Mother and Child Perceptions of Child Anxiety: Effects of Race, Health Status, and Stress

Janice Wachtel Walton, PhD, Suzanne Bennett Johnson, PhD, and James Algina, PhD
University of Florida

Objective: To replicate race-related differences in mother and child reports of child anxiety and to test whether these race-related differences occur in healthy and chronically ill children seen in stressful and nonstressful settings.

Method: Using a 2 (Informant: Mother versus Child) × 2 (Race: African versus Euro-American) × 2 (Health Status: Healthy versus Chronically Ill) × 2 (Setting: Medical/Dental Clinic versus Restaurant) design, we asked 167 (10- to 18-year-old) children and their mothers completed the State Trait Anxiety Inventory for Children.

Results: African American children rated themselves as more anxious than Euro-American children. Mothers reported the opposite: African American mothers described their children as less anxious than Euro-American mothers described their children. For state anxiety, the Race × Informant interaction occurred only in the stressful (medical/dental clinic) setting. For trait anxiety, the Race × Informant interaction was found for chronically ill, but not healthy, children.

Conclusions: Reports of child anxiety vary by informant, race, child health status, and setting.

Key Words: anxiety; race effects; chronically ill children; mother-child reports; medical procedures.

Studies that compare child and parent reports of the child’s anxiety have often documented greater symptom endorsement by the child (e.g., Hodges, Gordon, & Lennon, 1990; Rey, Schrader, & Morris-Yates, 1992). Because anxiety is an internal state, children are presumed to be the more accurate reporters (e.g., Herjanic & Reich, 1982; Verhulst, Althaus, & Berden, 1987).

Other studies have documented greater self-reported anxiety in African American compared to Euro-American children (Beidel, Turner, & Trager, 1994; Clawson, Firment, & Trower, 1981; Johnson, 1989; Kashani & Orvaschel, 1988; Papay & Hedl, 1978). Unfortunately, few of these studies have adequately controlled for the influence of socioeconomic status (SES) (Beidel et al., 1994; Last & Perrin, 1993).

Wachtel, Rodrigue, Geffken, Graham-Pole, and Turner (1994) examined the effects of race and informant (parent versus child) on reports of child anxiety, while controlling for SES. A significant Race × Informant interaction emerged for both state and trait anxiety. The African American children rated themselves as more anxious than their Euro-American peers. However, an opposite pattern occurred for parental reports of child anxiety: African American mothers rated their own children as less anxious than Euro-American mothers rated their children. The findings could not be explained by
racial differences in SES. A similar Race × Informant effect was reported by Kazdin, French, and Unis (1983) in their study of parent-child agreement of the child's level of depression, although the number of African American child participants was small (n = 6).

In the Wachtel et al. (1994) investigation, 60% of the sample consisted of chronically ill children, and 85% of the African American youngsters were chronically ill. Further, the anxiety assessment was conducted in a stressful setting (prior to an invasive medical procedure). Consequently, it is unclear whether the Race × Informant effect was limited to this particular population (i.e., chronically ill children) tested in this particular setting (i.e., about to undergo a medical procedure). Would a similar Race × Informant effect occur in healthy children and in nonstressful settings? Consequently, the purposes of the present investigation were (1) to replicate the previous Race × Informant effect; (2) to test whether race-related differences in mother and child perceptions of anxiety occur in healthy as well as chronically ill children; and (3) to test whether race-related differences in mother and child perceptions of anxiety occur in nonstressful as well as stressful settings. For state anxiety, we expected the Race × Informant interaction might be most apparent in a stressful medical setting, rather than a nonstressful setting, since the medical setting would likely induce anxiety. For trait anxiety, we expected the Race × Informant interaction might be more apparent among chronically ill, rather than healthy, children since the ill child is likely to experience greater generalized anxiety (Lavigne & Faire-Routman, 1992). Thus, we predicted a Race × Informant interaction for both state and trait anxiety, a Race × Informant × Setting (stressful versus nonstressful setting) interaction for state anxiety, and a Race × Informant × Health Status (healthy versus chronically ill) interaction for trait anxiety.

