Child Anxiety Treatment: Outcomes in Adolescence and Impact on Substance Use and Depression at 7.4-Year Follow-Up

Philip C. Kendall
Temple University

Scott Safford
Idaho State University

Ellen Flannery-Schroeder
University of the Sciences in Philadelphia

Alicia Webb
Temple University

Research suggests that the sequelae of childhood anxiety disorders, if left untreated, can include chronic anxiety, depression, and substance abuse. The current study evaluated the maintenance of outcomes of children who received a 16-week cognitive–behavioral treatment for primary anxiety disorders (generalized, separation, and social anxiety disorders) an average of 7.4 years earlier. The 86 participants (ages 15 to 22 years; 91% of the original sample) and their parents completed diagnostic interviews and self- and parent-report measures. According to the diagnostic interviews, a meaningful percentage of participants maintained significant improvements in anxiety at long-term follow-up. With regard to sequelae, positive responders to anxiety treatment, as compared with less positive responders, had a reduced amount of substance use involvement and related problems at long-term follow-up. The findings are discussed with regard to child anxiety and some of its sequelae.

Anxiety disorders are common in childhood and adolescence and are among the most common disorders in adults. Research suggests that approximately 10%–21% of children report clinical levels of anxiety (e.g., Benjamin, Costello, & Warren, 1990; Gurley, Cohen, Pine, & Brook, 1996; Pine, 1994; Shaffer et al., 1996) that can impact overall functioning. Anxious children may experience difficulties in their social and peer relations (e.g., Chansky & Kendall, 1997; Strauss, Forehand, Smith, & Frame, 1986), academic achievement (e.g., King & Ollendick, 1989), and future emotional health (e.g., Beidel, 1991; Feehan, McGee, & Williams, 1993). There are data to suggest that the majority of child anxiety disorders do not remit over time (e.g., Keller et al., 1992; Pine, Cohen, Gurley, Brook, & Ma, 1998) and that many anxiety-disordered adults experienced significant difficulties with anxiety in childhood (e.g., Öst, 1987; Sheehan, Sheehan, & Minichillo, 1981; Weissman, Leckman, Merikangas, Gammon, & Prusoff, 1974). Further, data indicating that older children report higher levels of distress than younger children suggest that untreated symptoms may worsen over time.

Anxiety disorders in youths can have long-term implications. Aside from the negative emotionality associated with the anxiety itself, childhood anxiety disorders have often been found to be associated with depression (Last, Hersen, Kazdlin, Finkelstein, & Strauss, 1987) and suicidal ideation and suicide attempts (Brent et al., 1986). Additional research suggests that anxiety disorders in childhood may temporally precede the development of depressive disorders (e.g., Biederman, Faraone, Mick, & Lelon, 1995; Brady & Kendall, 1992; Kovacs, Gatzonis, Paulauskas, & Richards, 1989). Given the significant relationship between anxiety and depression and the temporal precedence of anxiety disorders, effectively treating anxiety in childhood may help reduce the likelihood of later depressed mood.

Childhood anxiety disorders have also been identified as potential risk factors affecting the development and course of substance use disorders (Compton, Burns, Egger, & Robertson, 2002). Population- and clinic-based studies suggest that the two disorders often co-occur, with lifetime comorbidity estimates ranging from 33% to 45% (Kessler et al., 1996; Regier et al., 1990). Research has supported a temporal relationship, with anxiety disorders typically preceding the onset of substance use disorders (Abraham & Fava, 1999; Christie, Burke, Regier, Rae, Boyd, & Locke, 1988; Deas-Nesmith, Brady, & Campbell, 1998; Greenbaum, Prange, Friedman, & Silver, 1991; Kessler et al., 1996). One hypothesis regarding this temporal relationship is that at least some anxious adolescents may be using alcohol and other drugs to “self-medicate” or manage their anxiety symptoms (Manassis & Monga, 2001).

Several studies have examined the efficacy of cognitive–behavioral therapy (CBT) for anxiety disorders in youths, and the literature supports its utility. Reviewers (e.g., Kazdlin & Weisz, 1998; Ollendick & King, 2000) have indicated that, using the criteria for empirically supported treatment (Chambless & Hollon, 1998), CBT can be considered to have demonstrated efficacy. For example, Kendall and colleagues (Kane & Kendall, 1989; Kendall, 1994; Kendall et al., 1997; Flannery-Schroeder & Kendall, 2000)
reported positive evaluations of CBT for children with generalized anxiety disorder (GAD; GAD/overanxious disorder group), separation anxiety disorder (SAD), and social phobia (SP; SP/avoidant disorder group), and Beidel, Turner, and Morris (1999) reported positive outcomes from CBT for SP. Silverman et al. (1999) and Öst (1998) have reported randomized clinical trials (RCTs) evidencing gains from treatment for specific phobias in children. Others (e.g., Barrett, Dadds, & Rapee, 1996; Mendlowitz et al., 1999) have also reported beneficial outcomes. One-year follow-ups have often appeared with the initial publication of the outcome studies, and a separate 3.5-year follow-up (Kendall & Southam-Gerow, 1996) and a 6-year follow-up (Barrett, Duffy, Dadds, & Rapee, 2001) have provided some evidence of the maintenance of treatment-produced gains. However, caution is needed when interpreting follow-up reports, especially long-term follow-ups (LTFU s) in which, for ethical reasons, the control conditions are no longer available.

Questions remain regarding the maintenance of gains, the predictors of long-term gains, and the preventive effects on the sequelae of anxiety disorders. LTFU evaluations are necessary in the demonstration of treatment efficacy (Chambless & Hollon, 1998; Westen & Morrison, 2001). For evidence of long-term maintenance, the treatment must have produced results at the follow-up assessment that are comparable to those evident at posttreatment. Stated differently, one needs to see improvements from pretreatment and an absence of detrimental change since posttreatment or since shorter term (e.g., 6 month or 1 year) follow-up. Reviews of child psychotherapy outcomes (e.g., Journal of Clinical Child Psychology’s Special Section on Empirically Supported Psychosocial Interventions for Children; Lonigan & Elbert, 1998) indicate that although studies support the immediate efficacy of psychosocial treatment, there are very few studies that address the long-term outcomes of these interventions.

