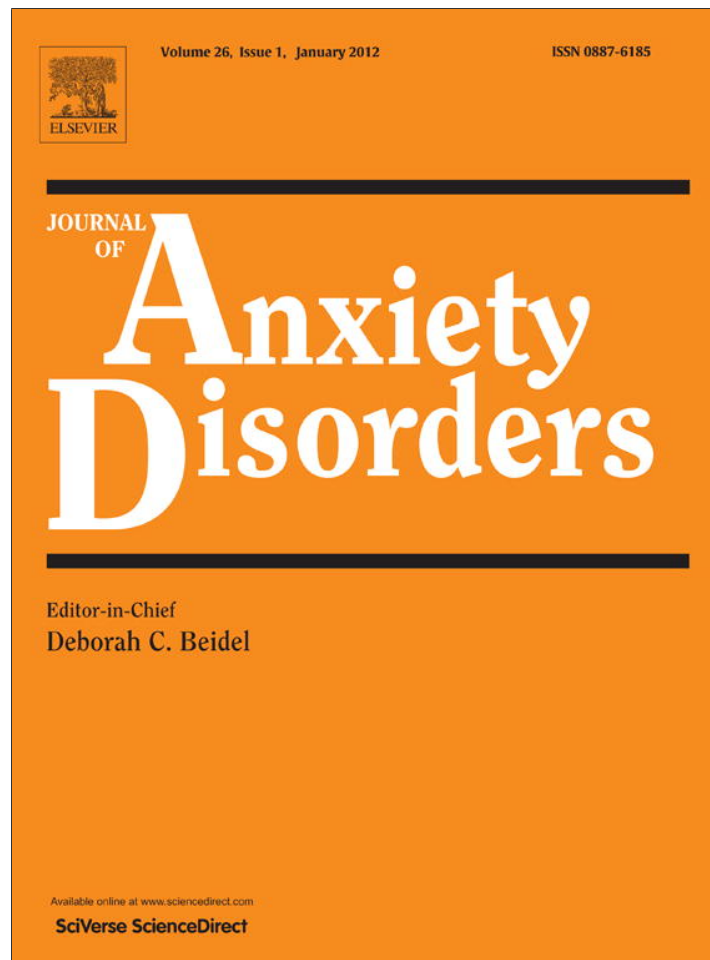


Provided for non-commercial research and education use.  
Not for reproduction, distribution or commercial use.



This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

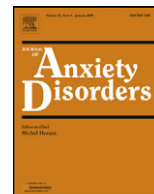
Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/copyright>

Contents lists available at [SciVerse ScienceDirect](http://www.sciencedirect.com)

Journal of Anxiety Disorders



## The co-occurrence of anxiety disorders in African American parents and their children

L. Kevin Chapman<sup>\*</sup>, Jenny Petrie, Lauren Vines, Elishia Durrett

University of Louisville, United States

### ARTICLE INFO

#### Article history:

Received 30 May 2011

Received in revised form 26 August 2011

Accepted 31 August 2011

#### Keywords:

African Americans

Anxiety disorders

Children

Parents

Co-occurrence

Odds ratio

### ABSTRACT

This study examined the co-occurrence of anxiety disorders, specifically the relationship between parent and youth anxiety, in a community-based sample of 100 African American parents and their biological child between the ages of 6 and 17 years. Data were provided by both the parent and child. Parents completed the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV) Client Version about their own experiences with anxiety and related disorders and the Parent version for the child's experiences. Children were administered the ADIS-IV Child version to assess their experiences with anxiety and related disorders. Fifty-five parents met criteria for at least one anxiety disorder while 34 children met criteria for at least one anxiety disorder. Two logistic regressions were subsequently conducted to predict the presence of any form of psychopathology from the ADIS-IV and the presence of an anxiety disorder in African American offspring. Results indicated that African American offspring with an anxious parent were 4 times more likely to meet criteria for both an anxiety disorder and other forms of psychopathology.

© 2011 Elsevier Ltd. All rights reserved.

Over the past two decades, the relative risk of developing various forms of psychopathology in offspring of parents with similar forms of psychopathology has been established in the empirical literature. Perhaps most notably is the co-occurrence of anxiety in parents and their offspring. Moreover, it has been well documented in the empirical literature that the offspring of anxious parents are significantly more likely to develop an anxiety disorder than the offspring of non-anxious parents (for review, see Beidel & Turner, 1997; Biederman, Rosenbaum, Bolduc, Faraone, & Hirshfeld, 1991; Black, Faffney, Schlosser, & Gabel, 2003; Merikangas, Dierker, & Szatmari, 1998; Micco et al., 2009). As noted by Micco et al. (2009) in a meta-analysis of the studies addressing the familial transmission of anxiety, over 15 studies have thoroughly examined and subsequently documented the connection between parental and offspring anxiety at the syndromal level. Along these lines, studies examining the risk of developing anxiety from parent to offspring yield odds ratios ranging from 2 to 7 (see Beidel & Turner, 1997; Biederman et al., 1991; Black et al., 2003; Merikangas et al., 1998; Micco et al., 2009). In addition, other studies indicate an increased likelihood of children of parents with psychopathology to endorse

more anxiety symptoms than control families (Burstein, Ginsburg, Petras, & Ialongo, 2010; Burstein, Ginsburg, & Yun Tein, 2010).