Social desirability was also examined as a possible explanatory variable since African American children and adults often display a significantly greater number of socially desirable responses than Euro-American samples (Crandall, Crandall, & Katkovsky, 1965; Fisher, 1967; Klassen, Hornstra, & Anderson, 1975) and race-related differences in social desirability could influence a respondent’s willingness to acknowledge a child’s anxiety. Two types of social desirability were assessed: general concerns with social desirability and social desirability specific to medical appointments.

Method

Design

The study was a 2 (Race: African American vs. Euro-American) × 2 (Health Status: Chronically Ill vs. Healthy) × 2 (Setting: Stressful Medical/Dental Clinic vs. Nonstressful Fast-Food Restaurant) design with one repeated measure (Informant: Mother vs. Child). Although the design was not perfectly balanced, every effort was made to solicit approximately equal numbers of African American and Euro-American, healthy and chronically ill, participants.

Participants

Participants were 167 children, ages 10–18 years, with no evidence of mental retardation or severe developmental disabilities, and their mothers; 47% were African American and 53% were Euro-American. Thirty-nine percent of the African American sample were boys, while 48.3% of the Euro-American sample were boys. Children were required to be at least 10 years of age to assure reliable completion of the STAIC, as normative samples for the STAIC (Spielberger, 1973) were children in at least the 4th grade, which is approximately 10 years of age. Sample characteristics are presented by race in Table I. There were no race-related differences in age, grade, gender, or health status (percent chronically ill versus healthy). However, Euro-American

Table I. Sample Sociodemographic and Clinical Characteristics by Race

<table>
<thead>
<tr>
<th></th>
<th>African American (n = 78)</th>
<th>Euro-American (n = 89)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age, years (SD)</td>
<td>13.2 (2.3)</td>
<td>13.2 (2.3)</td>
</tr>
<tr>
<td>Grade (SD)</td>
<td>7.6 (2.5)</td>
<td>7.6 (2.5)</td>
</tr>
<tr>
<td>% Male</td>
<td>39.7</td>
<td>48.3</td>
</tr>
<tr>
<td>% Chronically ill</td>
<td>52.6</td>
<td>55.1</td>
</tr>
<tr>
<td>% Treated for anxiety</td>
<td>2.6</td>
<td>14.6*</td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age, years (SD)</td>
<td>36.8 (11.0)</td>
<td>39.8 (7.3)**</td>
</tr>
<tr>
<td>Highest grade (SD)</td>
<td>12.5 (1.7)</td>
<td>13.9 (2.2)*</td>
</tr>
<tr>
<td>% Married</td>
<td>41.6</td>
<td>78.7*</td>
</tr>
<tr>
<td>SES, Hollingshead (SD)</td>
<td>2.3 (1.0)</td>
<td>3.5 (1.1)*</td>
</tr>
<tr>
<td>No. people living in home</td>
<td>3.8 (1.9)</td>
<td>4.1 (1.2)</td>
</tr>
</tbody>
</table>

*Socioeconomic Status (SES) was calculated using Hollingshead Four Factor Index of Social Status (Hollingshead, 1973).

*p < .01.

**p < .05.
feelings of anxiety (Trait anxiety). Higher scores indicate greater anxiety. Internal consistency (coefficient alpha) estimates for the STAIC-State were high for this study’s sample (African American mothers, \( \alpha = .92 \); African American children, \( \alpha = .91 \); Euro-American mothers, \( \alpha = .89 \); Euro-American children, \( \alpha = .90 \)). The STAIC-Trait scale also was highly reliable (African American mothers, \( \alpha = .89 \); African American children, \( \alpha = .90 \); Euro-American mothers, \( \alpha = .86 \); Euro-American children, \( \alpha = .87 \)).