The present research addresses the maintenance and/or durability of treatment gains associated with completion of a CBT for 9–13-year-old children who had begun treatment diagnosed with a primary anxiety disorder (i.e., GAD, SAD, SP). A primary goal of the present study is to measure the LTFU outcomes of the treated cases. In addition, the present study investigated the characteristics that are predictive of successful maintenance of treatment gains (March & Curry, 1998) and examined other potential changes associated with previous treatment outcome. By comparing the LTFU outcomes for those cases who were and those who were not free of their primary diagnosis at posttreatment (i.e., successfully vs. less-successfully treated), we tested whether an effective treatment for an anxiety disorder has positive effects in reducing the occurrences of sequelae of the disorder (see also Glantz, 2002; Kendall & Kessler, 2002). Knowledge regarding potential beneficial effects of an anxiety treatment on the sequelae of the disorder (e.g., depression, substance use) would offer valuable information regarding a pathway to the prevention of secondary disorders by treating a primary disorder (Kessler & Price, 1993).

Existing studies of the effects of primary anxiety treatment on substance use have, thus far, been limited to adults and their current comorbid symptomatology. These studies indicate the effectiveness of pharmacological and behavioral treatment on concurrent anxiety and substance use symptoms in adults. Kushner, Abrams, and Borchardt (2000) reviewed findings showing that reducing clinical anxiety symptoms improves alcoholism treatment outcome and that ongoing problems with anxiety predict relapse. Successful treatment of anxiety symptoms with buspirone appears to reduce alcohol use among comorbid adult individuals (Kranzler et al., 1994; Kushner et al., 2000; Tollefson, Montague-Clouse, & Tollefson, 1992). Because of the posited temporal relationship between anxiety and substance use disorders, proper evaluation, prevention, and intervention before the onset of substance use may be important. In accordance with the self-medication hypothesis, untreated anxious youths may self-medicate their anxiety symptoms (Deas-Nesmith et al., 1998), and their anxiety may detrimentally impact their ability to participate in and benefit from substance use treatments.

Given the links between anxiety in youths and the later development of depression as well as substance use, one needs to test whether effective treatments for child anxiety disorders alleviate and perhaps prevent long-term problems (see Glantz, 2002). In RCTs, evidence suggests that CBT is an effective treatment for anxiety disorders. However, there are, as yet, no systematic studies to determine whether these therapies alter the trajectory of the sequelae of childhood anxiety disorders.

Method

Participants

Participants in this LTFU were youths (ages 9–13 years at the time of intake to the Child and Adolescent Anxiety Disorders Clinic [CAADC]) who were referred from multiple community sources and diagnosed with a Diagnostic and Statistical Manual of Mental Disorders (DSM) primary anxiety disorder at intake and who had completed a 16-week CBT for anxiety (i.e., Kendall et al., 1997). The criteria for the original sample of 94 children were as follows: (a) inclusion of children with a primary DSM anxiety disorder diagnosis and (b) exclusion of children if they displayed psychotic symptoms or were using antianxiety or antidepressant medications at the time of intake.

Attempts were made to recontact all 94 participants. Note that, at the time of treatment, all participants provided the names and addresses of two contacts (other than their parents) who were likely to know and stay informed of their whereabouts. These contacts were used in situations in which the participants were not reached directly. The original participants were contacted an average of 7.4 years posttreatment (range: 5.5–9.3 years). Despite this length of time, we were able to contact and schedule assessments with 86 families (91% of the original 94 participants): 85 families (90%) completed diagnostic interviews and questionnaires, and 1 family completed questionnaires only. Of the 86 participants, 86% were Caucasian, 6% African American, 2% Latino, 2% Asian, and 4% biracial. At the time of the LTFU, the participants were ages 15 to 22 years old (M = 19.3 years).

The original sample consisted of 38% girls. Fifty-two percent were 9 to 10 years old at the time of treatment, and 48% were 11 to 13 years old. Family income was below $20,000 for 6.4%, below $40,000 for 27.7%, below $60,000 for 33.0%, below $80,000 for 23.5%, and above $80,000 for 6.4%. With regard to educational attainment, 1.1% of fathers and 7.4% of mothers had not completed high school, whereas 38.3% of fathers and 4.3% of mothers were high school graduates without college; 26.6% of fathers and 17.0% of mothers had some college education, and 30.9% of fathers and 51.0% of mothers had completed a 4-year college education (information on educational attainment was unavailable for the remaining

---

1 Children with a primary diagnosis of simple phobia were not included, but children with diagnosable specific phobias as secondary problems were included.
20% of mothers). At intake, participants received primary anxiety disorder diagnoses (GAD, n = 55; SAD, n = 22; SP, n = 17) on the basis of structured clinical interviews conducted separately with both the parents and the child. At that time, when parent and child differed, diagnoses were based on parental reports. Forty-eight percent of the children were comorbid with simple phobia; 14% with attention-deficit/hyperactivity disorder; 8% with oppositional defiant disorder; 6% with major depression; and 1% with conduct disorder.

Some participants received services after receiving treatment at CAADC. According to parent report at LTFU, 5.3% (5/82) of children had a psychiatric hospitalization following CAADC treatment, 42.6% (40/82) received outpatient therapy, and 34.1% (28/82) received psychotropic medication. According to child report, 5.5% (4/73) had a psychiatric hospitalization, 39.7% (29/73) received outpatient therapy, and 31.5% (23/73) received psychotropic medication.

**Overview of the Initial RCT**

The study for the present LTFU was an RCT comparing CBT and a waitlist condition made up of children (ages 9–13) who met revised third edition DSM (DSM–III–R; American Psychiatric Association, 1987) criteria for a primary anxiety disorder and were randomly assigned to either condition (Kendall et al., 1997). Those assigned to the CBT condition were also randomly assigned to a therapist. Briefly, the treatment involved the use of relaxation, identification, and labeling of anxiety-related cognition; problem solving; social rewards and shaping; in vivo exposures; role-plays; and homework assignments. There were numerous statistically significant changes over time, relative to the waitlist, for those randomly assigned to CBT. For example, on the basis of an independent diagnosticians’s structured interview at posttreatment, the primary anxiety disorder was no longer the primary anxiety disorder for 71% of treated children. Intent-to-treat analyses indicated that 57% no longer met diagnostic criteria for their primary diagnosis at all at posttreatment. Following the waitlist period, children in the waitlist condition were also provided CBT, with random assignment to a therapist. Of the 94 participants, 91% participated at the 1-year follow-up. Analyses of the 1-year-follow-up data indicated maintenance of gains on all dependent measures. However, the absence of assessments of some of the sequelae of anxiety disorders (e.g., substance use) at that time precluded the evaluation of changes on these variables.

