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Parental Involvement in CBT for Anxiety-Disordered Youth Revisited: Family CBT Outperforms Child CBT in the Long Term for Children With Comorbid ADHD Symptoms

Marija Maric[1], Francisca J. A. van Steensel[2], and Susan M. Bögels[2]

Abstract

Objective: The objective of this study was to examine the efficacy of child cognitive-behavioral therapy (CCBT) versus family CBT (FCBT) in anxiety-disordered youth with high and low comorbid ADHD symptoms. **Method:** Youth with anxiety disorders (n = 123, aged 8-18) were classified in four groups according to (a) the type of CBT received (child vs. family) and (b) their comorbid ADHD symptoms, measured with the Child Behavior Checklist (CBCL) Attention Problems syndrome scale level (normal vs. [sub]clinical). Severity of anxiety disorders was assessed with Anxiety Disorders Interview Schedule–Child and Parent (ADIS-C/P) version and anxiety symptoms via a 71-item anxiety symptom questionnaire, the Screen for Child Anxiety and Related Emotional Disorders (SCARED-71), before and after CBT, and at 3 months and 1-year follow-ups. **Results:** Based on the severity of anxiety disorders, children with high ADHD symptoms profit more from FCBT than CCBT in the long term. For children low on ADHD symptoms, and for anxiety symptoms and attention problems, no differences between CCBT and FCBT occurred. **Conclusion:** Family involvement seems a valuable addition to CBT for children with comorbid anxiety and ADHD symptoms. *(J. of Att. Dis. 2018; 22(5) 506-514)*

Keywords

anxiety, ADHD, CBT, parental involvement

Introduction

Anxiety disorders and ADHD are common, disabling disorders that affect children and adolescents. Moreover, anxiety disorders and ADHD are often comorbid; prevalence rates of ADHD among children diagnosed with anxiety disorders range between 24% and 32% (Angold, Costello, & Erkanli, 1999). Likewise, approximately 30% to 40% of children with ADHD meet criteria for a comorbid anxiety disorder in clinical samples (e.g., MTA Cooperative Group, 1999; Tannock, 2009). The clinical presentation of comorbid anxiety and ADHD was suggested to include dysfunctional family functioning and child–parent interactions (e.g., Jarrett & Ollendick, 2008, 2012; Kepley & Ostrander, 2007; Pfiffner & McBurnett, 2006). Interventions targeting these proposed familial risk and protective factors may, therefore, have the potential to alleviate both anxious and ADHD symptoms.

Although comorbidity of anxiety and ADHD is common, little is known about treatment response. The largest study on the treatment of childhood ADHD (MTA Cooperative Group, 1999) found that more anxious children benefited equally from medication and behavioral (parent, child, and school) treatment, whereas the whole group of ADHD children benefited only from medication, indicating the need to involve psychosocial interventions in the treatment of comorbid ADHD and anxiety symptoms. Follow-up analyses of a large-scale study (n = 488, age = 7-17; Child/Adolescent Anxiety Multimodal Study [CAMS], Compton et al., 2010) that investigated the efficacy of treatments for youth anxiety revealed that anxiety-disordered youth with comorbid ADHD had a poorer immediate child-focused cognitive-behavioral therapy (CBT) response and were less likely to maintain treatment gains at 6-month follow-up compared with anxiety-disordered youth without comorbid ADHD (Halldorsdottir & Ollendick, 2014b). Another child-focused

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CBT program with nine adolescents with ADHD found significant reductions in self-reported anxiety symptoms after 8 weeks of treatment (Houghton, Alsalmi, Tan, Taylor, & Durkin, 2013). Until now, three single-case studies reported on family-based CBTs designed specifically for children with comorbid ADHD and anxiety disorders. Costin, Vance, Barnett, O'Shea, and Luk (2002) utilized an 8-week treatment with five boys with comorbid anxiety disorders, ADHD, and oppositional defiant disorder (ODD) following limited response to medication and psychosocial treatment over a 6-month period. High levels of satisfaction were found among clients, but no changes in the symptomatology were present. In another study, Verreault, Berthiaume, Turgeon, Lageix, and Guay (2007) implemented a 10-week family-based CBT protocol for anxiety disorders with 10 children, adjusted to include one ADHD psycho-education session for parents. Changes were found for anxiety symptoms but not for ADHD symptoms. In a more recent study (Jarrett & Ollendick, 2012), 10 sessions of parent management training combined with family-based CBT youth anxiety disorders resulted in post-treatment improvements for both ADHD and anxiety symptoms in 8 children, but ADHD symptoms remained within clinical range. At 6-month follow-up, treatment effects maintained, and ADHD symptoms moved into the subclinical range for ADHD.

