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Parenting, Family Functioning and Anxiety-Disordered Children: Comparisons to Controls, Changes After Family Versus Child CBT

Loes Jongerden · Susan Maria Bögels

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Abstract We examined (1) whether families of clinic-referred anxiety-disordered children are characterized by anxiety-enhancing parenting and family functioning, compared to control families; (2) whether family cognitive-behavioral therapy (FCBT) for anxiety-disordered children decreases anxiety-enhancing parenting and family functioning more so than child-focused cognitive-behavioral therapy (CCBT); (3) whether anxiety-disordered children benefit more from therapy in the long-term when parents display less anxiety enhancing parenting and family functioning. The referred sample consisted of 104 anxiety-disordered children (8–18 year-olds) and their families, randomized to FCBT or CCBT. The control sample consisted of 44 families from the general population. At pre-treatment (referred and control sample), posttreatment, 3-months and 1-year follow up (referred sample), children's anxiety disorders were assessed by the ADIS-C/P. Child and parents' anxiety symptoms, parenting behaviors (autonomy granting, overprotection, rejection) and family functioning (relational functioning, family control) were assessed with questionnaires. Parent-reported autonomy granting and family relational functioning were lower in the referred versus control families. Child-reported autonomy granting was *higher* in the referred families. Anxiety-enhancing parenting/family functioning decreased after FCBT and CCBT, with no differences between treatments. Good family relational functioning at posttreatment predicted more improvement on anxiety measurements at the

long term for adolescents, but not for school-aged children. The generally hold idea that certain parenting styles and family functioning cause child anxiety, and need to be specifically targeted in the treatment of anxious children, is not supported. Good relational functioning within adolescent's families however is associated with better long-term outcome on anxiety, suggesting that families can support the maintenance of treatment gains.

Keywords Childhood anxiety · Family functioning · Parenting · Cognitive-behavioral therapy

Introduction

Cognitive-behavioral therapy (CBT) for childhood anxiety disorders has been found to be effective and efficacious for childhood anxiety disorders, with effect sizes ranging from .77 to .86. (Davis et al. 2011; In-Albon and Schneider 2007; Reynolds et al. 2012). Based on evidence that family functioning and parenting factors (i.e., parental anxiety, rearing styles) play a role in the etiology and maintenance of childhood anxiety disorders (for reviews on the literature see Bögels and Brechman-Toussaint 2006; Ginsburg et al. 2004; for meta-analyses see McLeod et al. 2007; Van der Bruggen et al. 2008), researchers attempted to enhance treatment efficacy by involving parents or the whole family in the treatment of anxiety-disordered children (e.g., Barrett et al. 1996; Bögels and Siqueland 2006; Nauta et al. 2003; Silverman et al. 2009). The rationale is that by targeting parenting and family factors that enhance or maintain anxiety (e.g., overprotection) in children, treatment outcome may improve. Involving parents might also help to generalize and maintain treatment outcomes (Barmish and Kendall 2005; Bögels and Siqueland 2006).

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This idea is challenged by the mixed results from randomized controlled trials (RCT) in which child alone CBT henceforth child-focused cognitive-behavioral therapy (CCBT) versus family therapy or child CBT + parental involvement were studied henceforth family cognitive-behavioral therapy (FCBT) (Barmish and Kendall 2005; Creswell and Cartwright-Hatton 2007; Breinholst et al. 2012). In some studies, FCBT was more effective than CCBT, at least on some measures (Barrett et al. 1996; Cobham et al. 2010; Wood et al. 2006). In other studies, CCBT and FCBT are found to be no differently effective (e.g., Barrett et al. 2001; Cobham et al. 1998; Silverman et al. 2009; Siqueland et al. 2005). Note that Nauta et al. (2003) found no additional effect for adding a parental training component, even while the condition with the added parental component had longer treatment time. In one study CCBT outperformed FCBT (Bodden et al. 2008), also in terms of cost-effectiveness (Bodden et al. 2008). Meta-analytic studies addressed the issue of whether FCBT is more effective than CCBT, and found either no added value of FCBT (e.g., In-Albon and Schneider 2007; Reynolds et al. 2012) or CCBT to have better outcomes on childhood anxiety than FCBT at posttreatment and at 1 year follow up (Hedges'g $-.17$ and $-.28$; Svrisky et al. 2012). To conclude, there is no convincing evidence that involving parents in CBT for childhood anxiety enhances treatment efficacy as opposed to CCBT. In fact, CCBT may even outperform FCBT. This challenges the theory that parents, beside their role in the etiology of child anxiety, have a role in reducing child anxiety.