**Personnel**

A doctoral-level clinical psychologist or one of two clinical psychology doctoral candidates conducted all LTFU interviews. All interviewers were trained in diagnostic interviews and had previously administered between 25 and 150 such interviews. Diagnostic interviewers met criteria for reliability (κ > .85 agreement) and were blind to pre- and posttreatment diagnoses.

**Measures**

The measures for the LTFU were chosen from those measures administered at the previous assessments. Although alternative and/or newer measures were considered, and often found to have favorable qualities and psychometric properties, the newer measures were not available at the time of the initial RCT and had not, therefore, been administered at pre- or posttreatment. To facilitate comparison and interpretation of both the LTFU results, it was decided to administer the previously used measures, or the age-appropriate equivalent, rather than to administer newer measures. The evaluation included a diagnostic interview with the client and parent(s), as well as self- and parent-report measures. These assessments evaluated the nature and course of the particular child’s anxiety since treatment, the subsequent development of other clinical and subclinical disorders and/or substance use, the occurrence of major life events since treatment, and the receipt of subsequent treatment.

**Structured Diagnostic Interviews**

**Anxiety Disorder Interview Schedule for DSM–IV, Child Version and Parent Version (ADIS–C & ADIS–P).** The ADIS (Silverman & Albano, 1997) is a structured interview of the symptomatology, course, etiology, and severity of anxiety disorders, mood disorders, and externalizing disorders in children and adolescents. The ADIS was slightly modified for the current study to obtain information about the presence of disorders whose onset and offset may have occurred during the posttreatment-to-LTFU interval and to obtain information on services received since leaving CAADC, including inpatient hospitalization, outpatient therapy, and medication. The ADIS was administered independently to parents and to the child, with parents receiving the parent ADIS and only those participants 17 years and under (n = 20) completing the ADIS–C. Studies of the ADIS suggest high interrater reliability (r = .98 for parent interview and r = .93 for child interview; Silverman & Nelles, 1988) and retest reliability (κ = .76 for parent interview; Silverman & Eisen, 1992). Information about the child’s receipt of additional treatment (therapy and/or psychotropic medication) since completion of the CAADC program was gathered as part of the diagnostic interview.

**Anxiety Disorders Interview Schedule for DSM–IV, Lifetime (ADIS-IV-L).** The ADIS-IV-L (DiNardo, Brown, & Barlow, 1994) is a structured interview used to diagnose episodes of adult anxiety disorders, current and past mood disorders, and other disorders, as well as to obtain information about treatment for these disorders. Although the ADIS-IV-L structured interview was not used in the original RCT, it was decided that using this measure would be psychometrically preferable to using the ADIS–C with participants who are currently young adults. The ADIS-IV-L was used for all participants ages 18 and older (n = 53) at the time of the LTFU interview. Brown, DiNardo, Lehman, and Campbell (2001) reported good to excellent reliability for a principal anxiety disorder (reliability range: .67–.86; see also DiNardo, Brown, Lawton, & Barlow, 1995; DiNardo, Moras, Barlow, Rapee, & Brown, 1993; DiNardo, O’Brien, Barlow, Wadell, & Blanchard, 1983; Heimberg et al., 1998). The ADIS-IV-L included a way to assess interim treatments (treatment contacts subsequent to treatment at CAADC), and we used this instrument with the interviews. Interviewers achieved diagnostic reliabilities of ≥ .85 agreement using kappa coefficient on both the ADIS-IV–C and/or –P and the ADIS-IV-L.

**Youths’ Alcohol and Other Drug Use Inventory**

**Comprehensive Adolescent Severity Inventory (CASI).** Based on the Addiction Severity Index (McLellan, Luborsky, Woody, & O’Brien, 1980), and formerly known as the CASI-A, the CASI (Meyers, McLellan, Jaeger, & Pettinati, 1995) is a semistructured interview with 10 modules developed for the assessment of the multiple life domains and problems of adolescents (e.g., education, family, use of free time). The present project used the Alcohol and Other Drug (AOD) module of the CASI. Specifically, for each substance, the module assesses the adolescent’s age of first and of regular use, patterns of use over the past year, routes of administration, duration of use, and the social environment of use. Additional questions assess behavior under the influence; social, physical, and/or psychological consequences; interference with activities; tolerance and/or withdrawal; methods for obtaining substances; and treatment history. For each, the adolescent’s age of onset and whether the behaviors occurred regularly during the year prior to assessment is obtained. The CASI has .81 to .95 1-week retest reliability for AOD items (e.g., Meyers et al., 1995, 1999; Young et al., 1995). Meyers et al. (2002) reported convergent validity for the CASI AOD module with biological measures and substance abuse and dependence sections of the Diagnostic Interview Schedule for Children (Shaffer et al., 1996).
Children’s Self-Report Measures

Revised Children’s Manifest Anxiety Scale (RCMAS): “What I Think and Feel.” Designed as a measure of the child’s chronic (trait) anxiety, the scale consists of 37 items, 9 of which compose a Lie scale (Reynolds & Richmond, 1978). The scale reveals three anxiety factors: Physiological Symptoms, Worry and Oversensitivity, and Social Concern-Concentration. This measure has demonstrated validity, and national reliability and normative data are available (Reynolds & Paget, 1982). For those participants 18 or older at the time of the LTFU, the Manifest Anxiety Scale (MAS; Taylor, 1955), the adult version of the RCMAS, was used.

Children’s Depression Inventory (CDI). The CDI (Kovacs, 1981) includes 27 items regarding the cognitive, affective, and behavioral signs of depression. Each item contains three alternatives, and children select the one that best characterizes them during the past 2 weeks. The scale has high internal consistency and moderate retest reliability, and it correlates with measures of related constructs such as self-esteem, negative cognitive attributions, and hopelessness (Kazdin, French, Unis, Esvedt-Dawson, & Sherick, 1983; Saylor, Finch, Spirito, & Bennett, 1984; see review by Kendall, Cantwell, & Kazdin, 1989). Normative data are available (Finch, Saylor, & Edwards, 1985). For those participants 18 or older, the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) was used. The BDI is a 21-item inventory measuring depressive symptomatology. Reliability, validity, and normative data are available, and the measure has widespread application (Beck, Steer, & Garbin, 1988).

Coping Questionnaire—Child (CQ–C). The CQ–C (Kendall, 1994; Kendall & Mars-Garcia, 2003) is a self-report measure used to assess an individual’s perceived ability to cope with various anxiety-provoking situations. For the situations to be relevant, situationally based, and individualized, three situations are chosen from information given during the diagnostic interview. Analyses indicate adequate internal consistency and strong retest reliability and have documented its usefulness as a measure of improvement (Kendall & Mars-Garcia, 2003). Because the respondent provides the situations that are rated, subjects of varying ages can use the scale.

