4.435**	.301
4 Factor	.236 (22.568**)			.137 (12.512**)			.248 (24.609**)			.316 (33.539**)		
Mental		.667	.050		2.828**	.279		2.663*	.194		3.561**	.249
Cardiovascular		3.181**	.230		2.301*	.174		3.316**	.235		1.554	.106
Unsteadiness		2.517*	.184		-1.045	-.080		1.756	.126		3.666**	.253
Emotional Control		3.281**	.182		2.808**	.163		1.218	.066		1.796	.094

Table 7 - continued

Predictor	*BAI*			*STAI*			*BDI*			*PSWQ*		
	R^2 (*F*)	*t*	*β*	R^2 (*F*)	*t*	*β*	R^2 (*F*)	*t*	*β*	R^2 (*F*)	*t*	*β*
					African Americans (*n* = 40)							
3 Factor	.199 (3.256**)			.134 (2.968*)			.064 (1.844)			.060 (1.728)		
Mental		3.232**	.539		1.359	.226		.387	.068		.934	.171
Social		-1.463	-.237		.245	.040		.731	.124		.927	.165
Physical		.075	.012		1.864	.303		1.685	.289		1.011	.181
4 Factor	.175 (2.858*)			.160 (2.816*)			.194 (1.984)			.025 (1.220)		
Mental		2.996**	.499		1.145	.185		.169	.029		1.089	.200
Cardiovascular		-.755	-.170		-.668	-.145		-.593	-.133		.657	.163
Unsteadiness		.822	.185		2.315*	.504		2.120*	.485		.096	.024
Emotional Control		-.796	-.126		-.091	-.014		.671	.108		.821	.143

Note. ASI = Anxiety Sensitivity Index, BAI = Beck Anxiety Inventory; STAI = State-Trait Anxiety Inventory; BDI = Beck Depression Inventory; PSWQ = Penn State Worry Questionnaire.
*$p < .05$. **$p < .01$.

Table 8

Longitudinal prediction of anxiety symptoms by the 3 and 4-factor models of the ASI

Predictor	*BAI*			*STAI*			*BDI*			*PSWQ*		
	ΔR^2 (*F*)	*t*	*β*	ΔR^2 (*F*)	*t*	*β*	ΔR^2 (*F*)	*t*	*β*	ΔR^2 (*F*)	*t*	*β*
	European Americans (*n* = 280)											
3 Factor	.079 (3.883*)			.186 (10.769**)			.133 (7.119**)			.088 (4.533**)		
Mental		.766	.086		1.348	.139		.895	.096		1.293	.141
Social		2.695**	.245		1.843	.155		.896	.078		.182	.016
Physical		-.098	-.011		2.264*	.240		2.347*	.258		1.608	.180
4 Factor	.070 (2.548*)			.194 (8.405**)			.143 (5.778**)			.088 (3.371*)		
Mental		.858	.101		1.307	.141		.055	.006		1.119	.129
Cardiovascular		-.312	-.036		1.989*	.210		1.494	.163		1.178	.132
Unsteadiness		.395	.046		.699	.074		2.091*	.230		.513	.058
Emotional Control		2.309*	.205		1.851	.150		.735	.062		.623	.054

Table 8 – continued

Predictor	*BAI*			*STAI*			*BDI*			*PSWQ*		
	ΔR^2 (*F*)	*t*	*β*	ΔR^2 (*F*)	*t*	*β*	ΔR^2 (*F*)	*t*	*β*	ΔR^2 (*F*)	*t*	*β*
						African Americans (*n* = 40)						
3 Factor	.117 (.734)			.195 (1.378)			.044 (.250)			.077 (.425)		
Mental		1.057	.268		.919	.219		-.017	-.004		-.302	-.082
Social		-1.241	-.310		-1.253	-.295		-.790	-.208		.872	.233
Physical		.190	.048		1.375	.324		-.042	-.011		.531	.142
4 Factor	.118 (.522)			.399 (2.724)			.504 (3.888**)			.802 (15.049**)		
Mental		.993	.257		.708	.147		-1.155	-.226		-1.650	-.207
Cardiovascular		.534	.189		-1.261	-.359		-2.773**	-.743		-5.703**	-.980
Unsteadiness		-.565	-.205		2.610**	.763		3.389**	.932		7.57**	1.335
Emotional Control		-.960	-.237		-1.661	-.330		-1.675	-.313		1.100	.132

Note. ASI = Anxiety Sensitivity Index, BAI = Beck Anxiety Inventory; STAI = State-Trait Anxiety Inventory; BDI = Beck Depression Inventory; PSWQ = Penn State Worry Questionnaire.
*$p < .05$. **$p < .01$.