Overall, studies till date have found either no improvements in symptoms after the CBT (Costin et al., 2002; Halldorsdottir & Ollendick, 2014b) or improvements in anxiety symptoms only (Houghton et al., 2013; Verreault et al., 2007). One of the recent studies involving high degrees of parental involvement found improvements in both anxiety and ADHD (Jarrett & Ollendick, 2012). This finding is supported by the recent theories (Jarrett & Ollendick, 2008; Kepley & Ostrander, 2007; Pfiffner & McBurnett, 2006) suggesting that the comorbidity of anxiety and ADHD can be explained by a unique set of risk and protective factors related to family functioning, parenting, and child–parent interactions, such as over controlling and rejecting parental rearing strategies, which are per definition more targeted during family-based CBTs than during individual child CBTs (Manassis et al., 2014).

The current study reports about post hoc analyses using the same data as a previously published study in which the efficacy of a child CBT was compared with a family CBT for anxiety-disordered children (Bodden, Bögels, et al., 2008). Bodden, Bögels, et al. (2008) did not find a difference in effect between child and family CBT, also not long term (Bodden, Dirksen, et al., 2008). The current study investigates whether family CBT is more effective compared with child CBT for anxiety-disordered children experiencing comorbid ADHD symptoms (as assessed with the Child Behavior Checklist [CBCL] Attention Problems scale). Based on previous results (e.g., Jarrett & Ollendick, 2012) and recent theories about the comorbidity of anxiety and ADHD (see above), we expect that for children with ADHD symptoms, family CBT will be more effective than child CBT for treating anxiety problems.

Method

Participants and Procedure

Children were part of a randomized controlled trial (RCT) comparing the (cost-)efficacy of child versus family CBT for anxiety disorders in children aged 8 to 18 years (Bodden, Bögels, et al., 2008; Bodden, Dirksen, et al., 2008). In the original study, 128 children and their families participated who were referred to a community mental health center because of severe anxiety problems of a child and who were randomized to either child CBT or family CBT. For the current study, children were divided into four groups according to (a) having received child CBT (CCBT) or family CBT (FCBT) and (b) having normal versus (sub)clinical scores on the CBCL subscale Attention Problems (i.e., a T score $\geq$ 67; Achenbach, 1991). This scale (α = .79 for mothers and α = .78 for fathers), which includes items characteristic of both inattentive and hyperactive symptoms, was used to measure ADHD symptoms. The scale has been found to be a good screening instrument to help identify cases that meet the criteria for ADHD in clinical settings (Chen, Faraone, Biederman, & Tsuang, 1994; Hudziak, Copeland, Stanger, & Wadsworth, 2004). There were five children of whom the CBCL was not completed, and therefore the total sample of the current study consisted of 123 children: (a) 49 children with anxiety disorders and low ADHD symptoms who received CCBT (AD-CCBT), (b) 37 children with anxiety disorders and low ADHD symptoms who received family CBT (AD-FCBT), (c) 14 children with anxiety disorders and high ADHD symptoms who received child CBT (ADHD-CCBT), and (d) 23 children with anxiety disorders and high ADHD symptoms who received family CBT (ADHD-FCBT). Groups did not differ with respect to mean age, $F(1, 122) = 1.16$, $p = .328$, or gender, $\chi^2(3) = 1.33$, $p = .722$. Most children (78%) had at least one comorbid anxiety disorder. See Table 1 for the characteristics of the groups.

Inclusion criteria of the study were age 8 to 18 years, a primary anxiety disorder (except for obsessive-compulsive disorder or post-traumatic stress disorder), IQ > 80, and at least one parent willing to participate (Bodden, Bögels, et al., 2008; Bodden, Dirksen, et al., 2008). Exclusion criteria were substance abuse, current suicide attempts, psychosis, autism spectrum disorder, and using anxiety-reducing medication (except if it was held constant during treatment and follow-up; 3 children were using medication, namely, citalopram, methylphenidate, and paroxetine). Because the original study was designed to investigate the efficacy of treatments in anxiety-disordered children, untreated ADHD

Table 1. Characteristics of the Four Groups: (a) AD-CCBT, (b) AD-FCBT, (c) ADHD-CCBT, and (d) ADHD-FCBT.