Adolescent Perceived Events Scale (APES). The APES (Compas, Davis, Forsythe, & Wagner, 1987) is a self-report measure of major and daily stressful life events during adolescence. The APES was constructed by gathering lists of life events identified by adolescents themselves. The recommended version of the APES (B. E. Compas, personal communication; January, 11, 1999) contains 100 items reflecting positive, neutral, and negative life events. Individuals report whether an event occurred and then rate those events on desirability, impact, and frequency using a 9-point Likert scale. Retest reliability and concurrent validity data are favorable (Compas et al., 1987). For the present study, the APES was used to assess life events post-CBT treatment.

Parent Measures of Child

Child Behavior Checklist (CBCL). The 118-item CBCL (Achenbach, 1991; Achenbach & Edelbrock, 1991) assesses behavioral problems and social competencies. Items are scored from 0 to 2, depending on the degree to which the particular statement characterizes the child. The CBCL measures a broad range of behavior problems, and normative data are available.

Coping Questionnaire—Parent (CQ–P). The CQ–P parallels the children’s version (CQ–C) described earlier. The parent rates the child’s ability to cope with the three most anxiety-provoking situations identified by the child during the structured interview. Outcome data support the sensitivity of this measure to treatment and show moderate interrater agreement (Kendall, 1994; Kendall & Mars-Garcia, 2003).

State–Trait Anxiety Inventory for Children (STAIC); Modification of Trait Version for Parents (A–Trait–P). Strauss (1987) modified the Trait version of the STAIC to be used as a parent report. Satisfactory psychometric properties have been reported (Southam-Gerow, Flannery-Schroeder, & Kendall, 2003). This measure was chosen as a complementary parent-report measure that is specific to anxiety, in contrast to the more global CBCL.

Procedure

Participants from the initial RCT were telephoned, using the contact information that had been provided. For the most part, participants were assessed at the CAADC or at their homes. Participants who had moved out of the area participated by telephone and by mail, as did those who did not come in person. Of the 85 interview participants, 61 (72%) were face-to-face interviews: 25 local participants came to the CAADC for a half-day (i.e., 3-hr) evaluation, and for 36 participants, interview staff conducted the interviews in the participants’ homes. Of the remaining 24, 9 had moved cross-country, necessitating a telephone interview, and 11 cases (who would otherwise have attrited) agreed to telephone interviews. In 4 cases, interviews were conducted through a combination of means: 3 youths were telephoned at out-of-state colleges, whereas parents were interviewed at their homes, and 1 parent was interviewed by phone, with the youth interviewed at the home. Monetary compensation ($50 per assessment; $100 for both) for time and expense was provided to participants.

Results

Reliabilities

Diagnosticians were trained to criterion (>.85 agreement using kappa) with written and videotaped samples prior to beginning this study. Discrepancies before the start of the study were resolved through discussion. As an additional check on interrater agreement, we compared diagnostician’s rates of diagnoses. There were no differential rates of diagnosis among the interviewers, based on total number of diagnoses reported from both sources of information (all ps>.05).

Sample Representativeness

Those available to participate at LTFU were compared with nonparticipants on variables including referral source, demographics (e.g., age, gender, ethnicity, family income), therapist factors (e.g., experience), pre- and posttreatment dependent measures (i.e., questionnaire measures and diagnostic status), and ratings of the child–therapist relationship. One-way analyses of variance and chi-square analyses were used. No significant differences between participants in the LTFU and nonparticipants were observed, with the following exceptions: child gender and family income. Two percent (n = 2) of boys in the original sample did not participate, whereas 6.4% (n = 6) of girls in the original sample did not participate, χ²(1, N = 94) = 4.99, p < .05. Nonparticipating families made up 37%, 25%, 12.5%, and 25%, respectively, low to high, of the previously mentioned income ranges compared with 3.8%, 30.8%, 38.8%, and 26.9%, respectively, low to high, of the participant families, χ²(3, N = 94) = 13.23, p < .01. Note, however, of the 8 nonparticipants, only 1 chose not to participate when contacted. The remaining 7 families could not be located.

Maintenance of Treatment Effects at LTFU

Long-term maintenance was evaluated using chi-square analyses for child diagnostic status and one-way analyses of variance for comparisons of self-report measures at pretreatment, posttreat-
ment, and LTFU assessments. When two parents separately completed self-report measures, the resulting scores were averaged into a parent score for the present analyses. Also, in cases (n = 53) in which a participant was over age 17 at the time of the LTFU, his or her BDI and MAS scores were rescaled to correspond to the range of earlier CDI and RCMAS scores, respectively. BDI and MAS total scores were converted to analogous CDI and RCMAS scores (prorated on the basis of the number of items on the respective scale).

“Successful treatment” can be defined in several ways. Consistent with the initial RCT, results are presented here on the basis of whether (a) the primary diagnosis was no longer primary at posttreatment and (b) the primary diagnosis was no longer present at posttreatment. These approaches reflect increasingly conservative means of defining successful treatment. In addition, we present results based on both parent- and child-reported diagnostic data.

**Child Diagnostic Status**

According to the diagnostic interview with parents, the primary anxiety disorder was no longer primary at posttreatment for 67.0% of the youths (71.0% of the full set of initial subjects). The primary diagnosis was no longer primary for 92.7% at LTFU. In addition, 51.2% of the youths no longer met criteria for their primary diagnosis at all at posttreatment, whereas 80.5% no longer met criteria at LTFU. The latter difference was significant, χ²(1, N = 82) = 5.47, p < .05.

According to the child interviews, the primary anxiety disorder was no longer primary for 89.3% of the youths at posttreatment, whereas the primary diagnosis was no longer primary for 95.8% of the youths at LTFU. At posttreatment, the primary anxiety disorder was no longer present at all for 86% at posttreatment. At LTFU, the primary diagnosis was no longer present at all for 90.3%.

**Child Self-Report**

With regard to the child-report measures, anxiety (RCMAS) scores showed a significant difference among scores at pretreatment, posttreatment, and LTFU assessments, F(2, 69) = 33.58, p < .001. Tukey’s tests revealed a significant decrease in anxious symptomatology from pre- to posttreatment (all pre- to posttreatment differences were previously reported in Kendall et al., 1997). A significant increase in RCMAS scores occurred from posttreatment to LTFU; however, LTFU scores remained significantly lower than at pretreatment. See Table 1 for means, standard deviations, and alpha coefficients of child-report measures; see Table 2 for effect size calculations (two different formulas were used).