Table 9

Longitudinal prediction of anxiety symptoms controlling for baseline scores by the 3 and 4-factor models of the ASI

Predictor	*BAI*			*STAI*			*BDI*			*PSWQ*		
	ΔR^2 (*F*)	*t*	*β*	ΔR^2 (*F*)	*t*	*β*	ΔR^2 (*F*)	*t*	*β*	ΔR^2 (*F*)	*t*	*β*
European Americans (*n* = 280)												
3 Factor	.029 (1.464)			.132 (7.682**)			.006 (.444)			.004 (.259)		
Mental		.669	.074		1.087	.113		-.462	-.043		-.356	-.034
Social		1.888	.174		1.672	.140		.607	.045		-.574	-.043
Physical		-.868	-.101		2.118*	.224		.811	.078		-.087	-.008
4 Factor	.028 (1.051)			.136 (5.968**)			.016 (.926)			.008 (.417)		
Mental		.753	.087		1.057	.115		-1.155	-.110		-.292	-.029
Cardiovascular		-.909	-.105		1.782	.189		.205	.019		.703	.066
Unsteadiness		-.076	-.009		.788	.084		1.645	.153		-1.047	-.102
Emotional Control		1.662	.148		1.599	.131		.398	.028		-.186	-.014

Table 9 – continued

Predictor	*BAI*			*STAI*			*BDI*			*PSWQ*		
	ΔR^2 (*F*)	*t*	*β*	ΔR^2 (*F*)	*t*	*β*	ΔR^2 (*F*)	*t*	*β*	ΔR^2 (*F*)	*t*	*β*
						African Americans (*n* = 40)						
3 Factor	.107 (.590)			.109 (.836)			.134 (1.048)			.043 (.208)		
Mental		.949	.303		.609	.144		-.176	-.040		-.470	-.137
Social		-1.181	-.323		-1.351	-.306		-1.212	-.274		.673	.193
Physical		.176	.047		.882	.211		-.823	-.193		.238	.069
4 Factor	.104 (.400)			.243 (1.629)			.431 (4.395**)			.768 (22.384**)		
Mental		.801	.253		.523	.11		-1.373	-.234		-2.631*	-.270
Cardiovascular		.496	.190		-1.107	-.321		-2.833*	-.667		-7.331**	-1.014
Unsteadiness		-.525	-.207		2.010	.645		2.676*	.693		9.093**	1.292
Emotional Control		-.880	-.236		-1.615	-.323		-2.142	-.350		.970	.094

Note. ASI = Anxiety Sensitivity Index, BAI = Beck Anxiety Inventory; STAI = State-Trait Anxiety Inventory; BDI = Beck Depression Inventory; PSWQ = Penn State Worry Questionnaire.
*$p < .05$. **$p < .01$.

Discussion

This research sought to further understanding of cross-cultural patterns in anxiety pathology by investigating panic related phenomena in African Americans. In order to gain information about group differences in symptom endorsement, we compared African Americans and European Americans. Our second aim was to investigate the latent structure of anxiety sensitivity across groups. In order to achieve this objective, the performance of pre-existing models of the latent structure of anxiety sensitivity was investigated separately in African American and European American samples. These analyses in each of the samples included attempts to confirm the fit of preexisting models to the data, an exploration of the latent factor structure of the construct, and a novel consideration of the predictive validity of each of the proposed models.

Previous investigations have suggested group differences in panic attack symptoms. Because a limited number of participants endorsed full-blown panic attacks, we considered differences in the extent to which individuals pay attention to specific physical symptoms of anxiety in the absence of an actual attack. Findings demonstrated that African Americans were more vigilant to the predicted symptoms, including numbness, tingling, and hot flashes. We were unable to investigate previously reported group differences on some specific cognitions that are symptoms of panic, including fears of death, serious illness, or going crazy, because they were not included in the vigilance questionnaire. Presumably, this is because they are interpretations of the physical symptoms, and as such can not be monitored in the same way. Future studies should attempt to replicate findings about specific catastrophic interpretations of somatic symptoms in the presence of panic in clinical samples of African Americans.