The aforementioned literature further underscores the notion that both biological and psychological vulnerabilities are endemic to families in which anxiety and related pathologies are present (Barlow, 2002; Harvison, Chapman, Ballash, & Woodruff-Borden, 2008; McLeod, Wood, & Weisz, 2007; Wood, McLeod, Sigman, Wei-Chin, & Chu, 2003). Taken together, conclusions can be drawn pertaining to the significantly higher risk of developing an anxiety disorder in offspring of anxious parents due to both shared genetic and environmental factors. Furthermore, these findings have significant implications for empirically supported treatments aimed at alleviating anxiety and related disorders at the familial level, particularly since these disorders undoubtedly have a profound impact on the economy in United States, with an approximate annual societal cost of over \$42 billion dollars (Greenburg et al., 1999; Issakidis, Sanderson, Corry, Andrews, & Lapsley, 2004).

### 1. The co-occurrence of anxiety disorders in diverse samples

Despite these significant advancements in the empirical literature pertaining to the co-occurrence of anxiety disorders in parents and their offspring, all of the aforementioned studies are limited by their inability to generalize beyond non-Hispanic White samples (see Table 1). For example, (as noted in Micco et al., 2009) of the studies that examined the risk of anxiety disorders

<sup>\*</sup> Corresponding author at: Department of Psychological and Brain Sciences, University of Louisville, Louisville, KY 40292, United States. Tel.: +1 502 852 3017; fax: +1 502 852 8904.

E-mail address: [kevin.chapman@louisville.edu](mailto:kevin.chapman@louisville.edu) (L.K. Chapman).

**Table 1**  
Odds ratios for any anxiety disorder in the offspring of anxious parents including current study.

Study	Anxiety disorders in offspring of anxious parents (%)	Anxiety disorders in offspring of non-anxious psychiatric control (NPC) parents (%)	Odds ratios (vs. NPC)	Ethnicity	Assessment method
Turner et al. (1987)	6/16 (38)	1/13 (8)	7.20	93% Non-Hispanic White 7% Af Amer	Diagnostic interview
McClellan, Rubert, Reichler, and Sylvester (1990)	14/60 (23)	3/47 (6)	4.46	NA	Diagnostic interview
Biederman et al. (1991)	15/39 (38)	5/47 (11)	5.25	100% Non-Hispanic White	Diagnostic interview
Mufson, Weissman, & Warner (1992)	36/79 (46)	4/20 (20)	3.35	NA	Diagnostic interview
Capps, Sigman, Sena, Henker, & Whalen (1996)	11/16 (68)	0/16 (0)	69	69% Non-Hispanic White 13% Af-Am, 13% As-Am, 6% Latino	Diagnostic interview
Beidel and Turner (1997)	16/57 (33)	4/48 (8)	4.29	83% Non-Hispanic White 15% Af-Am, 2% Indian	Diagnostic interview
Merikangas et al. (1998)	13/58 (22)	6/57 (11)	2.46	100% Non-Hispanic White	Diagnostic interview
Black et al. (2003)	22/43 (51)	9/35 (26)	3.03	98% Non-Hispanic White 2% Af Amer	Diagnostic interview
Chapman et al. (2011)	<b>33/55 (60)</b>	<b>9/42 (21)</b>	<b>4.39</b>	<b>100% Af Amer</b>	<b>Diagnostic interview</b>

in offspring of anxious parents, the highest percentage of African American offspring was approximately 15% out of 129 parent–child dyads (approximately 19 offspring; Beidel & Turner, 1997). Multiple psychosocial factors related to the historical scarcity of African American samples exist and have been identified (e.g., lack of African American investigators, scarcity of investigators examining psychological constructs in African American samples, historical stigma associated with mental health in African Americans; for review, see American Psychological Association, 2002; Boyd-Franklin, 2003; Carter, Sbrocco, & Carter, 1996; Chapman, Kertz, & Woodruff-Borden, 2009; Chapman, Williams, Mast, & Woodruff-Borden, 2009; Neal & Turner, 1991; Williams & Turkheimer, 2008) yet few studies directly address these issues in order to amend the paucity of ethnic minority samples. Despite the shortage of work related to the co-occurrence of anxiety disorders in African American parents and children, some work is emerging. For example, Burstein, Ginsburg, Petras, et al. (2010) and Burstein, Ginsburg, & Tein (2010) examined developmental trajectories of anxiety and depression symptoms in a community-based sample of African American youth. Results indicated that parental mood disorders significantly predicted self-report anxiety and depression symptoms in 6th grade adolescents (Burstein, Ginsburg, Petras, et al., 2010; Burstein, Ginsburg, & Tein, 2010). Moreover, parent anxiety disorders uniquely predicted the rate changes in self-reported depression symptoms in youth (Burstein, Ginsburg, Petras, et al., 2010; Burstein, Ginsburg, & Tein, 2010). It should be noted that the Burstein study was limited by the self-report of offspring anxiety symptoms although conducted in an exclusively African American sample. Similarly, there is a burgeoning literature revealing other key differences in anxiety with African American samples. Specifically, emerging work has revealed relative differences in both the assessment and self-report of anxiety symptoms (see Chapman & Steger, 2010; Williams & Turkheimer, 2008) as well as differences in the factor structure of anxiety (Chapman & Woodruff-Borden, 2009; Chapman, Kertz, et al., 2009; Chapman, Williams, et al., 2009; Himle, Baser, Taylor, Campbell, & Jackson, 2009) in African Americans as compared to their non-Hispanic White counterparts. For example, Chapman and Steger (2010) found that African Americans who reported engaging in positive religious coping endorsed