Youths’ reports of coping skills (CQ–C) demonstrated significant change over time, F(2, 68) = 32.78, p < .001. Tukey’s tests revealed a significant increase in coping skills from pre- to posttreatment (as reported in 1997), as well as a significant increase from posttreatment to LTFU. Effect size calculations demonstrated a large effect from pre- to posttreatment (d = 0.95) and a medium effect from posttreatment to LTFU (d = 0.66).

Depression (CDI and/or BDI) scores also significantly differed among assessment periods, F(2, 67) = 52.08, p < .001. Tukey’s tests demonstrated a significant decrease in depressive symptoms from pre- to posttreatment (as previously reported in 1997) and maintenance of these gains as evident in the absence of change from posttreatment to LTFU. Effect size calculations demonstrated a large effect from pre- to posttreatment (d = 0.86) and a small effect from posttreatment to LTFU (d = 0.20).

**Parent Report**

Parents’ reports of children’s coping abilities (CQ–P) significantly differed across assessments, F(2, 73) = 134.11, p < .001.

Note. The pretreatment means and standard deviations for the dependent variables from the randomized clinical trial are reproduced in this table. Means with different subscript letters differed significantly from each other, using Tukey’s tests, all ps < .001. Pre = pretreatment; post = posttreatment; LTFU = long-term follow-up; RCMAS = Revised Children’s Manifest Anxiety Scale; CQ–C = Coping Questionnaire—Child; CDI = Children’s Depression Inventory; CQ–P = Coping Questionnaire—Parent; CBCL = Child Behavior Checklist.

Table 1

| **Means and Standard Deviations for Dependent Measures at Three Time Points** |
|-----------------------------|-----------------------------|-----------------------------|
| **Assessment period**     | **Pre** | **Post** | **LTFU** |
|-----------------------------|-----------------------------|-----------------------------|
| **Dependent measure**      | **M** | **SD** | **M** | **SD** | **M** | **SD** |
| **RCMAS**                  | Child report               |                             |                             |                             |
| M                           | 52.46          | 9.47          | 43.03          | 8.62          | 46.28          | 8.85          |
| SD                          | .82             | .69            | .72            | .69            | .59             | .69            |
| **CQ–C**                   | Parent report              |                             |                             |                             |
| M                           | 4.11            | 1.23            | 5.25            | 1.18            | 5.94            | .93            |
| SD                          | .69             | .69            | .72            | .69            | .59             | .69            |
| **CDI**                    |                             |                             |                             |                             |
| M                           | 10.09           | 6.24            | 5.04 b          | 5.53            | 4.00 b          | 4.82          |
| SD                          | .93             | .90             | .90            | .90            | .91/1.69         | .91/1.69       |

Note. Two different alpha coefficients were calculated for LTFU RCMAS and CDI scores because children over age 18 were given corresponding age-appropriate measures (Taylor Manifest Anxiety Scale and Beck Depression Inventory [BDI], respectively). Although the means and standard deviations were calculated on the basis of total scores that had been converted to the child measure scales, the alpha coefficients calculated from the measure items were calculated separately. The first alpha coefficient is for the child measure (RCMAS or CDI) and the second is for the adult measure (Manifest Anxiety Scale or BDI).

2 Note that an examination of LTFU data cannot simply involve comparisons with the posttreatment data. Such analyses would be testing the null hypotheses: that there are no differences at LTFU from the outcomes at posttreatment. We conducted the maintenance analyses by making comparisons using the pretreatment data and the posttreatment data.
Table 2

<table>
<thead>
<tr>
<th>Dependent measure</th>
<th>Pre–Post</th>
<th>Post–LTFU</th>
<th>Pre–LTFU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child report</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCMAS</td>
<td>0.91</td>
<td>0.30</td>
<td>0.61</td>
</tr>
<tr>
<td>CQ–C</td>
<td>0.95</td>
<td>0.66</td>
<td>1.69</td>
</tr>
<tr>
<td>CDI</td>
<td>0.86</td>
<td>0.20</td>
<td>1.10</td>
</tr>
<tr>
<td>Parent report</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CQ–P</td>
<td>1.42</td>
<td>1.02</td>
<td>2.42</td>
</tr>
<tr>
<td>CBCL–Internalizing</td>
<td>0.94</td>
<td>0.69</td>
<td>1.62</td>
</tr>
<tr>
<td>CBCL–Externalizing</td>
<td>0.30</td>
<td>0.29</td>
<td>0.58</td>
</tr>
</tbody>
</table>

Note. This table uses pooled standard deviations (mean SD of the two time periods being compared) and the following effect size formula: (mean Time 1 − mean Time 2)/pooled SD. Very similar results emerged when a different method was used to calculate effect size (we used the standard deviation of the preassessment, acting as a control, and the following formula): (mean Time 1 − mean Time 2)/SD of the preassessment.

Tukey’s tests demonstrated significant improvement in perceived coping skills from pre- to posttreatment (as reported in 1997) and posttreatment to LTFU assessments. Effect size calculations demonstrated a large effect from pre- to posttreatment (d = 1.42) and a large effect from posttreatment to LTFU (d = 1.02).

Parents’ reports of both internalizing (CBCL–Internalizing T score) and externalizing (CBCL–Externalizing T score) behavior demonstrated significant differences across assessment periods, F(2, 75) = 56.54, p < .001 and F(2, 75) = 10.05, p < .001, respectively. Tukey’s tests revealed significant decreases in children’s internalizing and externalizing scores from pre- to posttreatment (as reported in 1997) and from posttreatment to LTFU. (See Table 1 for means and standard deviations of parent-report measures.) Effect size calculations for internalizing symptoms reflected a large pre- to posttreatment change (d = 0.93) and posttreatment to LTFU change (d = 0.69). Effect size estimates for externalizing symptoms were small from pre- to posttreatment (d = 0.30) and from posttreatment to LTFU (d = 0.29).

Clinical Significance

To investigate the meaningfulness (convincingness) of change across assessment periods, Kendall, Marrs-Garcia, Nath, & Sheldrick, 1999; Kendall & Sheldrick, 2000). Normative comparisons assessed the degree to which treatment returned cases initially identified in the deviant range (T score above 65) to within the nondeviant range (< 65) on dependent measures at LTFU. Of the participants (n = 67) whose CBCL–Internalizing T scores were in the clinical range at pretreatment, 76.1% (n = 51) had returned to within the normative range at LTFU, whereas 23.9% (n = 16) remained in the deviant range at LTFU.