	AD-CCBT (*n* = 49)	AD-FCBT (*n* = 37)	ADHD-CCBT (*n* = 14)	ADHD-FCBT (*n* = 23)
Boys, *n* (%)	18 (37)	17 (46)	5 (36	11 (48)
Age, *M*, (*SD*)	12.41 (2.82)	12.49 (2.62)	13.29 (2.37)	11.70 (1.82)
Primary AD, *n* (%)				
Separation AD	10 (20)	10 (27)	2 (14)	10 (43)
Social AD	21 (43)	11 (30)	5 (36)	2 (9)
Generalized AD	6 (12)	8 (22)	4 (29)	5 (9)
Specific phobia	9 (18)	5 (1)	3 (21)	3 (13)
Panic/agoraphobia	3 (6)	3 (8)	0 (0)	3 (13)
Comorbid AD, *n* (%)	37 (76)	27 (73)	10 (71)	22 (96)
ADHD symptoms,[a] *M*, (*SD*)	58.06 (5.65)	56.70 (6.15)	74.21 (8.96)	74.89 (6.45)

Note. AD = anxiety disorders; AD-CCBT = children with AD and low ADHD symptoms who received child cognitive-behavioral therapy (CBT); AD-FCBT = children with AD and low ADHD symptoms who received family CBT; ADHD-CCBT = children with AD and high ADHD symptoms who received child CBT; ADHD-FCBT = children with AD and high ADHD symptoms who received family CBT.
[a]ADHD symptoms were based on the average scores of mothers and fathers on the CBCL Attention Problem scale (if one parent report was missing, the other was used), means presented here are mean *T* scores.

was an exclusion criterion, but not if the ADHD was being treated/under control, and 10 children indeed were assigned a comorbid ADHD diagnosis based on the Anxiety Disorders Interview Schedule–Child and Parent (ADIS-C/P) version. As can be expected, children with ADHD were more likely to have (sub)clinical scores on the CBCL Attention Problems (and thus to be included in the ADHD-CCBT or ADHD-FCBT group) than to have scores that fall within the normal range (and to be included in the AD-CCBT or AD-FCBT group), $\chi^2(1) = 4.63$, $p = .031$. An ADHD diagnosis was not related to being included in the CCBT or FCBT condition, $\chi^2(1) = 1.74$, $p = .188$. Having a comorbid mood disorder (depressive disorder or dysthymia) was not an exclusion criterion, and mood disorders were found to be present in 24 children. The presence of mood disorders was not related to having (sub)clinical versus normal scores on the CBCL Attention Problems, $\chi^2(1) = 1.90$, $p = .168$, and was also not related to being included in the CCBT or FCBT condition, $\chi^2(1) = 0.05$, $p = .824$. Measurements were conducted at pre- and post-treatment, and 3 months (Follow Up 1 [FU-1]), and 1 year (Follow Up 2 [FU-2]) after CBT, by independent research assistants who were blind for condition. For more information, see Bodden, Bögels, et al. (2008) and Bodden, Dirksen, et al. (2008).

Instruments

Anxiety disorders were measured with the ADIS-C/P version (Silverman & Albano, 1996), which has good psychometric properties (Silverman, Saavedra, & Pina, 2001). The ADIS-C/P follows the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994) symptom criteria, and when these are fulfilled, respondents are asked to rate the severity of the disorder on a scale from 0 to 8 (≥4 warrants a diagnosis). The severity scores of all (ADIS) anxiety disorders (according to the composite score of child and parent) were summed into a total anxiety disorder severity score, an outcome measure that captures both the presence and severity of anxiety disorders and that has been used in other studies to evaluate treatment effectiveness (e.g., Kendall, Hudson, Gosch, Flannery-Schroeder, & Suveg, 2008; Simon, Bögels, & Voncken, 2011).

Anxiety symptoms were measured with a 71-item anxiety symptom questionnaire, the Screen for Child Anxiety and Related Emotional Disorders (SCARED-71; Bodden, Bögels, & Muris, 2009). For each item, the respondent needs to indicate how often a particular symptom is endorsed (0 = almost never, 1 = sometimes, 2 = often). Both the child and parent versions of the SCARED-71 were used in this study. Excellent internal consistencies for child and parent report are demonstrated, as well as good discriminant and predictive validity (Bodden et al., 2009). In the current study, the SCARED-71 total score was used.