fewer anxiety symptoms than non-Hispanic Whites who engaged in positive religious coping. Additionally, in an examination of psychological distress, perceived control, and worry, Chapman, Kertz, and et al. (2009) found that worry was predicted by the presence of psychological distress in African Americans whereas lowered perceived control predicted worry in the non-Hispanic White sample. Given that uncertainties exist as to why such differences have been found, it is important to consider socio-cultural factors when examining the expression of anxiety in African Americans. Specific considerations include the historical context of racism and discrimination (Neal & Turner, 1991), as well as the collectivistic notion of success and kin support (Boyd-Franklin, 2003; Caldwell & Koski, 1997; Hatchet & Jackson, 1992; McCabe, Clark, & Barnett, 1999; Murry, Bynum, Brody, Willert, & Stephens, 2001) endemic to African Americans. Along these lines, no study to date has examined the transmission of anxiety from parent to offspring in a large sample of African American parents and their children.

The current study represents one of the first studies to examine the co-occurrence of anxiety disorders in a relatively large, exclusively African American sample of parents and their biological children. Unlike previous work in this area (Burstein, Ginsburg, Petras, et al., 2010; Burstein, Ginsburg, & Tein, 2010), the current study utilized diagnostic interviews (e.g., the Anxiety Disorders Interview Schedule for the DSM-IV, Client, Parent, and Child Interviews) rather than parent and child self-reported anxiety symptoms. Consistent with the extant literature (e.g., Beidel & Turner, 1997), albeit limited, it was expected that African American offspring of anxious parents would be at greater risk of meeting criteria for any psychopathology and anxiety disorders specifically than African American offspring with a non-anxious parent.

## 2. Method

### 2.1. Participants

Participants were 100 community-dwelling African American parents and their biological child ( $N=200$ ). The adult sample was 91% female ranging in age from 25 to 55 with a mean age of 37 ( $SD=7.37$ ). The child sample was 51% female, ranging in age from 6

**Table 2**  
Parent demographics.

Variable	
Gender	
Male	9%
Female	91%
Age	
M	37
SD	7.37
Marital status	
Single without partner	31
Single with partner	21
Married	24
Divorced and remarried	4
Divorced and single	14
Separated	3
Never been married	3
Education	
Grades 9, 10, or 11	6
High school graduate	12
Some college or specialized	
Training	47
College graduate	23
Graduate or professional	
Training	12
Income level	
Under \$10K	27
\$10,000–19,999	16
\$20,000–29,999	19
\$30,000–39,999	1
\$40,000–49,999	19
\$50,000–59,999	5
\$60,000–69,999	5
\$70,000–79,999	1
\$80,000–89,999	2
\$90,000+	5

to 17 with a mean age of 12 ( $SD = 3.03$ ). Participants were recruited from the community through flyers, radio advertisement, university publication, health fairs in the community, and through word of mouth. Participating parents were living in the same household as their participating biological child, and only one parent and one child per family participated. The current study was part of the “Cooperative for African American Family Excellence” (CAFÉ) Project advertised as part of the Community and Family Excellence Research Lab (CAFÉ), strategically named as an attempt to minimize stigma in underserved families. During both recruitment and informed consent, the CAFÉ Project was described as a study intended to examine risk and protective factors for psychological and behavioral health in African American families. Further, the CAFÉ Project aimed to “promote health and wellness in the African-American family through behavioral science, education, and service to the community.” Along with the aforementioned description, informed consent procedures further emphasized the need to examine “anxiety, nerves, worry, and parental stress,” in African American parents and their children through a “free, culturally sensitive familial assessment between biological parents and their children.” Moreover, a monetary incentive was provided to all families. Parents with multiple children selected the child who was either (a) in the age range of the current study, (b) deemed amenable for the assessment process, or (c) about whose functioning the parent had expressed curiosity. As such, parents were encouraged to select a child based on the aforementioned criteria when necessary. Table 2 displays all demographic information. Dyads were assigned in the anxiety group if they met diagnostic criteria for an anxiety disorder and were excluded if they had a primary diagnosis other than anxiety. Those who did not meet criteria for any diagnosis were assigned to the control group. For the purposes of the current study, diagnostic status of the parent served as the predictor for child anxiety.