Predictors of Long-Term Maintenance

What factors predict who maintained treatment gains or continued to have difficulties with anxiety 7.4 years after treatment? In these analyses, hierarchical regression (logistic regression for categorical criterion variables) was used, controlling for pretreatment scores when necessary. Several variables were used as predictors of maintenance at LTFU, including child-reported anxiety and both parent- and child-report of diagnostic information. The predictor variables (e.g., child’s age at pretreatment, child’s gender, parent’s marital status at pretreatment, family income at pretreatment, number of pretreatment diagnoses, pretreatment scores, number of negative and positive events reported at LTFU on the APES, and treatment received post-CAADC) were entered into a correlation matrix to examine relationships with the outcome variables. Only variables with significant correlations were entered into regression equations.

Very few pretreatment variables predicted child-reported anxiety (RCMAS) at LTFU. Of the various predictor variables, only the number of negative life events (APES) since treatment (ΔR² = .13) and the receipt of additional treatment after leaving the CAADC (ΔR² = .01) were significantly predictive (p < .01). None of the variables predicted the child’s report of the primary anxiety diagnosis being present at LTFU.

Similarly, very few pretreatment variables predicted parent report (A-Trait-P) of child anxiety at LTFU. Only externalizing (CBCL) symptoms (ΔR² = .02) and the receipt of additional treatment after leaving the CAADC (ΔR² = .16) were significantly predictive (p < .01), with both being related to increased A-Trait-P scores. None of the variables predicted the parent’s report of the primary anxiety diagnosis being present at LTFU.

Life Events

We examined whether there were differences associated with treatment outcome in the reporting of life events. Life events were assessed using the APES, in which the youth reported whether various events occurred during the interval from the end of treatment to the assessment at LTFU. Those successfully treated and those less successfully treated (as assessed at posttreatment) did not significantly differ in terms of the reporting of subsequent negative or positive life events.

Predicting the Occurrence of Depression at LTFU

To evaluate risk factors associated with adolescent depression, we first determined the participants’ rates of depression since leaving our program (see Table 3). On the basis of parent report, 32.9% of the adolescents qualified for a diagnosis of depression or dysthymia at some point since leaving our program. On the basis of adolescent report, 23.3% qualified for diagnosis of depression or dysthymia at some point since treatment. When including diagnoses of depression not otherwise specified, this percentage becomes 28.8%.

We calculated significance levels and odds ratios for the relationship between various risk factors and diagnoses of depression using logistic regression analyses (see Table 4). Diagnosis of depression (yes–no) at any time since treatment in our program

3 When the anxiety variable under investigation at LTFU was significantly predicted by the same variable at pretreatment (e.g., pretreatment CMAS predicting LTFU CMAS), the pretreatment variable was entered into the regression equation as a control variable.
was used as the criterion. Odds ratios are only presented for variables in which a significance of \( p < .01 \) was reached. The length of time between completing therapy and participating in the LTFU ranged from 5.5 to 9.3 years among participants, so length of time since treatment was evaluated as a potential control variable. It was found not to be a significant predictor of depression and thus was not included in further analyses. Several pretreatment (e.g., age, gender, CBCL scores), posttreatment (e.g., presence of primary anxiety or depression diagnosis at posttreatment, posttreatment CDI, CBCL scores), and LTFU (e.g., presence of primary anxiety disorder, occurrence of negative life events, receiving additional treatment, CBCL scores) risk factors were evaluated with regard to predicting the occurrence of depression at some time between CAADC treatment and the LTFU assessment. The presence of one or more of the three primary anxiety diagnoses at LTFU and having received additional treatment after leaving our program were significant risk factors for a diagnosis of depression. In addition, parent-reported CBCL–Externalizing score at posttreatment and CBCL–Internalizing score at LTFU were significant predictors of parent-reported depression. Other pretreatment, posttreatment, or LTFU risk factors were nonsignificant.

**Effects of Treatment on the Sequelae of Anxiety**

Did successful treatment for anxiety disorders in childhood effectively reduce the likelihood of sequelae (e.g., depression, substance abuse, additional treatment seeking) later in life? Using chi-square analyses, we found neither more nor less successful treatment (as determined at posttreatment) indicative of the later occurrence of depression or substance use disorders, regardless of how successful treatment was defined. In addition, these results were consistent for both parent and child reports of successful treatment (parent data reported). However, if the primary diagnosis at pretreatment was still primary at posttreatment (child report), this significantly predicted that the child would receive treatment after leaving the CAADC project, \( \chi^2(1, N = 73) = 4.77, p < .05 \). This indicates, as would be expected, that individuals who did not derive benefit from the CAADC treatment were more inclined to seek additional treatment, whereas individuals who did benefit from the CAADC treatment were less likely to seek additional services.

Before reporting on the relationships between treatment outcome and the sequelae of anxiety, we first report data on the occurrence of substance use within our sample at LTFU. Of the 72 participants with complete substance use assessments, 57% had smoked cigarettes, 81% had drunk alcohol, 38% had tried marijuana, and 16% had tried hard drugs (within hard drugs, 14% had tried hallucinogens, 10% barbiturates, 8% inhalants, 6% cocaine, 6% amphetamines, 6% opiates, and 4% over-the-counter drugs to get high). With regard to regular use (once a month or more), 31% had smoked cigarettes, 46% had drunk alcohol, 22% had smoked

---

**Table 3**

**Rates of Depression at Long-Term Follow-Up as Reported by Parents and by Adolescents and Young Adults**

<table>
<thead>
<tr>
<th>Reported depressive disorder</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent (n = 82)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current depression (at time of interview)</td>
<td>8</td>
<td>9.8</td>
</tr>
<tr>
<td>Past depression (at any time since treatment, but not current)</td>
<td>18</td>
<td>22.0</td>
</tr>
<tr>
<td>Current dysthymia</td>
<td>3</td>
<td>3.7</td>
</tr>
<tr>
<td>Past dysthymia</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Depression diagnosis (at any time since treatment, including past and current)</td>
<td>26</td>
<td>31.7</td>
</tr>
<tr>
<td>Depression and/or dysthymia diagnosis</td>
<td>27</td>
<td>32.9</td>
</tr>
<tr>
<td>Adolescent (n = 73)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current depression (at time of interview)</td>
<td>3</td>
<td>4.1</td>
</tr>
<tr>
<td>Past depression (at any time since treatment, but not current)</td>
<td>14</td>
<td>19.2</td>
</tr>
<tr>
<td>Current dysthymia</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Past dysthymia</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Depression, NOS</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Past depression, NOS</td>
<td>6</td>
<td>8.2</td>
</tr>
<tr>
<td>Depression diagnosis (at any time since treatment, including past and current)</td>
<td>17</td>
<td>23.3</td>
</tr>
<tr>
<td>Depression and/or dysthymia diagnosis</td>
<td>17</td>
<td>23.3</td>
</tr>
<tr>
<td>NOS diagnosis</td>
<td>21</td>
<td>28.8</td>
</tr>
</tbody>
</table>

*Note.* NOS = not otherwise specified.