Treatment Conditions

Both treatment conditions consisted of 13 sessions (60-90 min), which were highly structured and manual-based. CCBT consisted of traditional CBT components like psycho-education, cognitive restructuring, exposure, and relapse prevention. Parents were only involved in three sessions: receiving information about CBT (at the start of the treatment), involvement in fear hierarchy and reward system (part of session 4), and discussing the results of the treatment (part of the final session). FCBT consisted of three phases: (a) teaching children and parents to reduce their own anxiety using CBT techniques; (b) identifying, challenging, and modifying parental dysfunctional beliefs; and (c) identifying and modifying problematic family

interactions. Three sessions were with the child alone, two with child and parents together, five with parents alone, and three sessions involved the whole family, including siblings.

In both CCBT and FCBT, children received points for exposure assignments and cognitive restructuring assignments, which added up to rewards that were given by their parents. In the FCBT, parents were guided in modifying problematic family interactions by improving parent–child, marital, co-parental, and family communication and problem-solving, and parents were instructed how to help their anxious child to carry out exposure and cognitive homework and overcome fears, through courageous modeling, guidance, monitoring, and support, and by giving consistent verbal and material rewards. Therefore, contingency management was an important part of the FCBT.

Efforts to promote treatment integrity included a 2-day clinical training and 3-day retraining by Siqueland and Bögels, and therapists had weekly 1-hr group supervision by the local coordinator of the trial in each of the clinical sites, a registered cognitive-behavioral therapist experienced in working with families, who was trained by Siqueland and Bögels. All treatment sessions were audiotaped. Afterward, one audiotape per treatment was randomly selected and reviewed for adherence to the treatment manual by two trained psychologists. Treatment integrity check indicated perfect agreement on condition (child or family CBT). A treatment integrity scale was developed consisting of four general therapist factors (independent of treatment condition), namely, quality of the therapeutic relationship, empathy, giving feedback, and structure/efficient use of treatment time, and specific goals (two to six) per treatment session within treatment condition. Items were rated with the following scale: 0 = *not at all*, 1 = *a little bit*, 2 = *sufficient*, and 3 = *good*. Interrater agreement (intraclass correlation coefficient) for obtained therapy goals was 0.92 for child CBT and 0.84 for family CBT. Therapy goals were largely achieved ($M = 2.4$, $SD = 0.7$, for child CBT, and $M = 2.5$, $SD = 0.6$, for family CBT on a scale of 0 = *not obtained*, 1 = *a bit*, 2 = *satisfactory*, and 3 = *good*). For more details about the CCBT and FCBT, see Bodden, Bögels, et al. (2008), and for a more detailed description of FCBT, see Bögels and Siqueland (2006).

Analyses

Two multi-level analyses were conducted: one with the ADIS total anxiety severity score as the dependent variable and one with the SCARED-71 total score as the dependent variable. Predictors in both models were measurement occasions (post-, FU-1, and FU-2 against pre-treatment), Group (children high and low on ADHD symptoms as measured with the CBCL Attention Problems scale), Condition (child vs. family CBT), and the interaction effects between predictors. Continuous variables were standardized to be able to interpret the parameter estimates as Cohen's *d*. Multi-level analyses were used because data were nested (measurements were nested within participants, and participants were nested in families) and because multi-level analyses uses all available data (i.e., it includes data also when one measurement is missing or if fathers did not participate). In addition, we explored whether attention problems decreased over time. However, due to too many CBCLs not being completed at follow-ups in combination with the relatively small sample size in the high ADHD groups (Table 1), we examined this issue by calculating Cohen's *d* for the four groups based on the means and standard deviations.