Specifically, 97 dyads were included in the final sample which included parents with an anxiety disorder diagnosis ( $N = 55$ ), or parents who met criteria for no diagnosis ( $N = 42$ ). Three parents were excluded from the final sample due to meeting diagnostic criteria for a depressive disorder as a primary diagnosis. The primary diagnoses for adults in the current sample include panic disorder with agoraphobia ( $n = 2$ ), panic disorder without agoraphobia ( $n = 1$ ), social phobia ( $n = 16$ ), generalized anxiety disorder ( $n = 12$ ), obsessive-compulsive disorder ( $n = 4$ ), specific phobia animal type ( $n = 10$ ), specific phobia natural environment type ( $n = 2$ ), specific phobia blood-injection-injury type ( $n = 1$ ), specific phobia situational type ( $n = 1$ ), specific phobia other type ( $n = 3$ ), posttraumatic stress disorder ( $n = 3$ ), and depressive disorders ( $n = 3$ ).

In the child sample, all children either met criteria for an anxiety disorder ( $N = 34$ ), an externalizing disorder (i.e. Oppositional Defiant Disorder) ( $N = 3$ ), or met criteria for no diagnosis ( $N = 41$ ). Of the remaining children, 19 parents reported that their child had previously been diagnosed with Attention Deficit Hyperactivity Disorder and one met criteria for enuresis. The primary diagnoses for children in the current sample include social phobia ( $n = 12$ ), generalized anxiety disorder ( $n = 3$ ), specific phobia animal type ( $n = 11$ ), specific phobia natural environment type ( $n = 4$ ), specific phobia blood-injection-injury type ( $n = 1$ ), specific phobia other type ( $n = 1$ ), posttraumatic stress disorder ( $n = 2$ ), attention deficit hyperactivity disorder ( $n = 20$ ), oppositional defiant disorder ( $n = 3$ ), and enuresis ( $n = 1$ ). Given the exploratory nature of the current study, and previous work in this area (see Cicchetti & Rogosch, 1996; Burstein, Ginsburg, Petras, et al., 2010; Burstein, Ginsburg, & Tein, 2010), the aforementioned dyads remained in the final sample since separate analyses were conducted for children meeting criteria for an anxiety disorder/no diagnosis, and children meeting criteria for anxiety/other forms of psychopathology/no diagnoses (e.g., this rationale is detailed below).

## 2.2. Measures

### 2.2.1. The Anxiety Disorders Interview Schedule: Fourth Edition (ADIS-IV; Brown, Di Nardo, & Barlow, 1994)

All parents were assessed for anxiety and related disorders with the ADIS-IV, a widely used diagnostic interview that allows differential diagnoses among the anxiety and related disorders as defined by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (American Psychiatric Association, 1994). A diagnosis is accompanied by a clinical severity rating (CSR) ranging from zero to eight and assigned by the clinician based on level of impairment reported by the participant (e.g., CSR of 4 or greater warranted a diagnosis). Interrater reliability for anxiety disorders has been demonstrated as ranging from modest ( $k = .55$  for PTSD) to excellent ( $k = .86$  for specific phobias) across the anxiety disorders (Brown, DiNardo, Lenham, & Campbell, 2001).

For the present study, interviews were conducted by the principal investigator and two advanced graduate students trained to strict reliability standards (see Brown et al., 2001 for a description). Similarly to the procedure delineated by Brown et al. (2001) training required four consecutive matches with an already reliable interviewer, followed by a match with the primary investigator on diagnoses and severity, prior to conducting interviews. For inter-rater reliability all interviews were videotaped, and one-third were randomly selected by a second interviewer, which resulted in an overall kappa of .85 across primary diagnoses. Families were provided with diagnostic feedback and any necessary treatment referrals after participation in the study.

**Table 3**  
Logistic regression predicting presence of anxiety and other psychopathology in African American offspring.

Variable	B	S.E.	Wald	Sig. (p)	Odds ratio
Parent anxiety	1.369	.430	10.15	.012	3.933*
Child gender	.046	.428	.011	.915	1.047
Child age	.033	.071	.214	.644	1.033

\*  $p < .05$ .