Beside the lack of consistent evidence of the added value of involving parents, it is also rarely investigated whether involving parents actually improves their parenting with regard to anxiety enhancing parenting and whether involving the family improves family functioning (Breinholst et al. 2012; Drake and Ginsburg 2012; Ginsburg et al. 2004), or does so to a larger extent than when treating the child alone. That is, it might be that when a child is successfully treated with CCBT, parental overprotection will decrease as a result.

Only a few RCT's on FCBT versus CCBT for childhood anxiety did evaluate parenting and family measurements as outcome variables beside the child's anxiety. In a small RCT ($n = 35$), Wood et al. (2009) found parental intrusiveness (i.e. "parents who tend to take over tasks that children are (or could be) doing independently and impose an immature level of functioning on their children", p. 302) to decrease more in FCBT than CCBT and this decrease seemed to have a positive influence on anxiety problems of young adolescents (10–13 years), but not of children (8–9). The RCT of Silverman et al. (2009) showed that the youth's ($n = 119$, 7–16 years) perception of the mother's positive or negative behavior toward him/her and the

youth's appraisal of conflict in the mother-youth dyad improved after both FCBT and CCBT. Finally, Siqueland et al. (2005) found adolescents' ($n = 11$) report of family psychological control (a subdimension of family functioning) to decrease after both FCBT and CCBT. No significant differences between pre and posttreatment were found for parent's reported family functioning. To conclude, only three studies have investigated whether FCBT is more successful than CCBT for improving parenting and family functioning, but two out of three find CCBT just as effective in improving parenting and family functioning.

Other studies evaluated parenting and family functioning after either a FCBT or a CCBT format, but did not make a comparison between the two. Results from research evaluating parenting or family functioning after FCBT's can be summarized as follows: family functioning increased after treatment, based on child-report (small effect; Bögels and Siqueland 2006; Crawford and Manassis 2001) and father- but no mother-report (large effect, Bögels and Siqueland 2006). Father's and mother's frustration due to the child's problem behavior (medium effect) and mother reported stress (small effect) decreased (Crawford and Manassis 2001). Parents reported less overprotective parenting (respectively medium and large effects) and fathers (large effect) but not mothers reported less rejective parenting (Bögels and Siqueland 2006). Mothers, but not fathers reported using more modeling and reassurance and more positive reinforcement (medium effects) toward their child (aged 4–7) after treatment (Van der Sluis et al. 2012). To conclude, although the above studies had methodological limitations (no active treatment condition for comparison; limited power), parenting and family functioning seem to improve as a result of FCBT.

Keeton et al. (2013) studied effects of CCBT, pharmacotherapy and the two therapies combined for childhood anxiety disorders on family functioning and several parental variables (e.g., caregiver perceived burden). Child-reported family functioning and caregiver perceived burden improved significantly after treatment in all conditions (respectively small and large effect). Parent-reported family functioning improved only for treatment responders, regardless of treatment format (small effect).