Results

Anxiety Disorders

Using the sum of severity of anxiety disorders, the interaction effects between Group and Condition, and between Group, Condition, and FU-2 (1 year after CBT) were found to be (borderline) significant ($p < .10$) and was kept in the final model presented in Table 2, whereas other interaction effects did not reach significance ($p > .10$) and were dropped from the final model. Significant effects were found for all measurement occasions indicating that the severity of anxiety disorders was significantly decreased after CBT with large effect sizes ranging from −0.91 to −0.95. No significant main effect for Group or Condition was found; however, a significant interaction effect between the two was found. In addition, a significant interaction of Group × Condition × FU-2 (1 year after CBT) was found. Additional analyses revealed that (a) children who scored high on ADHD symptoms and who received family CBT had higher anxiety disorder severity scores compared with the other groups across measurements, and (b) children with high ADHD symptoms—but not children with low ADHD symptoms—profit more from FCBT than from CCBT on the long term (1 year after CBT; see Figure 1). Visual inspection of Figure 1 seems to suggest that for children high on ADHD symptoms, there is an increase in anxiety disorder severity between FU-1 and FU-2 in the CCBT condition, whereas a decrease seems apparent in the FCBT condition. Testing this hypothesis statistically, a significant interaction between Condition × FU-2 was indeed found for children scoring high on ADHD symptoms ($p = .030$); however, when testing the change between FU-1 and FU-2 for the ADHD-FCBT and ADHD-CCBT group separately, only a borderline significant decrease in anxiety disorder severity for the ADHD-FCBT group was found (*parameter estimate* = −0.22; $p = .063$), whereas no significant increase in anxiety disorder severity was found for the ADHD-CCBT group (*parameter estimate* = 0.61; $p = .227$).

Table 2. Parameter Estimates (Interpretable as Cohen's *d*) of the Models Concerning the Effect of Time (Post- and Follow-Up Measurements Against Pre-Measurement), Group (Children High vs. Low on ADHD Symptoms), Condition (Child vs. Family CBT), and the Significant Interactions on Severity of Anxiety Disorders (Measured With the ADIS-C/P), and Anxiety Symptoms (Measured With the SCARED-71).

	Anxiety disorders			Anxiety symptoms		
Predictors	Estimate	*t*	*p*	Estimate	*t*	*p*
Post-treatment	−0.91	−8.69	<.001	−0.77	−12.76	<.001
FU-1 (3 months after CBT)	−0.94	−8.59	<.001	−0.98	−14.36	<.001
FU-2 (1 year after CBT)	−0.95	−7.09	<.001	−1.02	−15.14	<.001
Group (0 = low ADHD, 1 = high ADHD)	−0.07	−0.29	.770	0.34	1.99	.049
Condition (0 = CCBT, 1 = FCBT)	0.13	0.80	.425	0.00	0.04	.969
Group × Condition	0.61	2.03	.045	0.39	1.70	.092
Group × FU-2	0.25	1.09	.285			
Condition × FU-2	0.04	0.28	.783			
Group × Condition × FU-2	−0.51	−1.90	.063			

Note. CBT = cognitive-behavioral therapy; ADIS-C/P = Anxiety Disorders Interview Schedule–Child and Parent version; SCARED-71 = Screen for Child Anxiety and Related Emotional Disorders; CCBT = child cognitive-behavioral therapy; FCBT = family cognitive-behavioral therapy.

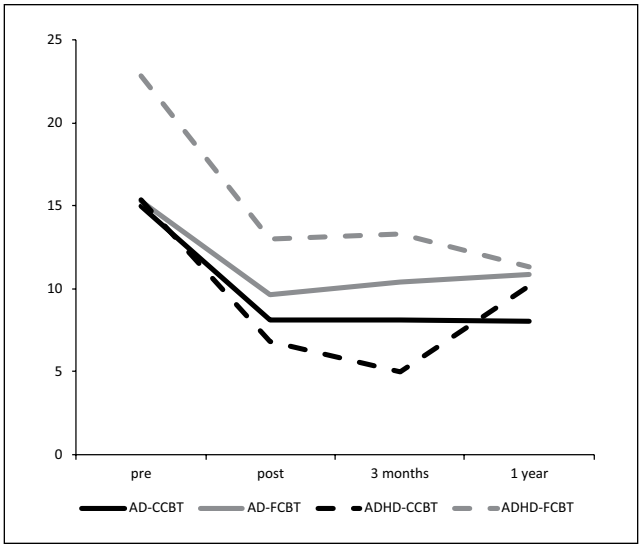

Figure 1. Mean scores for severity of anxiety disorders at pre-, post-, 3 months, and 1 year after treatment for (a) AD-CCBT, (b) AD-FCBT, (c) ADHD-CCBT, and (d) ADHD-FCBT.
Note. AD-CCBT = children with anxiety disorders (AD) and low ADHD symptoms who received child cognitive-behavioral therapy (CBT); AD-FCBT = children with AD and low ADHD symptoms who received family CBT; ADHD-CCBT = children with AD and high ADHD symptoms who received child CBT; ADHD-FCBT = children with AD and high ADHD symptoms who received family CBT.