### 2.2.2. The Anxiety Disorder Interview Schedule for DSM-IV: Child Version and Parent Version (ADIS-C/P; Silverman & Albano, 1996)

The ADIS-IV P/C is used to make differential diagnoses between anxiety and related disorders in children ranging from 6 to 17-years-old. This structured interview combines both the child report (ADIS-C) and the parent report (ADIS-P) to formulate a composite diagnosis (Silverman & Nelles, 1988). Diagnoses were based on information obtained from each form both the ADIS-P and the ADIS-C, which were administered by independent interviewers. A diagnosis is accompanied by a clinical severity rating ranging from zero to eight and assigned by the clinician based on level of impairment reported by child and parent. Reliability coefficients in the empirical literature for social phobia, specific phobia, separation anxiety disorder, and generalized anxiety disorder are excellent (kappa range from .80 to .92), and also demonstrate excellent test-retest reliability (Silverman, Saavedra, & Pina, 2001). As with the ADIS-IV, a similar procedure was followed with the ADIS-IV P/C interviews (Brown et al., 2001). Parent interviews were conducted simultaneously with child interviews in different locations and by different clinical interviewers. All interviews were videotaped, and one-third of the interviews were randomly selected for interrater reliability of primary diagnosis by a second interviewer. Composite diagnoses from the parent and child interviews were utilized for primary diagnosis and were based upon parent–child agreement, narrative summaries written for each parent–child dyad following dyad completion, and clinical judgment. The overall kappa for primary diagnosis was excellent ( $\kappa = .90$ ).

## 3. Results

### 3.1. The co-occurrence of anxiety and other psychopathology in African American parents and offspring

As noted by Cicchetti and Rogosch (1996) as well as the methodology utilized by Burstein, Ginsburg, and Petras, et al. (2010) and Burstein, Ginsburg, and Tein (2010), parental anxiety may serve as a single risk factor that may predict many negative outcomes in offspring. Along these lines, in order to determine the co-occurrence of parental anxiety, child anxiety, and other psychopathology in African American offspring, a logistic regression was employed in which parental diagnoses served as a dichotomous predictor (e.g., anxiety diagnosis, diagnostic control) of child diagnosis, which was a dichotomous outcome variable (any diagnosis, diagnostic control). Both child gender and child age were utilized as covariates. The results of the logistic regression are presented in Table 3. As indicated by Table 3, African American offspring whose parent has an anxiety disorder are approximately 4 times more likely to endorse criteria for an anxiety disorder or other forms of psychopathology than children with a parent without an anxiety diagnosis ( $\chi^2 = 10.9, p < .05$ ).

### 3.2. The co-occurrence of anxiety in African American parents and offspring

As previously noted, a separate logistic regression was conducted to determine the co-occurrence of anxiety disorders in

**Table 4**  
Logistic regression predicting presence of an anxiety disorder in African American offspring.

Variable	B	S.E.	Wald	Sig. (p)	Odds ratio
Parent anxiety	1.479	.515	8.25	.004	4.390**
Child gender	-.410	.509	.649	.420	.663
Child age	.081	.081	1.00	.317	1.084

\*\*  $p < .01$ .

African American parent–child dyads. As such, the children who met criteria for a diagnosis other than anxiety ( $N = 24$ ) were excluded from the analysis leaving only anxious and non-anxious parent–child dyads. Similarly, both child gender and child age were utilized as covariates. The results of the logistic regression are presented in Table 4. As indicated in Table 4, African American offspring who have a parent with an anxiety disorder are 4 times more likely to endorse criteria for an anxiety disorder than African American offspring with a non-anxious parent ( $\chi^2 = 10.38, p < .05$ ).

## 4. Discussion

The empirical literature has consistently demonstrated that the offspring of anxious parents are 3–7 times more likely than the offspring of non-anxious parents to meet criteria for an anxiety disorder (Beidel & Turner, 1997; Biederman et al., 1991; Black et al., 2003; Merikangas et al., 1998; Micco et al., 2009). Familial linkage studies have suggested genetic factors to account for half the variance in the transmission of anxiety from parent to child (Fyer, 1998; Harvison et al., 2008), with environmental factors likely accounting for the remaining variance. Unfortunately, the majority of anxiety literature has excluded representative or comparative ethnic minority samples, which may limit the generalizability of findings while underscoring the need for further investigation as to whether empirically supported treatments are effective in diverse families.

The current study is the first to date to examine the co-occurrence of anxiety disorders in a carefully diagnosed sample exclusively comprised of African American parents and children. Results indicated that the offspring of anxious, African American parents were four times more likely than the offspring of non-anxious African American parents to meet criteria for an anxiety disorder. Fifty-five parents met criteria for at least one anxiety disorder while 34 children met criteria for at least one anxiety disorder. Within the parent sample, the most frequently occurring diagnoses were specific phobias (17% of current sample) and social phobia respectively (16% of current sample). Interestingly, the most frequently occurring diagnoses in the child sample were consistent with the parent sample, specifically, specific phobias (17%) and social phobia (e.g., 12%).