---

**Table 4**

**Risk Factors Associated With Depression Assessed at LTFU**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parent report of depression</th>
<th>Child report of depression</th>
<th>Child report of any depressive diagnosisa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( p )</td>
<td>OR</td>
<td>CI</td>
</tr>
<tr>
<td>Posttreatment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBCL–Externalizing</td>
<td>.01</td>
<td>1.1</td>
<td>1.02, 1.14</td>
</tr>
<tr>
<td>Primary diagnosis present at FUb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional treatment receivedb</td>
<td>.001</td>
<td>6.3</td>
<td>2.07, 19.20</td>
</tr>
<tr>
<td>CBCL–Internalizing</td>
<td>.001</td>
<td>1.1</td>
<td>1.03, 1.13</td>
</tr>
</tbody>
</table>

*Note.* LTFU = long-term follow-up; OR = odds ratio; CI = confidence interval; CBCL = Child Behavior Checklist; FU = follow-up. Dashes indicate that the results were not significant.  
* a Any depressive diagnosis represents a diagnosis of major depression, dysthymia, or depression not otherwise specified.  
* b Diagnosis is based on parent report for parent diagnosis of depression and on child report for child report of depression.
marijuana, and 5% had used hallucinogens. It is worth noting that 26% had suffered substance use problems and/or consequences (high-risk behavior, school problems, blackout). In terms of substance use diagnoses, 9% met current criteria (marijuana, n = 4, alcohol, n = 4), whereas 10% met criteria for a past substance abuse diagnosis (marijuana, n = 3, alcohol, n = 6, hallucinogens, n = 1, cocaine, n = 1, opiates, n = 1). One participant met criteria for a current substance-dependence disorder, and 5% had a past substance-dependence diagnosis.

Although posttreatment anxiety diagnostic status was not predictive of a diagnosis of depression or a diagnosis of a substance use disorder, anxiety diagnostic status was predictive of substance use and related symptomatology. With regard to alcohol, individuals whose primary anxiety disorder was still primary at posttreatment (less successfully treated, by child report) were more likely to have had more drinking days per month than individuals whose primary anxiety was no longer primary at posttreatment (number of days = 8.33 [SD = 11.33] and 2.54 [SD = 4.96], respectively), \( t(56) = 2.31, p < .05 \).

With regard to marijuana, individuals whose primary anxiety disorder was still present at LTFU (those less successfully treated, by child report) were more likely to use marijuana, \( \chi^2(1, N = 71) = 4.77, p < .05 \), than those whose primary anxiety disorder was no longer present.

With regard to drug use in general, those individuals whose primary anxiety disorder was still primary at posttreatment (by child report) were more likely to have unwanted social and/or interpersonal consequences from drug use, \( \chi^2(1, N = 62) = 7.95, p < .005 \), and physical and/or psychological consequences from drug use, \( \chi^2(1, N = 62) = 4.23, p < .05 \). Similarly, less successfully treated individuals (by child report) were more likely to give up activities because of drug use than successfully treated cases, \( \chi^2(1, N = 62) = 11.71, p < .001 \), to make unsuccessful attempts to control drug use, \( \chi^2(1, N = 62) = 5.72, p < .05 \), and to use larger amounts, \( \chi^2(1, N = 62) = 8.37, p < .01 \).

Those whose primary anxiety disorder was still present after treatment were more likely (than those whose primary disorder was not present, by child report) to have social and/or interpersonal consequences from drug use, \( \chi^2(1, N = 62) = 4.43, p < .05 \), to have given up activities due to drug use, \( \chi^2(1, N = 62) = 6.91, p < .01 \), to have made unsuccessful attempts to control drug use, \( \chi^2(1, N = 62) = 9.07, p < .01 \), and to have used larger amounts, \( \chi^2(1, N = 62) = 7.60, p < .01 \).

Discussion

These results suggest that a majority of anxiety disordered youths, treated 7.4 years previously, largely maintained their gains. These results are consistent with the findings reported in the literature (e.g., Barrett et al. [2001] and the 3.35-year follow-up of a different group of cases reported by Kendall & Southam-Gerow [1996]) and, together, offer some support for the long-term benefits of the treatment. Maintenance of gains was evident on self-report and parent-report measures. Also, changes in diagnostic status and the clinical significance of the changes combined to buttress the notion that treatment gains were maintained. The absence of significant differences in the negative and positive life events of the participants between successfully treated and less successfully treated cases suggests that the occurrence of life events outside the treatment experience were not likely the explanation for the reported treatment outcome differences.

The present study offers data to suggest that not only are the beneficial effects of treatment maintained over a meaningful follow-up interval, but also that there seem to be beneficial effects evident on the sequelae of the treated disorder. That is, a meaningful proportion of children treated for an anxiety disorder 7.4 years prior showed maintenance of their gains, even into a different developmental period in their lives. Moreover, there are suggestive data that those successfully treated evidenced a reduced degree of involvement and problems associated with substance use. It appears that there is merit to the notion (Kendall & Kessler, 2002) that interventions for child mental health problems can have an ameliorative effect not only on the target disorder but also on the sequelae (i.e., substance use).

Successful treatment for child anxiety was linked to less substance use (e.g., alcohol, marijuana, and some other drugs) at LTFU and to having had fewer substance use consequences (e.g., social and/or interpersonal, physical and/or psychological). For example, successfully treated participants were less likely to give up activities because of drug use, were less likely to make unsuccessful attempts to control drug use, and were less likely to use larger amounts. These findings point to the utility of posttreatment outcomes as potential indicators of substance use problems, and future research could elaborate upon posttreatment indicators that may also be useful in the identification of those at higher risk for greater substance use and substance use problems. Given this, it may be beneficial to implement posttreatment screening and prevention efforts directly focused on substance abuse.

It may be that experimentation with tobacco and alcohol is a function of normative adolescent development. Interestingly, the rates for substance use among this population were lower than those reported for a normative sample (Centers for Disease Control and Prevention, 2000), suggesting that treated anxious children may be at less risk for substance initiation and subsequent problem use than the general population.