In sum, studies that target the efficacy of FCBT and CCBT rarely evaluate if family functioning and parenting improve after treatment, even though they are hypothesized to be of influence on reducing child anxiety. In addition, it is rarely studied whether family functioning and parenting are associated with the reduction of the child's anxiety problems. Studies that do evaluate parenting and family functioning as outcome measures are scarce, but seem to support the hypothesis that parenting and family functioning improve after treatment, although not consistently on all measures. It is not yet clear whether this is due to the

involvement of parents, as CCBT (and medication) also appeared to improve parenting or family functioning. Moreover, outcomes are inconsistent, and difficult to compare, given the various measurements techniques of parenting and family constructs. Measures of family functioning have been applied much less than parenting measures. Consequently, it is unclear whether improving parenting and family functioning by involving parents in childhood therapy is successful and whether this contributes to the child's improvement on anxiety problems.

It is important that knowledge on family matters in treating child anxiety disorders is increased for several reasons. First, it is known that CBT can be effective, but less is known about why it is effective (Silverman et al. 2009). For example, when a child is in CBT, parents may relax and become less overprotective toward the child. Second, it adds to the body of research on the bidirectional influence of parenting and anxiety in children. That is, it may well be that as a child becomes less anxious and avoidant as a result of CBT, parenting and family functioning may change, or the reverse. Third, involving parents or the whole family in therapy requires efforts of the family, and also efforts and costs of society (Bodden et al. 2008; Simon et al. 2012). Those extra efforts should lead to more positive treatment outcomes (Breinholst et al. 2012). Fourth, a recent study (Jongerden, Simon, Bodden, Dirksen and Bögels, in press) showed that neither parental anxiety and parenting, nor family functioning are predictors of whether parents seek and are referred to mental health care with their anxiety-disordered child or not. Only the summed severity ratings of all anxiety disorders according to the ADIS, child and parent versions, which is an indication of how widespread and impairing the anxiety disorders are, was predictive of referral. This might indicate that the anxiety disorder(s) of the child should be the focus of therapy.

General aim of this study is to enhance knowledge about characteristics of the parenting and family functioning in families of clinically referred, anxiety-disordered children, the possible changes of parenting and family functioning after CCBT and FCBT, and whether this change is associated with a decline in child anxiety.

The following three research questions were examined: First, are families of clinic-referred anxiety disordered children characterized by anxiety-enhancing parenting and family functioning, compared to control families? Second, does FCBT for childhood anxiety decrease anxiety-enhancing parenting and family functioning, and more so than CCBT does? Third, do children benefit more from therapy at the longer term when parents display anxiety reducing parenting and the family functions well?

In order to answer the first research question, we compared a sample of children with anxiety disorders and their

families who were referred to community mental health care (clinical group) with a sample of non-anxious control children and their families (control group). In order to answer the second and third research questions, families in the clinical group were randomized to either a CCBT -or a FCBT condition, and their parenting (i.e. autonomy granting, overprotection, rejection) and family functioning (i.e. relational functioning, family control) were assessed before and after treatment, and at follow-up moments, next to the child's anxiety.

We hypothesize parents in the clinical group to be less autonomy granting, more overprotective and rejective and families to be characterized by less positive relational family functioning and more dysfunctional family control than parents/families from the control group. We hypothesize that although both treatment approaches may affect parenting and family functioning, FCBT is superior to CCBT when it comes to improving parenting and family functioning given the fact that all these variables are explicitly targeted in FCBT. Not all families of anxiety-disordered children may display anxiety-enhancing parenting and poor family functioning. We therefore expect that children in the families who show positive parenting and good family functioning before treatment (and still at post treatment), and those who show anxiety-enhancing parenting and poor family functioning before treatment, but have improved on those variables after (either child or family) CBT, improve more on anxiety symptoms and disorders, in the short and longer term.