The Marlowe-Crowne Social Desirability Scale. This scale (Crowne & Marlowe, 1960) is a 33-item self-report measuring social desirability in adults, defined as a person’s need to “obtain approval by responding in a culturally appropriate and acceptable manner” (p. 353). Higher scores indicate greater frequency of responding in a socially desirable manner. Internal consistency for this sample was high (African American mothers, \( \alpha = .82 \); Euro-American mothers, \( \alpha = .84 \)).

The Children’s Social Desirability Questionnaire. This questionnaire (Crandall, Crandall, & Katkovsky, 1965), patterned after the Marlowe-Crowne, consists of 48 true-false items. Higher scores indicate greater frequency of socially desirable responses. Internal consistency estimates for this study’s sample were high (African American children, \( \alpha = .91 \); Euro-American children, \( \alpha = .89 \)).

The Social Desirability During Medical Appointments Form. This form is a 12-item self-report measure constructed by the investigators to assess mothers’ and children’s perceptions of socially desirable behavior for children experiencing a medical procedure; higher scores indicate stronger views that a child should look calm in the doctor’s office. Internal consistency estimates for this sample were adequate (African American mothers, \( \alpha = .68 \); African American children, \( \alpha = .70 \); Euro-American mothers, \( \alpha = .76 \); Euro-American children, \( \alpha = .72 \)).

**Procedure**

The study’s procedures were reviewed and approved by the institutional review board; consent was obtained from participating mothers, assent from the children.

Chronically ill children were identified through the University of Florida’s Pediatric Oncology or Diabetes Clinics. Approximately half of these children and their mothers were recruited in the clinic’s waiting area where the participants were assessed before the child experienced any invasive procedure.

<table>
<thead>
<tr>
<th>Table II. Sample Health Status by Race</th>
<th>African American ( (n = 78) )</th>
<th>Euro-American ( (n = 89) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy</td>
<td>47.4</td>
<td>44.9</td>
</tr>
<tr>
<td>Asthma(^a)</td>
<td>1.3</td>
<td>3.4</td>
</tr>
<tr>
<td>Cancer</td>
<td>5.1</td>
<td>24.7(^*)</td>
</tr>
<tr>
<td>Immuno-deficiency disorder</td>
<td>2.6</td>
<td>15.7(^*)</td>
</tr>
<tr>
<td>Sickle cell disease</td>
<td>30.8</td>
<td>0(^*)</td>
</tr>
<tr>
<td>Diabetes(^a)</td>
<td>6.4</td>
<td>2.3</td>
</tr>
<tr>
<td>Other(^a)</td>
<td>5.1</td>
<td>6.7</td>
</tr>
<tr>
<td>Total(^a)</td>
<td>98.7</td>
<td>97.7</td>
</tr>
</tbody>
</table>

Data are presented as percentage of children with specific diagnosis within each race.

\(^a\)Chi-squared analysis was not conducted due to insufficient \( n \).

\(^*\)Not equal to 100% due to rounding of numbers.

\(^{*}p < .01\).
(defined as those involving incisions into the child’s body (e.g., blood draws, bone marrow aspirations). Mothers of the remaining chronically ill children were contacted by phone to arrange a meeting at a fast-food restaurant. Healthy children undergoing dental procedures were identified through the University of Florida’s Dental Clinic and were greeted by the experimenter in the waiting area where study assessments were conducted prior to any invasive dental procedure.

Healthy children also were approached at fast-food restaurants if they seemed to meet appropriate age and race demographics and were with adults who appeared to be their mothers. Health status and demographic information were confirmed prior to study participation.