Results from the current study have several important implications. First, the likelihood of meeting diagnostic criteria for an anxiety disorder in the offspring of African American parents with an anxiety disorder diagnosis appears to be comparable to that of non-Hispanic White offspring. The results, using an exclusively African American sample are consistent with previous work in this area, but also used a larger sample (see Table 1). Although promising, further investigation is needed in order to clearly delineate socio-cultural factors that influence both the etiology and treatment of African Americans with anxiety and related disorders and whether existing empirically supported anxiety treatments yield consistent outcomes.

Moreover, African American parents and their offspring appear to endorse social and specific phobias at greater frequencies than other anxiety disorders. The greater endorsement of more social and specific phobias in African American adults and children than their non-Hispanic White counterparts is consistent with previous

work in African American samples (Chapman, Vines, & Petrie, 2011; Last & Perrin, 1993; Neal & Turner, 1991; Petrie, Vines, & Chapman, under review). Hence, these findings have particularly important implications for anxiety work with African American adults and children for a number of reasons. First, although empirically supported treatments for anxiety and related disorders have been well established, the majority of work in this area has included relatively homogenous samples comprised of non-Hispanic Whites. Additionally, these results highlight the need for further empirical investigation of social and specific phobias in order to identify any to facilitate the identification of socio-cultural factors that influence the particularly higher endorsements of these disorders. Along these lines, the prevalence of social and specific phobias in the current sample may provide important clues related to the social-cultural factors (e.g., history of discrimination, extended kin support networks, stereotype threat) which influence both the etiology and treatment of anxiety disorders in African Americans.

#### 4.1. Limitations

Although the present work contains a number of strengths that should guide future work in this area, there are several limitations worth noting. First, the majority of adult participants were mothers, and thus, the data may be limited to understanding the transmission of anxiety between African American women and their children. While women are often the primary caretakers of children in African American families, the child's father still contributes genetic material potentially related to anxiety transmission and may also contribute to a family environment which maintains anxiety symptoms. Future studies should examine the role of the father in the development and maintenance of anxiety disorders in African American youth. Also worth noting is the fairly low SES of the current study. Given that the majority of the current sample was from a lower SES, it is paramount for future work in this area to include families from a broad range of SES to enhance the generalizability of the current findings. An additional limitation was the manner in which the child participants of multiple-child families were selected for the current study. Given that there were no restrictions other than age, it is likely that parents would choose children with relevant behavioral characteristics. While this may have resulted in some unknown selection biases, it did not result in disproportionate amount of anxious dyads; indeed, approximately half of the sample was non-anxious controls. Although consistent with the aforementioned literature, the sole use of the ADIS for establishment of diagnosis status was a potential limitation for the current study and may have resulted in behavioral correlates of anxiety transmission that were not accounted for. While the ADIS is a reliable diagnostic tool, and clinical interviews often provide more detailed information than paper-and-pencil questionnaires, corroborating evidence of diagnostic status might have been obtained through additional self-report measures. One potential measure of behavioral correlates would be the Child Behavior Checklist (CBCL; Achenbach, 1991), which provides information on behavioral areas including social withdrawal, somatic complaints, destructive behavior, social problems, and attentional deficits. Additionally, the current study failed to utilize measures of racial and ethnic identity, which may suggest significant differences in the endorsement of anxiety and related disorders, given that African Americans are an extremely heterogeneous group (see Boyd-Franklin, 2003).

#### 4.2. Implications and suggestions for future study

Despite these limitations, the current study represents a significant advancement in the burgeoning literature pertaining

to anxiety in African Americans. Research suggests that African Americans may be less likely to undergo psychological treatment due to the stigma associated with seeking mental health services and the general mistrust of health care professionals that is historically inherent to African American culture (Boyd-Franklin, 2003). Moreover, the findings from the current study suggest that children of anxious African American adults are four times more likely to be anxious themselves. Because African Americans are less likely to seek treatment, parents in addition to their children may suffer from anxiety symptoms without relief or, conversely, may develop maladaptive coping strategies. Given that the current study replicated findings from non-Hispanic White samples, it does not necessarily underscore the need for the tailoring of empirically supported treatments per se; however, the results from the current study in concert with research that suggests that African Americans are less likely to seek psychological treatment, highlights the need for future research endeavors that examine ways to facilitate the recruitment and retention of African Americans in clinical settings. More specifically, future research should examine specific factors that may increase the likelihood that African Americans seek psychological treatment.