While these findings were consistent with predictions based on previous investigations (Smith et al., 1999), they are arguably different conceptually. In this sample, there were differences in vigilance in the absence of panic as compared to differences in actual symptom endorsement during a panic attack. Taken together, it may be that individuals are more likely to notice during panic attacks the symptoms that they are already monitoring prior to the onset of panic.

African Americans were also more vigilant to a number of other symptoms including heart palpitations, chest pain/discomfort, vision changes, and dizziness. These symptoms were not necessarily endorsed more frequently in previous investigations of panic attack symptoms. However, investigations of the latent structure of anxiety sensitivity, another vigilance related construct, may help to explain why we found additional group differences on these specific items. Factor analysis of the ASI in African American samples suggest specific concerns related to negative cardiovascular outcomes and physical instability or unsteadiness (Carter et al., 1999). In identifying differences in the latent factor structure of anxiety sensitivity, researchers suggested that whereas these two specific kinds of physical concerns are conceptually grouped together in the latent structure of the construct in European American samples, they represent related, but independent facets of anxiety sensitivity in African American samples.

Our second major objective was to investigate group differences in the latent factor structure of anxiety sensitivity. In particular, we expected to demonstrate an existing 3-factor model fit provided a good fit to the data for the European American sample, whereas an existing 4-factor model provided a good fit to the data for the African American sample. The 3-factor model includes subscales based on three domains of negative implications of anxiety symptoms, a general physical concerns factor, a mental incapacitation factor, and a social concerns factor. The 4-factor model includes a mental incapacitation subscale, two subscales based on specific physical concerns (cardiovascular concerns and fears of unsteadiness), as well as factor that is conceptualized as being related to desire for emotional control rather than social concerns about the implications of anxiety symptoms. We attempted to fit both models to both groups. Results suggested neither of the models provided a good fit to either data set. This was most likely due to the complexities of model fitting across data sets. For example, in an attempt to be consistent in the specification of these models across samples, we were unable to negotiate the fit through conventional manipulation of constraints.

Exploratory factor analyses of the ASI provided additional insight into the latent factor structure in both samples. Data from the European American sample suggested the existence of three factors that, with the exception of two items, were consistent with the expected 3-factor model. Data from the African American sample yielded evidence of four latent factors, however the factors were not conceptually consistent with the expected 4-factor model. In particular, a number of items related to physical concerns were associated with multiple factors. In sum, results from confirmatory and exploratory factor analytic procedures, while not as consistent with previous investigations as predicted, seem to indicate group differences in the latent structure of anxiety sensitivity.

To further investigate group differences, three levels of comparison of the predictive validity of the 3 and 4-factor models and their subscales were completed. Cross-sectional and longitudinal analyses of the European American sample indicated both models significantly contributed to scores on general measures of anxiety, depression, and worry. In longitudinal analyses in which baseline scores were considered, the 3-factor model and the 4-factor model predicted scores on only one measure of general anxiety and the physical concerns factor of the 3-factor model demonstrated unique variance.

We had hypothesized that the 4-factor model would be a better predictor of anxiety in the African American sample and, in particular the scores on the fears of unsteadiness and cardiovascular concerns subscales. At baseline, both models were associated with scores on general measures of anxiety, but not depression or worry. Contrary to expectations, the mental concerns and mental incapacitation scales were uniquely associated with one measure of general anxiety. As predicted, the fears of unsteadiness scale was uniquely associated with the other measure of general anxiety as well as depression. The fears of unsteadiness scale also demonstrated unique predictive ability in longitudinal analyses. The most compelling evidence in support of the superior predictive ability of specific 4-factor subscales in an African American sample came from the results of longitudinal analyses that considered baseline scores on the measures of interests. Neither the 3-factor model, nor any subscales demonstrated unique predictive

validity. The unsteadiness subscale, a component of the 4-factor model, uniquely predicted depression and worry scores. Taken together, these results provide some support for group differences in the latent structure of anxiety sensitivity by demonstrating differences in the predictive validity of latent structure models.