The basic protocol for the study was the same regardless of setting or diagnosis. Families were offered gift certificates for a meal at a fast-food restaurant in exchange for study participation. Gift certificates were provided before the assessment instruments were administered. In the clinics, questionnaires were administered in the waiting area prior to the medical or dental procedure. In the restaurants, questionnaires were administered at a table in the restaurant, prior to obtaining meals with the gift certificate. Both written and verbal instructions were given to the mother and the child by an adult Euro-American examiner (undergraduate male and female students, 18 to 35 years of age). Each child completed the STAIC, the Children’s Social Desirability Questionnaire, and the Social Desirability During Medical Appointments Form. Each mother completed the demographics questionnaire, the STAIC according to how she believed the child felt, the Marlowe-Crowne Social Desirability Scale, and the Social Desirability During Medical Appointments Form. The STAIC was always given prior to the social desirability questionnaires to ensure that reports of anxiety were not influenced by questions involving social desirability.

**Study Refusal Rates**

African American and Euro-American families differed in how often they refused study participation, \( \chi^2 = 7.18, p < .01 \). Among the chronically ill youngsters, 52% of the African American families refused to participate, compared to 40% of the Euro-American families. Among the healthy children, a similar pattern emerged: 49% of the African American families declined participation compared to 31% of the Euro-American families.

**Results**

**Comparison of Study Sample to Normative Data**

Normative data for the STAIC and relevant comparison data from the current study are provided in Table III. Although Spielberger’s 1973 normative sample consisted of 35%–40% African American children, normative data were not provided by race.

For the state anxiety scale, responses by study children seen in the nonstressful restaurant setting were selected for comparison purposes since the normative sample was also assessed in a nonstressful setting (i.e., the classroom). For the trait anxiety scale, responses of this study’s healthy children were considered most appropriate for comparison purposes since the normative sample was comprised of healthy children (although health status was not reported in Spielberger’s 1973 publication).

| Table III. Children’s STAIC Anxiety Scores: Current Sample versus Normative Sample |
|---------------------------------|---------|---------|---------|---------|---------|---------|
|                                | Girls   | Boys    | Girls   | Boys    | Girls   | Boys    |
|                                | n M (SD)| n M (SD)| n M (SD)| n M (SD)| n M (SD)| n M (SD)|
| **State anxiety**              |         |         |         |         |         |         |
| African American               | 24 30.3 (6.0) | 17 27.5 (3.6)** | 737 30.7 (6.0) | 817 31.0 (5.7) |
| Euro-American                  | 24 30.9 (7.2) | 22 27.6 (4.6)** | 737 30.7 (6.0) | 817 31.0 (5.7) |
| **Trait anxiety**              |         |         |         |         |         |         |
| African American               | 24 33.8 (7.2)** | 13 35.7 (7.2) | 737 38.0 (6.7) | 817 36.7 (6.3) |
| Euro-American                  | 22 34.1 (9.4) | 27 30.4 (6.9)** | 737 38.0 (6.7) | 817 36.7 (6.3) |

*Significantly greater than normative sample, \( p < .05 \).
**Significantly less than normative sample, \( p < .05 \).
Table IV. Differences Between Current Sample and the Normative Sample on the Social Desirability Questionnaires

<table>
<thead>
<tr>
<th></th>
<th>Current Sample</th>
<th>Normative Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n) (M) (SD)</td>
<td>(n) (M) (SD)</td>
</tr>
<tr>
<td>Children's Social Desirability Scale(a)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>47 20.3 (9.9)</td>
<td>69 17.5 (8.6)</td>
</tr>
<tr>
<td>Male</td>
<td>31 20.7 (8.5)*</td>
<td>69 16.0 (9.1)</td>
</tr>
<tr>
<td>Euro-American</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>46 19.4 (8.3)</td>
<td>93 17.5 (8.6)</td>
</tr>
<tr>
<td>Male</td>
<td>43 20.9 (8.4)*</td>
<td>69 16.0 (9.1)</td>
</tr>
<tr>
<td>Marlowe-Crowne Social</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desirability Scale(b)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>78 19.6 (6.2)*</td>
<td>2,400 16.8 (5.5)</td>
</tr>
<tr>
<td>Euro-American</td>
<td>89 18.4 (5.8)*</td>
<td>2,400 16.8 (5.5)</td>
</tr>
</tbody>
</table>

\(a\)Normative sample obtained from Crandall et al. (1965), 9.6% of sample was African American.