Method

Participants

The clinical group consisted of 104 children aged 8–18 years and their families, who were part of a randomized controlled trial (RCT) in which the efficacy of child versus family cognitive behavioral therapy (CCBT and FCBT) was studied (Bodden et al. 2008). Besides an age of 8–18 years, inclusion criteria were a primary anxiety disorder (no obsessive compulsive disorder or post-traumatic stress disorder), $IQ \geq 80$ and at least one parent willing to participate. Children were excluded when they suffered from substance abuse, current suicide attempts, untreated attention deficit hyperactivity disorder, pervasive developmental disorders, or psychosis. They were also excluded when they used anxiety-reducing medication, unless they kept a constant dosage during treatment or ended the medication use before start of treatment. In the RCT, 128 children, referred to one of seven community mental health centers by their general practitioner, were randomized for either CCBT ($n = 64$) or FCBT ($n = 64$)

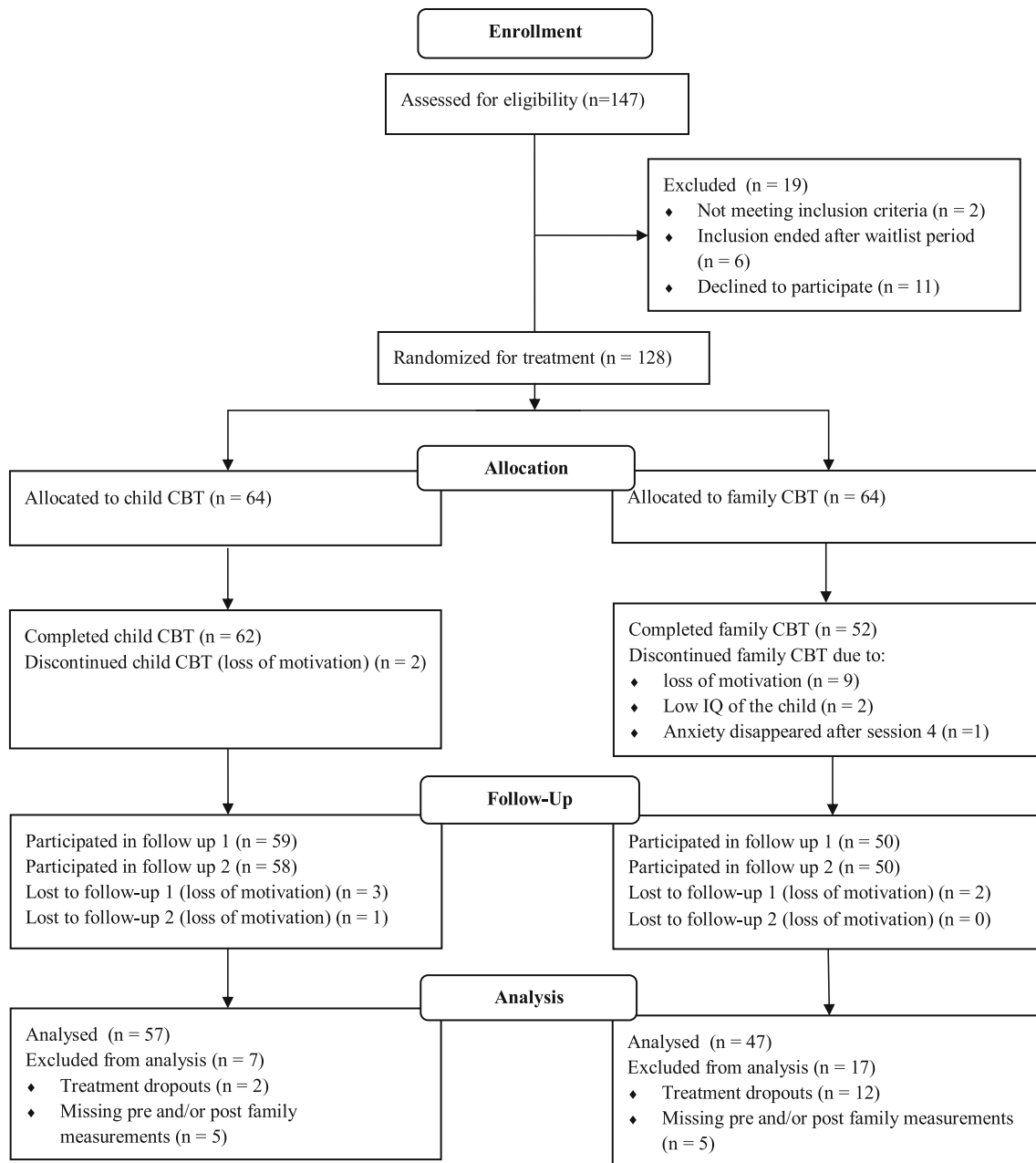


Fig. 1 Flow chart of randomization and dropout rates

(Fig. 1). Dropouts (CCBT, $n = 2$; FCBT, $n = 12$) were families that discontinued treatment. For the current study, we included only treatment completers who filled in at least one family/parental questionnaire at pre-measurement and one of the family/parental post-treatment measurements (CCBT, $n = 57$; FCBT, $n = 47$). Sample sizes differ due to the higher dropout in the FCBT as opposed to the CCBT (Fig. 1). Table 1 displays personal features of the 104 families.

The control group consisted of 44 children and their families, recruited through advertisement in journals and

magazines. The control and clinical group were comparable on personal characteristics. Participants who enlisted were selected based on age, gender and school type of the child in order to match the clinical group. The control group received a €50 fee per family. Table 1 displays personal characteristics of the clinical and control group.