Anxiety Symptoms

On the dependent variable SCARED-71, no significant interaction effects between Condition and measurement occasions or between Group and measurement occasions were found, and therefore these interaction effects were dropped from the final model presented in Table 2. In addition, no three-way interactions were found, suggesting that anxiety symptoms were equally decreased at post-treatment, FU-1, and FU-2 for children high and low on ADHD symptoms and for children who received child versus family CBT (Figure 2). Significant effects for all measurements occasions (post-, FU-1, and FU-2) were found with parameter estimates ranging (interpretable as Cohen's *d*) between −0.77 and −1.02. In addition, a significant effect of Group and a borderline significant interaction effect for Group × Condition were found. Additional analyses indicated that (a) children with high ADHD symptoms had higher total anxiety scores on the SCARED-71 than children with low ADHD symptoms, and (b) children with high ADHD symptoms who received FCBT had higher anxiety levels compared with children with high ADHD symptoms who received CCBT.

Attention Problems

Means and standard deviations of the four groups across the assessments are displayed in Table 3, and the visual representation is displayed in Figure 3. Based on inspection of effect sizes of difference scores, attention problems appear to be decreased at post-treatment and follow-ups, and for the ADHD groups, this decrease seems larger (Cohen's $d >$ .80). No difference between CCBT and FCBT seems to be present.

Discussion

The present study investigated the efficacy of child versus family CBT in anxiety-disordered youth with high and low ADHD symptoms (as assessed with CBCL Attention Problems scale). Preliminary results on one of two

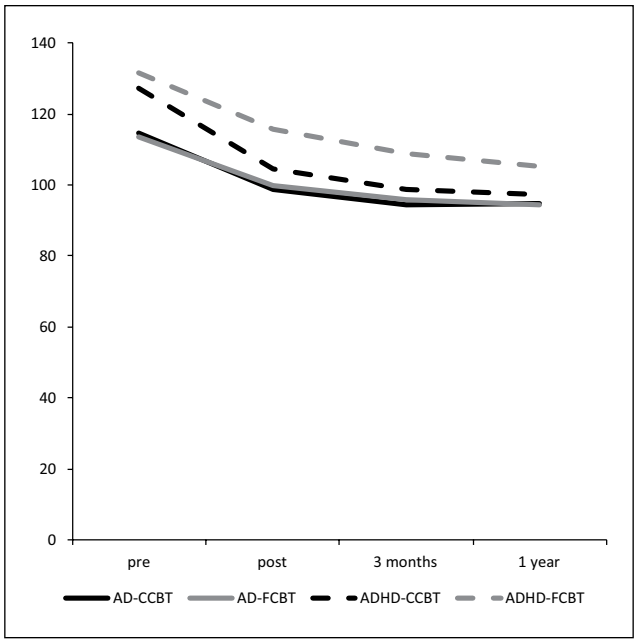

Figure 2. Mean scores for anxiety symptoms (measured with the SCARED-71) at pre-, post-, 3 months, and 1 year after treatment for (a) AD-CCBT, (b) AD-FCBT, (c) ADHD-CCBT, and (d) ADHD-FCBT.

Note. SCARED-71 = Screen for Child Anxiety and Related Emotional Disorders; AD-CCBT = children with anxiety disorders (AD) and low ADHD symptoms who received child cognitive-behavioral therapy (CBT); AD-FCBT = children with AD and low ADHD symptoms who received family CBT; ADHD-CCBT = children with AD and high ADHD symptoms who received child CBT; ADHD-FCBT = children with AD and high ADHD symptoms who received family CBT.

measures suggest that anxiety-disordered youth with high levels of ADHD symptoms compared with youth with low levels of ADHD symptoms may benefit more from family CBT than from child CBT for their anxiety disorders 1 year after the treatment. This finding adds to previous findings (Jarrett & Ollendick, 2012; Verreault et al., 2007) in which family-based CBT has shown to have beneficial effects on childhood anxiety in children with comorbid ADHD and anxiety. In addition, a decrease in attention problems after both CCBT and FCBT was found, which was larger for children high on ADHD symptoms, and not different in CCBT versus FCBT.