\(b\)Normative sample obtained from Crowne and Marlowe (1964), race of sample not given.

\(*\)Significantly greater than normative sample, \(p < .05\).

Differences between the study sample and the instruments’ normative sample were examined using Welch’s \(t\) statistic. Boys of both races reported experiencing significantly less state anxiety than boys in the normative sample. African American girls and Euro-American boys reported experiencing significantly less trait anxiety than the normative sample. No STAIC normative data are available for mothers’ reports.

Table IV provides comparisons with normative samples on the two general social desirability questionnaires. Normative data are not available by race. Differences between the study sample and the instruments’ normative sample were examined using Welch’s \(t\) statistic. Boys and mothers, regardless of race, responded in a significantly more socially desirable manner than the normative sample.

**Preliminary Analyses**

A number of preliminary analyses were conducted to guide subsequent analyses and ease interpretation of the data.

**STAIC Scores by Disease Type.** Since the African American and Euro-American chronically ill children differed in disease type, preliminary analyses were conducted to assess whether any race effects could be explained by race differences in disease diagnosis. For example, sickle cell disease occurred only within the African American population. However, \(t\) tests comparing STAIC scores between African American children diagnosed with sickle cell and those with other diagnoses were not significant. While cancer and immuno-deficiency disorders were more common in Euro-American children, \(t\) tests comparing STAIC scores within the Euro-American sample between those with cancer and those with other diagnoses were not significant. However, Euro-American mothers of children with immuno-deficiency disorders reported their children experienced significantly more state anxiety (\(M = 36.4, SD = 8.98\)) than mothers of Euro-American children with other disorders (\(M = 30.8, SD = 5.0\)), \(t(16) = -2.19, p < .05\); no significant differences were found in mothers’ reports of trait anxiety or in children’s reports of state and trait anxiety. These analyses suggested that any race effects that emerged were not the result of racial differences in disease diagnosis.

**Gender Effects.** Girls reported significantly greater state (\(M = 31.8, SD = 7.16\)) and trait (\(M = 36.2, SD = 8.64\)) anxiety than boys (state: \(M = 29.5, SD = 6.57;\) trait: \(M = 32.4, SD = 6.60\)), \(t(162) = -2.13, p < .05\) for state anxiety and \(t(165) = -3.19, p < .01\) for trait anxiety. In contrast, mothers’ reports of children’s state and trait anxiety did not differ for boys versus girls.

**Social Desirability Effects.** There were no differences between African American and Euro-American mothers’ scores on the Marlowe-Crowne. However, African American mothers’ Marlowe-Crowne scores correlated significantly with their reports of their child’s state anxiety (\(r = -.48, p < .001\)) and trait anxiety (\(r = -.36, p < .005\)); the higher these mothers’ socially desirability scores, the less anxiety they reported their child to experience. African American mothers’ Marlowe-Crowne scores also correlated with their children’s self-reported state anxiety (\(r = -.39, p < .001\)), but not with their children’s self-reported trait anxiety (\(r = -.16\)). Euro-American mothers failed to exhibit as strong an association between their Marlowe-Crowne scores and their or their child’s report of the child’s anxiety; these mothers’ Marlowe-Crowne scores correlated significantly only with their reports of child trait anxiety (\(r = -.21, p < .05\)).

Although African American and Euro-American mothers did not differ in their response to the Marlowe-Crowne, they did differ in their response to the Social Desirability During Medical Appointments Form; African American mothers scored higher, \(t(133) = 2.63, p < .01\), indicating that they
felt children should appear calmer and show less anxiety during a medical appointment than did Euro-American mothers. However, mothers’ scores on this form did not correlate significantly with either mothers’ or children’s reports of the child’s anxiety.