Procedure

This study was approved by the Medical Ethical Committee of Maastricht University. All families meeting

Table 1 Means, standard deviations, comparisons and effect sizes of characteristics of families of anxiety disordered children and control children

	Clinical group N = 104	Control group N = 44	Effect size ^a
Girls (n, %)	63 (61 %)	25 (60 %)	.01
Child age (M, SD)	12.4 (2.6)	12.4 (2.7)	.0
Parents separated (n, %)	12 (12 %)	13 (30 %)	-.22
Both parents participated (n, %)	95 (91 %)	36 (82 %)	.14
Parental age			
Father (M, SD)	44.9 (5.0)	45.1 (5.0)	.04
Mother (M, SD)	41.7 (4.8)	43.0 (5.1)	.27
Parental educational level ^b			
Father (M, SD)	5.5 (1.9)	6.6 (1.9)	.58
Mother (M, SD)	5.0 (1.9)	6.4 (1.4)	.79***
Parental professional level ^c			
Father (M, SD)	4.5 (2.0)	5.0 (2.0)	.25
Mother (M, SD)	3.7 (2.0)	4.4 (1.8)	.36
Parental anxiety (SCARED A)			
Father (M, SD)	16.2 (14.4)	15.1 (11.7)	.08
Mother (M, SD)	25.8 (18.0)	22.3 (12.3)	.21
Primary disorder child			
Social phobia	40 (29 %)	1 (2 %)	
Separation anxiety disorder	26 (25 %)		
Generalized anxiety disorder	18 (17 %)		
Simple phobia	15 (14 %)	5 (11 %)	
Agoraphobia and/or panic disorder	5 (5 %)		
Summed severity ratings			
Anxiety disorders	16.4 (9.1)	.8 (2.0)	2.02***
Non-anxiety comorbid disorders	1.9 (4.1)	.0 (.0)	.55***
SCARED- 71 child			
Child (M, SD)	49.3 (21.11)	23.5 (14.46)	1.22***
Parents (M, SD)	47.2 (19.5)	14.2 (9.00)	1.93***
Parenting: autonomy granting			
Child (M, SD)	19.5 (4.14)	17.7 (4.34)	-.43*
Parents (M, SD)	21.0 (2.82)	22.3 (2.62)	.47*
Parenting: overprotection			
Child (M, SD)	12.2 (3.68)	12.3 (4.02)	-.02
Parents (M, SD)	12.0 (2.71)	12.3 (3.38)	-.10
Parenting: rejection			
Child (M, SD)	12.9 (3.94)	13.2 (4.10)	-.08
Parents (M, SD)	12.2 (2.49)	12.9 (2.96)	-.27
Family functioning: relational functioning			
Child (M, SD)	87.9 (12.76)	88.9 (9.81)	.08
Parents (M, SD)	90.8 (9.30)	94.7 (8.80)	.43*