Future research should focus on replication of these results with similarly large African American samples as compared to their non-Hispanic White counterparts; ideally, studies utilizing large samples of other ethnic groups would equally contribute to empirical work in this area, as this study represents a growing but recent facet of anxiety research. As more information emerges regarding the co-occurrence of anxiety in African American families, results such as those presented in this study have additional implications for the importance of continued assessment of anxiety disorders in cultural and ethnic minorities. For example, the significant likelihood of a child of an anxious parent receiving an anxiety diagnosis suggests the clinical utility of treatment modalities designed to provide therapy simultaneously to an anxious parent and an anxious child. Moreover, results from the aforementioned studies also have implications for screening anxiety and related disorders with clinical interviews in ethnic minorities. Specifically, results from the current study further indicate that the client, parent, and child versions of the ADIS appear to be adequate tools for assessing anxiety disorders in both non-Hispanic White and African American adults and children. This finding is particularly important in light of the relatively large number of African Americans in the current sample with diagnostic information. Although the results from the current study support the notion that African American offspring with an anxious parent appear to be equally at risk for developing an anxiety disorder as their non-Hispanic White counterparts, replication by other investigators is highly encouraged for the current results to be underscored. Furthermore, exploration of specific anxiety diagnoses that may be more endemic to African American adults and children is additionally warranted. Finally, it should be noted that the recruitment and retention of African Americans in this and similar work could not be achieved without genuinely embracing collectivism. Being salient in the community and being genuinely supportive, while providing non-stigmatizing information pertaining to mental health in African American families in an interactive format was integral to the success of this study and is encouraged by researchers interested in similar work.

#### References

- Achenbach, T. M. (1991). *Manual for the child behavior checklist/4–18 and 1991 profile*. Burlington: University of Vermont.
- Association, American Psychiatric. (1994). *Diagnostic and statistical manual of mental disorders*. Washington, DC: Author.
- Association, American Psychological. (2002). *Guidelines on multicultural education, training, research, practice, and organizational change for psychologists*. Washington, DC: American Psychological Association., pp. 1–63.