Children’s responses to the Child Social Desirability Scale did not differ by race, although scores on this measure correlated with the children’s STAIC scores. Higher social desirability scores were associated with lower child-reported state ($r = -0.30$ for African American children, $r = -0.24$ for Euro-American children) and trait ($r = -0.15$ for African Americans; $r = -0.22$ for Euro-Americans) anxiety.

Similar to their mothers, African American children responded in a more socially desirable manner to the Social Desirability During Medical Appointments Form than did the Euro-American children, $t(155) = 2.03$, $p < .05$. However, scores on this form exhibited little association with the children’s STAIC scores. Only Euro-American children showed a significant association between scores on this form and trait anxiety scores ($r = -0.32$); more socially desirable responses were associated with less trait anxiety.

**Primary Analyses**

A repeated measures analysis of variance (ANOVA) was conducted with one within-subjects factor (Informant: child or mother) and three between-subjects factors (Race: African American or Euro-American; Health Status: healthy or chronically ill; Setting: stressful medical/dental clinic or nonstressful restaurant). The analysis was conducted for both state and trait anxiety. As expected, there was a main effect of Setting for state anxiety, $F(1, 159) = 8.46$, $p < .004$, but not for trait anxiety. Children tested in the medical/dental clinic reported more state anxiety than children tested in the restaurant; trait anxiety did not differ between the two settings. Although we expected a main effect for Health Status on trait anxiety, with chronically ill children more trait-anxious, this main effect failed to emerge.

**Replication of the Informant × Race Interaction.** The results replicated the Informant × Race interaction previously reported by Wachtel et al. (1994) for both state anxiety, $F(1, 159) = 8.94$, $p < .003$, and trait anxiety, $F(1, 159) = 9.10$, $p < .003$ (see Figure 1). African American mothers described their children as less anxious than their children self-reported, while Euro-American mothers described...
their children as more anxious than their children self-reported. African American children also reported more anxiety than Euro-American children, while African American mothers described their children as less anxious than Euro-American mothers described theirs.

**Informant × Race × Setting Interaction for State Anxiety.** We hypothesized that the Informant × Race interaction for state anxiety would occur in the medical/dental clinic, but not in the restaurant, since children are not generally state anxious in nonstressful settings. The predicted Informant × Race × Setting interaction was confirmed for state anxiety, $F(1, 159) = 6.54, p < .012$, and, as expected, was nonsignificant for trait anxiety. Figure 2 depicts the interaction, showing that the Informant × Race interaction for state anxiety occurred in the stressful (clinic), but not in the nonstressful (restaurant), setting.

**Informant × Race × Health Status Interaction for Trait Anxiety.** We hypothesized that the Informant × Race interaction for trait anxiety would occur for chronically ill, but not healthy, children, since chronically ill children are expected to experience more generalized anxiety. As predicted, the Informant × Race × Health Status interaction was significant for trait anxiety, $F(1, 159) = 3.77, p < .054$, but not for state anxiety. Figure 3 shows that the Informant × Race interaction for trait anxiety occurs with chronically ill children, but not with healthy children.

**Unpredicted Effects.** An unpredicted Informant × Setting × Health Status interaction occurred for state anxiety, $F(1, 159) = 9.79, p < .002$, a product of larger differences between chronically ill children’s self-reported anxiety in clinics versus restaurants. While both healthy and ill children viewed the medical/dental clinic as more stressful than the restaurant, the difference between the settings was larger for the chronically ill youngsters.

**Subsequent Analyses**

Subsequent analyses were conducted to examine whether the Informant × Race interactions could be explained by racial differences in demographic variables. Analyses of covariance (ANCOVAs) were conducted using as covariates demographic variables that were significantly different for the African American and Euro-American samples. These vari-
ables included SES, mother's age, and mother's education. The same Informant × Race interactions emerged.