Table 1 continued

	Clinical group N = 104	Control group N = 44	Effect size ^a
Family functioning: family control			
Child (M, SD)	57.5 (7.37)	57.7 (6.19)	-.03
Parents (M, SD)	59.2 (6.07)	57.1 (6.08)	.35 ⁺

*** $p < .001$ ^a phi coefficient as an effect size for categorical variables, Cohen's d as an effect size for continuous variables^b On a scale from 1 (no education) to 9 (university degree)^c On a scale from 1 (labor for which no education is required) to 7 (university degree required)

inclusion criteria, signed informed consents at intake. Measurements were administered at pretreatment, post treatment, 3-months follow-up and 1-year follow-up by research assistants who were blind to treatment condition. The randomization procedure, training of the research assistants and therapists, assessment and treatment integrity are described elsewhere (Bodden et al. 2008).

Measurements

Child Diagnostic Status

The child and parent Dutch version of the *Anxiety Disorders Interview Schedule for Children (ADIS-C/P)* (Siebelink and Treffers 2001; Silverman and Albano 1996) was used to assess anxiety disorders and related psychopathology according to the DSM-IV. Parents and children were interviewed separately and were asked to rate a 9-point interference scale (i.e., 0–8, 0 = not at all; 8 = very much) to assess the impairment in the child's daily life as a result of the symptoms of the disorder. According to the procedure described in the manual (Silverman and Albano 1996), the child received a diagnosis if either the child or parent reported an interference score of 4–8. The interference ratings were summed into a 'sum of severity', as a measurement of the impairment due to the anxiety and comorbid disorder(s). The ADIS-C/P possesses good psychometric properties (Silverman et al. 2001). Interrater agreements were good (Bodden et al. 2008).

Family Measurements

The parental rearing dimensions Encouragement of Autonomy, Overprotection, and Rejection of the *Rearing Behaviour Questionnaire (RBQ)* (Bögels and Van Melick 2004; Verhoeven et al. 2012) were administered. The 28 items (e.g., "... likes spending time with me") are rated on a 4-point Likert scale (from 1 = 'not true at all' to

4 = ‘very true’). The child about mother and child about father scores were aggregated in a child about parent score. The father and mother self-reports versions were also aggregated in one parent score. This improves reliability and is a good estimate of actual (versus informant-perceived) parenting (Bögels and Van Melick 2004). The subscale Acceptance was not reliable by mothers’ and fathers’ self-report in previous research (Verhoeven et al. 2012) as was it in this study ($\alpha = .57$) and therefore excluded from the analyses. In this study, the internal consistencies (α) of the subscales were as follows: Autonomy granting .84 (child), .78 (parents); Overprotection .84 (child), .77 (parents); Rejection .87 (child), .76 (parents).

The *Family Functioning Scale* (FFS) (Bloom 1985) measures family functioning, and is a composition of items that were subtracted after cluster analytic, factor analytic and correlational research from four self-report measures (Family Environment Scale, Family-Concept Q Sort, Family Adaptability and Cohesion Evaluation Scales, and Family Assessment Measure), in order to compose an improved self-report measure of family functioning. The questionnaire originally contained 15 scales (75 items) of family functioning. In the current study 12 scales (60 items) were used, adding up to two family functioning dimensions: Relational functioning (6 scales) and Family control (6 scales). The three scales that ad up to a ‘Value dimension’, which was of less interest to this study about child anxiety, were excluded. Children, fathers and mothers rated items about their family (e.g., “family members really helped and supported each other”) on a 4-point Likert scale (from 1 = ‘not true at all’ to 4 = ‘very true’). The family dimension Relational functioning (range 30–120) consists of the subscales Cohesion, Expressiveness, Conflict ^{reversed}, Active-recreational orientation, Family sociability, and Disengagement ^{reversed}. The family dimension Family control contains the subscales Organization ^{reversed}, external locus of control, Enmeshment, Democratic family style ^{reversed}, Laissez-faire family style, and Authoritarian family style. Similar to the procedure used with the RBQ, father and mother scores were aggregated into one parent score. Internal consistencies (α) of the family dimensions in this study were: Relational functioning .86 (child), .91 (parents); Family control .49 (child), .74 (parents). The deletion of three (out of 30) items from the child family control dimension (i.e. items 22, 45 and 58) increased the internal consistency to .60.