Perhaps the most notable limitation of this investigation is the limited size of the African American sample, especially with respect to differences in panic attack symptoms and prospective analyses. A novel component of this investigation was inclusion of both African American and European American samples for comparison. Future studies should attempt include adequate samples of both.

Evidence for group differences in both monitoring and endorsement rates as well as the latent structure of anxiety sensitivity necessitates further investigation. First, studies should attempt to clarify the exact nature of differences in specific symptom endorsements and latent structure. Secondly, theoretical attempts to explain the origin of these differences must be elaborated and tested. This has to a limited extent included identification of systematic mechanisms for individual determinations of the relative importance and implications of specific anxiety symptoms. For example, Friedman and Paradis (2002) suggested that African Americans show greater fear of physical symptoms because of the higher rates of health problems that share these same symptoms in African American communities. From this perspective, symptoms on the ASI and BVS related to fears of unsteadiness and cardiovascular concerns may tap concerns about physical illnesses like diabetes and cardiovascular disease, and our results could be understood from this perspective. All of the significant differences suggesting a greater focus on symptoms by African Americans were found on symptoms that are arguably associated with diabetes or cardiovascular disease. Future investigations should attempt to demonstrate a direct relationship between observation of impairing physical illnesses and attention to anxiety related symptoms of these illnesses. In addition, it will be important to parse apart the constructs. Concerns about development of specific illnesses could be measured separately from anxiety sensitivity, a related but less specific tendency to believe somatic symptoms are dangerous. This may explain seemingly contradictory findings. For example, despite consistent evidence that African Americans endorse greater attention to bodily sensations usually associated with panic, results also suggests African Americans have lower or comparable rates of panic attacks and panic disorder. If measures like the ASI are tapping anxiety sensitivity as well as this other construct in African Americans, it may explain some of these inconsistent findings.

An important limitation to appreciating the nature of anxiety sensitivity in African American individuals is related to assumptions inherent in using an existing self-report measure. The ASI and most other measures are validated and empirically refined using European American samples. When we attempt to apply these measures cross-culturally, we have assumed that the items would have the same chance of tapping the construct of interest if it exists in the same form. Our results suggest both statistical and conceptual flaws with this assumption. For example, the “fit” of a model to data using techniques like CFA can depend on statistical manipulations that are not consistent across studies. In addition, it is

possible that conceptually different but related concepts can impact assessment of a construct in specific groups. As a result, findings may have less to do with latent structure and more to do with techniques employed. Future studies should employ both quantitative and qualitative techniques in a variety of samples. Qualitative techniques in which individuals describe their perception of the meaning of specific items will provide needed insight into differences in the interpretation, including the interference of related constructs. Likewise, using component analysis and item-response techniques, future studies could identify and discard items that are problematic across cultures, rather than assuming differences in latent structure.

The current study sought to replicate and extend preliminary findings with respect to group differences in anxiety psychopathology. Results partially supported existing findings that suggest African Americans give greater attention to specific symptoms of anxiety. While not completely consistent with previous models, the current findings support the notion of differences in the latent structure of anxiety sensitivity as measured by the ASI.

APPENDIX

A.S.I.

INSTRUCTIONS: Circle the **one phrase** that best represents the extent to which you agree with the item. If any of the items *concern something* that is not part of your experience (e.g., "it scares me when I feel shaky" for someone who has never trembled or had the "shakes"), answer on the basis of how you think you might feel *if you had* such an experience. Otherwise, answer all items on the basis of your own experience.