In order to test whether social desirability influenced the results, we conducted two ANCOVAs. The first used the mothers' Marlowe-Crowne and the Children's Social Desirability scores as covariates (after transforming the raw scores to standard scores based on gender specific norms). The same Informant × Race interactions emerged. The second set of ANCOVAs used the scores from the mother and child completed Social Desirability During Medical Appointments Form as covariates. Once again, there was no substantive effect on the results.

Since girls reported greater state and trait anxiety than boys, gender was also added to the model. For state anxiety, no change in the results occurred. For trait anxiety, a main effect for gender, $F(1, 151) = 6.45, p < .05$, and an Informant × Gender × Setting interaction, $F(1, 151) = 4.61, p < .05$, emerged. Although girls reported more trait anxiety than boys in both the clinic and restaurant settings, mothers reported girls were more trait-anxious than boys in the clinic but not in the restaurant setting. With gender in the model, the Informant × Race interaction remained but the Informant × Race × Health Status interaction became nonsignificant.

**Discussion**

In this study, anxiety was measured by the STAIC, which proved to be reliable for both African American and Euro-American participants. Relevant comparisons to Spielberger’s 1973 normative sample indicated that study boys, regardless of race, reported less state anxiety and African American girls and Euro-American boys reported less trait anxiety. It is difficult to interpret these differences; the study sample could be less anxious than the norm, or Spielberger’s 1973 norms may be outdated.

A significant Informant × Race interaction for both state and trait anxiety was expected since it was found in a previous study with children undergoing invasive medical procedures (Wachtel et al., 1994). However, it was important to assess whether this effect was true for healthy children, as well as chronically ill children, because most of the partici-

---

Footnote: 1There also were differences between African American and Euro-American samples in percentages of children who received treatment for anxiety in the past and in mothers’ marital status. However, these variables were not entered into the ANOVA model, given the small number of children who had received treatment for anxiety ($n = 15$) and the skewed distribution of marital status in the African American and Euro-American samples.
state and trait anxiety could not be explained by racial differences in demographic variables or SES. Although Euro-American mothers were older, more educated, and of higher SES than African American mothers, these variables proved to have no influence on the results.

In this study, boys and mothers responded in a more socially desirable manner on both the Marlowe-Crowne and the Children's Social Desirability Scale when compared to these scales' normative samples. However, interpretation of these differences is difficult since these scales' norms were developed in the Midwest over 30 years ago. Although previous studies have reported African Americans respond in a more socially desirable manner on these instruments than Euro-Americans (Crandall et al., 1965; Fisher, 1967; Klassen et al., 1975), in the current study racial differences failed to emerge. Nevertheless, African American mothers and children responded in a more socially desirable manner to the Social Desirability During Medical Appointment Form than their Euro-American counterparts. Yet this race-related difference failed to explain the Informant × Race interaction on the STAIC; when social desirability effects were statistically controlled, the Respondent × Race interactions remained.

In addition to Race and Informant, Gender influenced children's reports of trait anxiety, a finding consistent with the previously published literature that girls report greater anxiety than boys (Abe & Masui, 1981; Kashani & Orvaschel, 1988; Lapouse & Monk, 1959). However, in the current study, gender differences in trait anxiety depended on informant (mother or child) and Setting (stressful clinic or nonstressful restaurant). Mothers' and children's reports of the child's trait anxiety in clinics were congruent, with girls reporting or being described by their mothers as experiencing greater trait anxiety than boys. However, in restaurants, while the girls and their mothers continued to report more child trait anxiety than boys, the boys' mothers indicated that their sons experienced relatively high levels of trait anxiety compared to the boys' self-reports of their own trait anxiety. These findings are difficult to explain. Very few studies have examined gender differences in parent-reported child anxiety, although two studies did report that parents describe greater levels of internalizing disorders/fears in their daughters as compared to their sons (Achenbach & Edelbrock, 1981; Lapouse & Monk, 1959). However, given the purposes of this study, it is important to
note that when gender was added to the statistical model, the Informant × Race interaction for both state and trait anxiety remained. In contrast, the Informant × Race × Health Status interaction for trait anxiety was lost, possibly the result of reduced power with so many variables in the model.