Child Anxiety Symptoms

The 71-items *Screen for Child Anxiety Related Emotional Disorders* (SCARED-71, Bodden et al. 2009), child and parent version, was used to assess child anxiety symptoms based on the DSM IV anxiety disorders (e.g., “I am scared

when I do not sleep at home”). Symptoms are rated on a three point Likert Scale [0 = (almost) never; 1 = sometimes; 2 = often] and add up to a total scale score (ranging 0–142). The father and mother about child scores were aggregated into one parent score of child anxiety symptoms. The SCARED-71 is able to differentiate clinically anxious children from normal anxious children and psychometric properties are satisfactory (Bodden et al. 2009). The internal consistencies (α) were excellent for both child report (.94) and parent report (.97).

Parents’ Anxiety Symptoms

Fathers and mothers filled in the adult SCARED concerning their own anxiety symptoms (Bögels and van Melick 2004). Psychometric properties are good (Bögels et al. 2008; Bögels and van Melick 2004) and the SCARED-A is able to discriminate parents with and without anxiety disorders (Van Steensel and Bögels 2014). The internal consistencies (α) in this study were excellent, .94 (mother) and .94 (father).

Treatments

The CCBT and FCBT both contained 13 sessions of 60–90 min and a 3-months follow up session. A child workbook, a therapist manual (CCBT and FCBT) and a parent workbook (FCBT) were available for both therapies.

The CCBT is comparable to other manualized child-focused CBT’s (e.g., Coping Cat, Kendall 1994), but emphasizes more on challenging dysfunctional thoughts and behavioral experiments. It is suitable for children aged 8–18 years. Parents were involved as little as possible and only joined their child in three sessions: at the start of the therapy (session one) to gather information from the parents and explain the treatment rational and part of session four for conducting the fear hierarchy and reward system and part of the final session for evaluation. Parents received no instructions to guide their child in the exposure and cognitive assignments, however, they did give the child rewards when the child had gathered the points needed for the rewards, points that were earned for doing exposures and cognitive assignments. The parenting and family functioning constructs that are measured by the RBQ and FFS are therefore not explicitly targeted in the CCBT. The program encompasses psycho education, challenging anxiety-provoking thoughts, coping behavior, exposure in vivo according to a fear hierarchy and a reinforcement system, (behavioral) experiments, and relapse prevention (Bodden et al. 2008; Bögels et al. 2008). Research showed that 73 % of the children recovered from their primary anxiety diagnosis 3 months after CCBT (Bodden et al. 2008).

The FCBT was developed by Bögels and Siqueland (2006) and based on previous models of FCBT (e.g., Barrett, et al. 1996; Ginsburg et al. 1995). Three sessions involve the child, parents and siblings, two sessions involve the child and parents, and there are five parents-alone sessions and three child-alone sessions. The whole family participates in the first session in which a systemic formulation of the problem is made and the treatment rationale is explained. Subsequent, the treatment consists of three phases of 4 sessions each, in which overall, parents learn autonomy granting behaviors. In phase 1, children and parents learn CBT skills, each to overcome their fears. Parents learn to be a “courageous model” for their child. In phase 2, dysfunctional parental beliefs are targeted. These are parents’ beliefs about their child’s anxiety, their parenting and the safety of the child’s world and children’s beliefs about the communication with their parents. In phase 3, communication and problem solving is encouraged between the family members in order to reduce problematic interactions. The 12th session concerns relapse prevention and treatment evaluation. Both the anxiety-enhancing parenting and family functioning dimensions, as measured by the FFS and RBQ, are explicitly addressed in the FCBT. For example, parents might hold dysfunctional beliefs about the dangers their child is exposed to, which makes them overprotective in anxiety-provoking situations. By challenging those parental beliefs in phase 2 of the treatment, parents are encouraged to parent in more autonomy granting and less overprotective ways. Another example, the way families as a whole and partners deal with conflicts around the child’s fears was addressed in phase 3 of the FCBT and is reflected in the Relational functioning scale of the FFS. 3 months after FCBT, 61 % of the children were free of their primary anxiety disorder (Bodden et al. 2008).