The enhanced outcomes in family-based CBT for anxiety-disordered youth experiencing high levels of ADHD symptoms point to the important role of parents and the family in the treatment of comorbid anxiety and ADHD symptoms. The fact that prolonged treatment effects occurred in FCBT (and not in CCBT) seems to suggest that family environment and parental rearing strategies contributed positively to the decrease in anxiety severity and maintenance of treatment gains in children with ADHD symptoms. Use of contingency management techniques trained during family CBT has been previously shown to have beneficial effects in both children with anxiety disorders (Manassis et al., 2014) and in ADHD (Jarrett & Ollendick, 2012). Further research should investigate whether this issue also holds for children with other externalizing problems. That is, it may be that family CBT for the treatment of anxiety disorders is more effective than child CBT when children have more comorbid externalizing problems (e.g., not only high ADHD symptoms but also high oppositional behavior), whereas for children with internalizing problems only (e.g., anxiety), CCBT is as effective or more effective.

In addition, in the present study, we found that children with high levels of ADHD symptoms also had higher anxiety symptoms (as measured with SCARED-71). The anxiety and ADHD symptoms seem positively associated; however, the direction of the effect is unclear. It seems plausible that anxiety and ADHD symptoms accelerate each other and that more ADHD symptoms leads to more anxiety symptoms (and vice versa). Furthermore, in studies examining the etiology of comorbid ADHD and anxiety, it was shown that parenting practices (such as lack of positive interactions and over control) were related to more anxiety (Pfiffner & McBurnett, 2006). It is also possible that some kind of third variable (e.g., executive functioning) plays an important mediating role between the two (e.g., anxiety symptoms → working memory deficits → ADHD symptoms). More research is needed to understand the association between the two.

To date, it remains largely unknown how parental factors, ADHD symptoms, and anxiety symptoms interact in a causal sequence to produce enhanced treatment outcomes. In one study, Jarrett and Ollendick (2012) found that anxiety and ADHD symptoms changed concurrently during family-based CBT and parental behavior training. With regard to youth with anxiety disorders and comorbid ADHD, it was hypothesized that comorbid ADHD symptoms may complicate the response to child-focused CBT, due to the inattention and hyperactivity symptoms (Halldorsdottir & Ollendick, 2014a). For example, inattention may interfere with CBT techniques such as cognitive restructuring, and hyperactivity with executing and completing exposure tasks. Parental rearing strategies and utilization of contingency management techniques outside of the treatment setting may, in this case, be of essential importance. Fine-grained analysis of changes in these potential treatment mechanisms is an important area for future research. In addition, to understand these effects entirely, studies with longer follow-ups are needed.

Developmental considerations also merit further attention. In the original study (i.e., Bodden, Bögels, et al., 2008), it was reported whether age affected treatment outcomes. In this study, younger children had better outcomes than older children, irrespective of the treatment condition

Table 3. Means, Standard Deviations, Sample Size (Sum of Mother and Father Reports) Per Assessment Per Group (*n*), and the Effect Size (Cohen's *d*) for the Decrease in Attention Problems Between Pre-Assessment and Follow-Up 2 (1 Year After Treatment).

	Pre			Post			3 months			1 year			ES (*d*)
	M	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	Pre-1 year
AD-CCBT	57.61	6.25	89	54.69	5.76	85	54.17	5.19	79	53.34	5.35	44	0.72
AD-FCBT	56.34	6.55	68	54.58	6.17	59	53.26	4.91	47	53.64	6.25	37	0.42
ADHD-CCBT	72.87	9.14	23	62.52	8.89	21	61.12	5.72	17	59.31	5.31	16	1.74
ADHD-FCBT	74.26	7.95	38	63.85	7.95	34	62.40	9.32	30	59.31	8.16	13	1.87

Note. ES = effect size; AD-CCBT = children with anxiety disorders (AD) and low ADHD symptoms who received child cognitive-behavioral therapy (CBT); AD-FCBT = children with AD and low ADHD symptoms who received family CBT; ADHD-CCBT = children with AD and high ADHD symptoms who received child CBT; ADHD-FCBT = children with AD and high ADHD symptoms who received family CBT.