Although only two studies have previously reported similar Informant × Race interactions when assessing children’s affect (Kazdin et al., 1983; Wachtel et al., 1994), published reports of racial differences in child self-reported anxiety are more common (Beidel et al., 1994; Clawson et al., 1981; Johnson, 1989; Kashani & Orvaschel, 1988; Papay & Hedl, 1978); African American children consistently report more anxiety than Euro-American children. It is possible that this increased anxiety is the result of more frequent confrontation with daily societal stressors (e.g., poverty, racism). It is also possible that mothers’ beliefs and behaviors have an impact on child anxiety. In the present study, significantly more Euro-American than African American children were treated for anxiety. Perhaps the Euro-American children reported less anxiety because their mothers addressed their fears and worries. In contrast, the African American children may continue to experience anxiety because it goes unrecognized by their mothers. Previous studies have also reported that Euro-American, compared to African American, children receive more outpatient treatment for emotional problems in general (Cuffe, Waller, Cuccaro, Pumariega, & Garrison, 1995; Scheffler & Miller, 1989) and for anxiety disorders in particular (Last & Perrin, 1993).

We have yet to elucidate what underlies the differences between African American and Euro-American mothers’ perceptions of child anxiety. All mothers may have difficulty gauging child anxiety, but race-related differences in experiences, perceptions, and beliefs, may affect the direction of the difficulty. African American and Euro-American mothers may have different frames of reference that lead to different levels of tolerance or concern for a child’s emotional distress. Future studies will need to more carefully address this issue.

However, high refusal rates among African American families approached for study participation will continue to limit our understanding. Study refusal rates are rarely reported by race, although there is increasing evidence that African Americans are less willing to serve as research subjects or medical donors (e.g., McLoyd, 1990; Neal & Turner, 1991; Slaughter & McWorter, 1985). McLoyd also hypothesized that research participation may be viewed as particularly burdensome by African Americans due to the presence of so many stressors in their lives.

Limited information regarding the chronically ill group’s overall health status (e.g., years since diagnosis, severity) is another weakness of this study. Additional limitations of the study include the restricted age range, the limited representation of chronic illnesses, the use of only a medical/dental setting as a stressful environment, and the absence of some measurement of how stressful the medical/dental setting was for the child. No data were collected on fathers, there was no assessment of mother anxiety or psychological status, and since the examiners were Euro-American, the effects of examiner race could not be ascertained. Nevertheless, the study’s findings have a number of important clinical implications. There do appear to be important race-related differences in reports of child anxiety influenced by informant, race, child health status, and stress. Since children often are referred for psychological treatment by their parents (LaGreca, 1990), race-related discrepancies in parental perceptions of child distress, in addition to economic factors, may underlie race-related differences in children’s access to mental health services. Specifically, since African American mothers report relatively lower levels of anxiety in their children, they may be less likely to refer their children to mental health services. Exploration of other methods of ensuring that children have access to necessary mental health services would be beneficial.

Acknowledgments

Funding for this study was provided through a grant by the Children's Miracle Network. We thank John Graham-Pole, MD, Frank Courts, DDS, PhD, and Clara Turner, DMD, for access to their patients. We also acknowledge Burger King, Arby's Restaurant, and Popeye's Chicken in Gainesville, Florida, for use of their facilities and for reduced rate gift certificates for participants in this study. We further thank our undergraduate research assistants from the University of Florida for their hard work throughout the data collection process.

Received January 5, 1998; accepted August 16, 1998
References


Hollingshead, A. (1975). Four-factor index of social status. New Haven, CT: Yale University, Department of Sociology.