Participants in the initial treatment study met criteria for GAD, SAD, and/or SP. Analyses by specific disorder are hampered by sample sizes and the high degree of comorbidity. If and when larger sample sizes are available, it would be interesting to examine whether there are differences in treatment maintenance for any of the specific conditions. Similarly, it would be interesting to examine whether there are disorder-specific effects on the sequelae of anxiety.

The present findings did not provide support for a positive effect of treatment for anxiety on the later development of mood disorder. That is, there were nonsignificant differences between those successfully treated and those less successfully treated in terms of the emergence of depression during the interval before the LTFU. However, it is somewhat encouraging to note that the rate of depression among the participants is fairly equivalent to the rates found in the general population of adolescents (Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993; Lewinsohn, Rohde, Klein, & Seeley, 1999). Given the significant relationship between anxiety

---

4 There were associations with reported withdrawal due to drug use, but the number of instances (1) was too small for meaningful interpretation of the findings.
and depression in children and adolescents, one might expect to find much higher rates of depression in an anxious sample compared with the general population. Therefore, although perhaps overly optimistic, one could speculate that the rate of depression was ameliorated by the treatment for anxiety received during their youth. However, this was not tested in the present research, and to our knowledge, there are no reported data on the base rates of adolescent depression in untreated anxious youths to which to compare our results.

Also with respect to depression, the present results suggest that children who either continued to suffer from anxiety or had a recurrence of anxiety disorder were more likely to experience a depressive episode after leaving the CAADC. Likewise, children who received additional treatment after leaving the CAADC were more likely to have been depressed at some point prior to the LTFU. Although the specific nature of the subsequent treatment was not obtained in this study, these results imply several possible explanations. Given that the presence of anxiety at LTFU was not directly related to treatment seeking, one possible interpretation of these results is that the presence of continued or recurrent anxiety led to the development of depression, and these depressed individuals are the ones who were more inclined to seek additional treatment. Given the retrospective nature of the data collection and the use of chi-square analyses, the direction of causation between treatment seeking and depression since the CAADC cannot be determined.

A concern with measurement equivalence must be considered in any study that assesses constructs across developmental periods. Is there an equivalence of measurements taken across the developmental periods in question? For example, is the diagnostic interview (ADIS-IV-L or ADIS-LTFU) given that meaningful developmental changes take place between the ages of participants at these times? To address this concern, and to ensure instrument validity, we used the age-appropriate versions of the diagnostic interview (ADIS-IV-L or ADIS–C) and self-report instruments (e.g., BDHI or CDI, MASC or RCMAS). Note that the initial study used the ADIS that was based on DSM–III–R whereas the current study used the ADIS based on the fourth edition DSM. However, research indicates that these two versions of the same diagnostic instrument are highly consistent in the identification of cases (Kendall & Warman, 1996). Because of the value of determining the presence of diagnosed cases of depression or substance abuse at the LTFU, the depression module from the ADIS-L (adult interview) and the drug/alcohol module of the CASI were administered to all participants. Use of these developmentally appropriate instruments is not believed to have created any undue methodological problems.

The statistical analyses of outcomes are the primary and/or crucial tests; normative comparisons (Kendall et al., 1999) are a secondary effort to assess the degree to which treatment returned cases to within the nondeviant range on dependent measures at LTFU. Changes that return deviant participants to within normative limits can be indicative of clinically significant improvement, and the present findings support the conclusion that the treatment achieved just that.

Approximately 50% of participants (52.4% based on parent report; 46.6% based on child report) received additional treatment after leaving our child program, including outpatient therapy, hospitalization (a very small percentage), and/or medication. It was not possible to control for the receipt of additional treatment, a common methodological problem in conducting LTFU studies.

The absence of a control condition prevents definitive conclusions about the treatment per se. The original treatment outcome study did have a waitlist condition, but those children who met diagnostic criteria at the end of the waitlist were, for ethical reasons, provided the treatment. As a result, anxiety-disordered youth untreated for the 7.4 years of the follow-up interval are not available for comparisons, and the effects of other forces (e.g., maturation) cannot be ruled out. Nevertheless, comparisons of the more successfully versus less successfully treated cases did permit a glimpse into the long-term benefits of treatment.

Considerable variability in follow-up rates (66%–90%) has been documented in the child anxiety treatment literature (e.g., Barrett et al., 2001; Kendall et al., 1997; Kendall & Southam-Gerow, 1996; Silverman et al., 1999; Spence, Donovan, & Brechman-Toussaint, 2000). This variation in follow-up rates warrants consideration given the posited impact of subject attrition on the internal and external validity of outcome studies. The current study retained 90% of the original sample by using intensive tracking efforts (i.e., 10 or more telephone calls, letters, Internet searches using contact information issued at intake and at posttreatment) and interviewer flexibility regarding scheduling (e.g., weekend visits to participants’ homes). The achieved retention rate underscores the necessity of time and financial investment in tracking and follow-up as well as a creativity and flexibility in approach. Moreover, the low attrition rate may well be a reflection of the tenacity of the established therapeutic rapport and relationship to the clinic.

Although 6 of the 8 nonparticipants at LTFU were young women (75%) compared with 38% girls in the original sample, the number of nonparticipants was too small for further statistical tests.

However, given that 7 of the 8 nonparticipants could not be located, it is possible that the nonparticipating young women had married and/or changed their surnames, making it more difficult to locate them. Similarly, small numbers make it difficult to determine why low-income families were overrepresented among the LTFU nonparticipants (37% of nonparticipants vs. 3.8% of participants). One might argue that low-income families are less stable and more difficult to track down. The differential ability to locate women and low-income families for LTFU warrants further investigation.

Finally, although composing only a third of the treated sample, there are participants who did not benefit fully from their initial receipt of the treatment. At LTFU, there were participants (though very few) who had been hospitalized and others who had serious drug and/or alcohol and other mental health problems. Work needs to be directed toward development of enhanced treatments for nonresponders. Although 60% to 70% of cases are responsive, we need to investigate why 40% to 30% do not show such improvement and how we might target this treatment-resistant group. CBT nonresponders may respond more favorably to alternate forms of intervention, may require more intensive treatments, or may need access to booster sessions that could facilitate the translation of what was communicated in treatment to life arenas in which the application would be most helpful. Future research should address the needs of the treatment nonresponders.
References


Kendall, P. C., Flannery-Schroeder, E. C., Panicelli-Mindel, S., Southam-


Silverman, W., & Eisen, A. (1992). Age differences in the reliability of parent and child reports of child anxious symptomatology using a...