1. It is important to me not to appear nervous.
   VERY LITTLE A LITTLE SOME MUCH VERY MUCH

2. When I cannot keep my mind on a task, I worry that I might be going crazy.
   VERY LITTLE A LITTLE SOME MUCH VERY MUCH

3. It scares me when I feel 'shaky' (trembling).
   VERY LITTLE A LITTLE SOME MUCH VERY MUCH

4. It scares me when I feel faint.
   VERY LITTLE A LITTLE SOME MUCH VERY MUCH

5. It is important to me to stay in control of my emotions.
   VERY LITTLE A LITTLE SOME MUCH VERY MUCH

6. It scares me when my heart beats rapidly.
   VERY LITTLE A LITTLE SOME MUCH VERY MUCH

7. It embarrasses me when my stomach growls.
   VERY LITTLE A LITTLE SOME MUCH VERY MUCH

8. It scares me when I am nauseous.
   VERY LITTLE A LITTLE SOME MUCH VERY MUCH

9. When I notice that my heart is beating rapidly, I worry that I might have a heart attack.
   VERY LITTLE A LITTLE SOME MUCH VERY MUCH

10. It scares me when I become short of breath.
    VERY LITTLE A LITTLE SOME MUCH VERY MUCH

11. When my stomach is upset, I worry that I might be seriously ill.
    VERY LITTLE A LITTLE SOME MUCH VERY MUCH

12. It scares me when I am unable to keep my mind on a task.
    VERY LITTLE A LITTLE SOME MUCH VERY MUCH

13. Other people notice when I feel shaky.
    VERY LITTLE A LITTLE SOME MUCH VERY MUCH

14. Unusual body sensations scare me.
    VERY LITTLE A LITTLE SOME MUCH VERY MUCH

15. When I am nervous, I worry that I might be mentally ill.
    VERY LITTLE A LITTLE SOME MUCH VERY MUCH

16. It scares me when I am nervous.
    VERY LITTLE A LITTLE SOME MUCH VERY MUCH

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2008 FSU Congress of Graduate Students Conference Presentation Grant – ADAA ($300)
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RESEARCH POSITIONS

Research Assistant, Dr. Scott Lilienfeld's Lab, Emory University, Atlanta, Georgia, 2004-2005
Duties/Activities: Data collection and data entry for several projects focused on psychopathy and relational aggression. Participation in weekly supervision meetings including article review and discussion.

Research Assistant, Dr. Kim Wallen's Lab, Yerkes Primate Center, Lawrenceville, Georgia, 2004
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PROFESSIONAL CLINICAL EXPERIENCE

Anxiety Specialist, Anxiety and Behavioral Health Clinic, Tallahassee, Florida 2006-present
Duties/Activities: Conduct diagnostic screening interviews (SCID, ADIS) for a variety of treatment outcome studies. Deliver empirically supported treatment to individuals and groups of individuals with primary anxiety diagnosis, including experimental motivational enhancement therapy for CBT.

Psychological Trainee, Florida State University Psychology Clinic, Tallahassee, Florida 2006-2008
Duties/Activities: Deliver individual outpatient empirically supported treatments; psychoeducational and personality assessments; emergency suicidality assessments; and comprehensive psychological report writing for children and adults including court-ordered clients.

Crisis Line Counselor, Dekalb Rape Crisis Center, Decatur, Georgia, 2004-2005
Duties/Activities: Completed 40 hours of training in crisis intervention and relevant community resources. Answered calls to crisis hotline. Accompanied clients to hospital and court.

Counselor, Haven House Hospice, Atlanta, Georgia, Spring 2002
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PUBLICATIONS

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Hunter, L.R., & Schmidt, N.B. *(*submitted to *Psychological Bulletin)*. Anxiety Disorders in African Americans: Development of an empirically-informed model.

Hunter, L.R., Buckner, J.D., & Schmidt, N.B *(in press)*.
Interpreting Facial Expressions: The Influence of Social Anxiety, Emotional Valence, and Race. *Journal of Anxiety Disorders.*

Hunter, L.R., Riccardi, C.J., & Jointer, T.E. *(In Preparation)*. Cultural mistrust and the diagnosis of African American clients: A case study perspective.

BOOK CHAPTERS

Walker, R.L. & **Hunter, L.R.** (*in press*). From Anxiety and Depression to Suicide and Self-Harm. In H.A. Neville, B.M. Tynes, & S.O. Utsey (Eds). *Handbook of African American Psychology*. Thousand Oak, California: Sage Publications.

Hunter, L.R., Buckner, J.D., Holm-Denoma, J.M., & Castro, Y (2007). The delivery of mental health services for clients of diverse backgrounds: Summary and Future Directions. In J.D. Buckner, Y. Castro, J.M. Holm-Denoma, & T.E. Joiner (Eds.). *Mental Health Care for People of Diverse Backgrounds within an Empirically Informed Framework* (pp. 121-128). Oxford: Radcliffe Publishing.