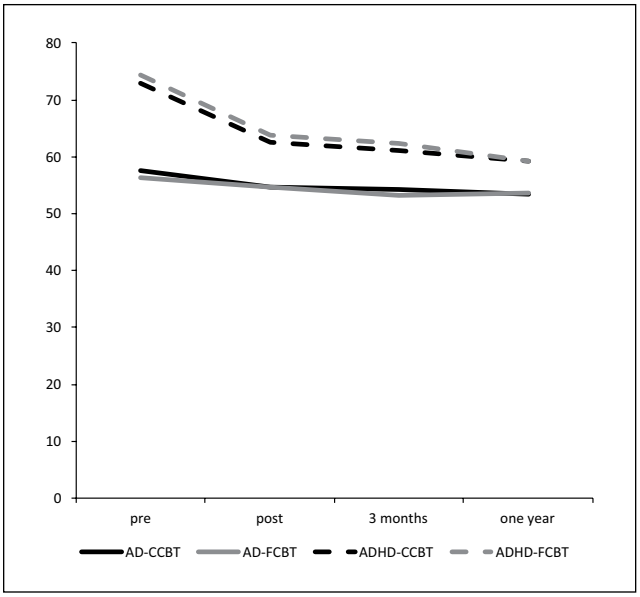

Figure 3. Mean scores for attention problems (measured with the CBCL) at pre-, post-, 3 months, and 1 year after treatment for (a) AD-CCBT, (b) AD-FCBT, (c) ADHD-CCBT, and (d) ADHD-FCBT.

Note. CBCL = Child Behavior Checklist; AD-CCBT = children with anxiety disorders (AD) and low ADHD symptoms who received child cognitive-behavioral therapy (CBT); AD-FCBT = children with AD and low ADHD symptoms who received family CBT; ADHD-CCBT = children with AD and high ADHD symptoms who received child CBT; ADHD-FCBT = children with AD and high ADHD symptoms who received family CBT.

(i.e., child vs. family). With regard to the sample in our study, mean age was not different between the four groups, and therefore the results were not likely to be confounded by this issue. It would have been interesting to investigate whether age was also of influence in combination with the comorbid ADHD symptoms (i.e., whether ADHD symptoms interacted with age and CBT format); however, it was not possible to further split the group into different age categories due to the relatively small sample sizes in the ADHD-CCBT and ADHD-FCBT groups.

Two limitations should be taken into consideration when interpreting the results. First, because the aim of the original study from which our data were drawn (Bodden, Bögels, et al., 2008; Bodden, Dirksen, et al., 2008) was to investigate the efficacy of treatment in anxiety-disordered children, the children were excluded for that study if they had a DSM diagnosis of ADHD, which was untreated or not under control. This selection procedure was not beneficial for the tests of the hypotheses of our study. In this current study, only the scores on the CBCL were available as an instrument to define the presence of youths' attention and hyperactive problems. Previous studies on the characteristics of the CBCL syndrome scale Attention Problems (which includes an item to assess hyperactivity) found the scale to have good psychometric properties (Achenbach et al., 2008) and to be able to predict ADHD diagnosis in clinical samples (Chen et al., 1994; Hudziak et al., 2004). In our study, the children high on ADHD symptoms had mean levels on the CBCL Attention Problem scale above 70 (which is well above the cut-point of around 60 that was found to have high specificity and sensitivity for predicting ADHD diagnosis in a previous study; Chen et al., 1994). In addition, 10 children in our study were diagnosed with ADHD. However, as our sample was not a clinical sample of children with ADHD, it remains unknown whether our findings could be generalized to children with comorbid anxiety disorders and ADHD disorders. Studies using clinical samples of children with ADHD and comorbid anxiety disorders are needed to address this issue. A second limitation concerns the relatively small sample sizes in the two groups including youth with comorbid ADHD symptoms, and this may have reduced the likelihood of finding significant results. In particular, this was the case with respect to the CBCL at follow-ups; the power was too low to conduct statistical analyses to explore whether attention problems decreased significantly and whether the decrease would be significantly different for the various groups.

To conclude, although there is overwhelming evidence that parental involvement does not improve the effects of CBT for children with anxiety disorders (e.g., In-Albon &

Schneider, 2007), this study provides preliminary results that for children with ADHD symptoms and perhaps other externalizing problems, parental or family involvement is beneficial, at least in the longer term.

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Authors' Note

The authors Marija Maric and Francisca J. A. van Steensel made equal contribution to this article.

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