- Barlow, D. H. (2002). *Anxiety and its disorders* (2nd ed.). New York: The Guilford Press.
- Beidel, D. C. & Turner, S. M. (1997). At risk for anxiety: psychopathology in the offspring of anxious parents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36(7), 918–924.
- Biederman, J., Rosenbaum, J. F., Bolduc, E. A., Faraone, S. V. & Hirshfeld, D. R. (1991). A high risk study of young children of parents with panic disorder and agoraphobia with and without comorbid major depression. *Psychiatry Research*, 37(3), 333–348.
- Black, D. W., Faffney, G. R., Schlosser, S. & Gabel, J. (2003). Children of parents with obsessive-compulsive disorder—a 2-year follow up study. *Acta Psychiatrica Scandinavica*, 107(4), 305–313.
- Boyd-Franklin, N. (2003). *African american families in therapy: understanding the African American experience* (2nd ed.). New York: Sage Publications.
- Brown, T. A., DiNardo, P. A., Lenham, C. L. & Campbell, L. A. (2001). Reliability of dsm-iv anxiety and mood disorders. *Journal of Abnormal Psychology*, 110(1), 49–58.
- Brown, T. A., DiNardo, P. A. & Barlow, D. H. (1994). *Anxiety disorders interview schedule for DSM-IV (ADIS-IV)*. Albany, NY: Graywind.
- Burstein, M., Ginsburg, G. S., Petras, H. & Ialongo, N. (2010). Parent psychopathology and youth internalizing symptoms in an urban community: a latent growth model analysis. *Child Psychiatry and Human Development*, 41, 61–87.
- Burstein, M., Ginsburg, G. S. & Tein, J. Y. (2010). Parental anxiety and child symptomatology: an examination of additive and interactive effects of parent psychopathology. *Journal of Abnormal Child Psychology*, 38, 897–909.
- Caldwell, C. H. & Koski, L. R. (1997). Child rearing, social support, and perceptions of parental competence among African American mothers. In: R. J. Taylor, J. S. Jackson, & L. M. Chatters (Eds.), *Family life in African American America* (pp. 185–200). Thousand Oaks, CA: Sage Publications, Inc.
- Capps, L., Sigman, M., Sena, R., Henker, B. & Whalen, C. (1996). Fear, anxiety and perceived control in children of agoraphobic parents. *Journal of Child Psychology and Psychiatry*, 37(4), 445–452.
- Carter, M. M., Sbrocco, T. & Carter, C. (1996). African americans and anxiety disorders research: development of a testable theoretical framework. *Psychotherapy*, 33(3), 449–463.
- Chapman, L. K., Vines, L. & Petrie, J. (2011). Fear factors: cross validation of specific phobia domains in a community-based sample of african american adults. *Journal of Anxiety Disorders*, 25(4), 539–544.
- Chapman, L. K. & Steger, M. F. (2010). Race and religion: differential prediction of anxiety symptoms by religious coping in African American and European American young adults. *Depression and Anxiety*, 27, 316–322.
- Chapman, L. K. & Woodruff-Borden, J. (2009). The impact of family functioning on anxiety symptoms on African American and European American young adults. *Personality and Individual Differences*, 47, 583–589.
- Chapman, L. K., Kertz, S. J. & Woodruff-Borden, J. (2009). A structural model analysis of psychological distress and perceived control on worry in among African American and European American young adults. *Journal of Anxiety Disorders*, 23, 69–76.
- Chapman, L. K., Williams, S. R., Mast, B. T. & Woodruff-Borden, J. (2009). A confirmatory factor analysis of the beck anxiety inventory in african american and european american young adults. *Journal of Anxiety Disorders*, 23, 387–392.
- Cicchetti, D. & Rogosch, F. A. (1996). Equifinality and multifinality in developmental psychopathology. *Development and Psychopathology*, 8, 597–600.
- Fyer, A. J. (1998). Current approaches to etiology and pathophysiology of specific phobia. *Biological Psychiatry*, 44, 1295–1304.
- Greenberg, P. E., Tamar, S., Kessler, R. C., Finkelstein, S. N., Berndt, E. R., Davidson, J. R., et al. (1999). The economic burden of anxiety disorders in the 1990s. *The Journal of Clinical Psychiatry*, 60, 427–435.
- Hatchet, J. S. & Jackson, J. S. (1992). African American extended kin systems. In: A. Billingsley (Ed.), *Climbing Jacob's ladder: the enduring legacy of African American families*. New York, NY: Simon & Schuster.
- Himle, J. A., Baser, R. E., Taylor, R. J., Campbell, R. D. & Jackson, J. S. (2009). Anxiety disorders among African Americans, blacks of Caribbean descent, and non-Hispanic whites in the United States. *Journal of Anxiety Disorders*, 23, 578–590.
- Issakidis, C., Sanderson, K., Corry, J., Andrews, G. & Lapsley, H. (2004). Modeling the population cost-effectiveness of current and evidenced-based optimal treatment for anxiety disorders. *Psychological Medicine*, 34(1), 19–35.
- Harvison, K. W., Chapman, L. K., Ballash, N. G. & Woodruff-Borden, J. (2008). Anxiogenic patterns in mother-child interactions. *Child and Family Behavior Therapy*, 30(2), 137–152.
- Last, C. G. & Perrin, S. (1993). Anxiety disorders in African-American and Caucasian American children. *Journal of Abnormal Child Psychology*, 21(2), 153–164.
- McCabe, K. M., Clark, R. & Barnett, D. (1999). Family protective factors among urban African American youth. *Journal of Clinical Child Psychology*, 28(2), 137–150.
- McClellan, J. M., Rubert, M. P., Reichler, R. J. & Sylvester, C. E. (1990). Attention deficit disorder in children at risk for anxiety and depression. *Journal of the American Academy of Child and Adolescent Psychiatry*, 29(4), 534–539.
- McLeod, B. D., Wood, J. J. & Weisz, J. R. (2007). Examining the association between parenting and childhood anxiety: a meta-analysis. *Clinical Psychology Review*, 27, 155–172.
- Murry, V. M., Bynum, M. S., Brody, G. H., Willert, A. & Stephens, D. (2001). African American single mothers and children in context: a review of studies on risk and resilience. *Clinical Child and Family Psychology Review*, 4(2), 133–155.
- Merikangas, K. R., Dierker, L. C. & Szatmari, P. (1998). Psychopathology among offspring of parents with substance abuse and/or anxiety disorders: a high-risk study. *Journal of Child Psychology and Psychiatry*, 39(5), 711–720.
- Micco, J. A., Henin, A., Mick, E., Kim, S., Hopkins, C. A., Biederman, J., et al. (2009). Anxiety and depressive disorders in offspring at high risk for anxiety: a meta-analysis. *Journal of Anxiety Disorders*, 23, 1158–1164.
- Mufson, L., Weissman, M. M. & Warner, V. (1992). Depression and anxiety in parents and children: a direct interview study. *Journal of Anxiety Disorders*, 6, 1–13.
- Neal, A. M. & Turner, S. M. (1991). Anxiety disorders research with african americans: current status. *Psychological Bulletin*, 109(3), 400–410.
- Petrie, J., Vines, L., Chapman, L. K. Positive and negative affect as predictors of social phobia in African Americans, under review.
- Silverman, W. K. & Nelles, W. B. (1988). The anxiety disorders interview schedule for children. *Journal of the American Academy of Child & Adolescent Psychiatry*, 27, 772–778.
- Silverman, W. K. & Albano, A. M. (1996). *The anxiety disorders interview schedule for DSM-IV: child and parent versions*. San Antonio, TX: Psychological Corporation.
- Silverman, W. K., Saavedra, M. S. & Pina, A. A. (2001). Test-retest reliability of anxiety symptoms and diagnoses with the anxiety disorders interview schedule for DSM-IV: child and parent versions. *Journal of the American Academy of Child Adolescent Psychiatry*, 40, 937–943.
- Williams, M. & Turkheimer, E. (2008). In: L. V. Sebeki (Ed.), *The effects of interviewer race on anxiety in African American*. Nova: Leading-edge Health Education Issues.
- Wood, J. J., McLeod, B. D., Sigman, M., Wei-Chin, H. & Chu, B. C. (2003). Parenting and childhood anxiety: theory, empirical findings, and future directions. *Journal of Child Psychology and Psychiatry*, 44(1), 134–151.