Schmidt, N.B., Keough, M.E., **Hunter, L.R.,** & Funk, A.P. (2007). Physical illness and treatment of anxiety disorders: A review. In M.J. Zvolensky & J.A.J. Smits (Eds.). Health behaviors and physical illness in anxiety and its disorders: Contemporary research. New York: Springer Publishing. (pp.341-366).

PROFESSIONAL PRESENTATIONS

POSTER PRESENTATIONS

Hunter, L.R., & Schmidt, N.B. (November 2008). Panic Attacks, Panic Disorder, & Anxiety

Sensitivity in African Americans. Poster accepted for presentation at the 42nd annual conference of the Association of Behavioral and Cognitive Therapies, Orlando Fl.

Miller, M.A., **Hunter, L.R.,** & Schmidt, N.B. (March 2008). The Interracial Interactions Appraisal Inventory: Conceptualizing intergroup anxiety from a clinical perspective. Poster presented at the 28th Annual Conference of the Anxiety Disorders Association of America, Savannah, GA.

Hunter, L.R., Buckner, D.J., & Schmidt, N.B. (March 2008). Interpreting facial expressions: The influence of social anxiety, emotional valence, and race. Poster presented at the 28th Annual Conference of the Anxiety Disorders Association of America, Savannah, GA.

Buckner, J.D., Silgado, J., Cromer, K.R., Keough, M.E., **Hunter, L.R.**, Stevens, B., Bernert, R.A., & Schmidt, N.B. (2007). Laboratory-Induced Social Anxiety Increases Marijuana Craving. Poster abstract submitted for presentation at the annual Association for Behavioral and Cognitive Therapies convention, Philadelphia, PA.

Hunter, L.R., Schmidt, N.B., & Plant, A. (2006). *Group Membership and Social Anxiety.* Poster presented at the 40th annual conference of the Association of Behavioral and Cognitive Therapies, Chicago Il.

Hunter, L.R. (2003). *Reexamining the Halo Effect: Attractiveness as it Affects the Intensity of Punishment.* Presented at Emory University, Department of Psychology Undergraduate Research Poster Session, Emory University, Atlanta, Ga.

ORAL PRESENTATIONS

Hunter, L.R., & Schmidt, N. B. (March 2008). Anxiety Disorders in African Americans: Development of an Empirically Testable Framework. Presented at the 28th Annual Conference of the Anxiety Disorders Association of America, Savannah, GA.

Hunter, L.R. (February 2007). *The misdiagnosis of psychotic disorders in African Americans: a literature review.* Presented at Florida Education Fund, McKnight Doctoral Fellowship Research and Writing Conference, Tampa, FL.

TEACHING/SUPERVISING EXPERIENCE

Instructor, Abnormal Psychology, Florida State University, Tallahassee, Florida
Fall 2008
Duties: Develop curriculum and provide instruction for three 50-minute class sessions per week (60 students).

Guest Lecturer, Counseling and Clinical Psychology, Florida State University, Tallahassee, Florida
Fall 2007, Spring 2008
Duties: Provided instruction on behavior therapy, anxiety disorders diagnoses, classification, and treatment.

Directed Individual Study Supervisor, Schmidt Lab, Florida State University, Tallahassee, Florida
2005-present
Duties/Activities: Coordinate data collection and entry by undergraduate directed

individual study students. Co-lead meetings/give presentations on topics including graduate school entry, the anxiety disorder nosology, and cognitive behavioral therapy.

Team Leader, Freshman Advising and Mentoring Class, Emory University, Atlanta, Georgia,2003

PROFESSIONAL ASSOCIATION MEMBERSHIPS

2006 Anxiety Disorders Association of America (student member)
2005 Association for Behavioral and Cognitive Therapies (student member)
2004 Psi Chi

DEPARTMENTAL/COMMUNITY SERVICE

2006-present Member, Interview Weekend Committee, Department of Clinical Psychology, Florida State University
2005-present Member, Board of Directors, TurnAbout, Inc.
2005-present Member, Committee for Diversity, Department of Clinical Psychology, Florida State University