Data Analyses

Missing Value Analyses (MVA) were conducted for the categorical and total scale variables in both groups using SPSS 19. The Little’s MCAR Tests were non-significant in the clinical [$\chi^2(4,598) = 4,032.48, p = 1.00$] and control sample [$\chi^2(314) = 321.07, p = .380$] indicating that the variables are missing completely at random. Missing data were estimated using SPSS’ MVA Estimation Maximization.

Differences between the clinical and control sample (first research question) were tested with independent sample *t* tests and χ^2 tests. Bonferroni Holm corrections are used to prevent Type I errors.

To evaluate the effect of the CCBT and FCBT on parenting and family functioning and to compare the difference between CCBT and FCBT (second research question), a mixed within/between repeated measures ANOVA was

performed on the RBQ scales and FFS scales. Because we tested the hypothesis whether parenting and family functioning changed after treatment, only treatment completers were included. The reasoning was that for families who dropped out of treatment, parenting and family functioning and child anxiety was not (further) targeted.

Pearson correlations were calculated to examine the relationship between improvement on anxiety measurements and post-treatment parental rearing and family functioning (third research question). Correlations were calculated per age group, as the influence of parenting and family functioning on child anxiety improvement may vary with age. Moreover, previous research showed that CBT is somewhat more efficacious in younger (8–12 years) versus older (13–18 years) children (Bodden et al. 2008).

Results

Comparison of the Families With Referred Anxiety-Disordered Children and Control Group

In Table 1, demographic characteristics, psychopathology, anxiety symptoms, parental rearing and family measurements of the families with referred anxiety disordered children (clinical group) versus control families are listed. With regard to demographic variables both groups were comparable, except for mother’s educational level, which was significantly higher in the control families, $t(108.59) = 5.12, p < .001, ES = .79$. An inspection of the scatterplots revealed no systematic relationship with child anxiety, parenting and family functioning and therefore we did not control for mother’s educational level in the further analyses.

As expected, anxiety-disordered children experienced higher sum of severities of the anxiety disorders, $t(123.73) = -16.61, p < .001, ES 2.02$, higher sum of severities of the non-anxiety comorbid disorders, $t(103) = -4.74, p < .001, ES .55$, and more anxiety symptoms based on children’s self-report, $t(116.06) = -8.58, p < .001, ES 1.22$ and based on parent-report, $t(144.92) = -14.08, p < .001, ES 1.93$. Parents of anxiety-disordered children reported *less* autonomy granting parenting than parents from control families, $t(146) = 2.61, p < .05, ES .47$ and *lower* levels of family relational functioning, $t(146) = 2.35, p < .05, ES .43$. On the contrary, anxiety-disordered children reported *more* autonomy granting parenting in their parents than children from control families, $t(146) = -2.40, p < .05, ES -.43$. Independent sample *t* tests showed no differences with regard to the other family functioning scales and parenting behaviors between the families of anxiety-disordered and control children (Table 1).

Treatment Outcome Child CBT and Family CBT

Pretreatment Comparison

No differences were found at pretreatment between children and their families who were randomized to CCBT ($n = 64$) versus FCBT ($n = 64$) with regard to the demographic variables child age and gender, parental marital status, parental age, parental educational and professional level, child anxiety symptoms, ADIS anxiety disorders sum of severities, parental anxiety, parenting and family functioning, indicating that randomization succeeded. The analyses were repeated for the smaller sample (CCBT $n = 57$; FCBT $n = 47$) from the current study. Results remained the same.

Post hoc Analyses on FCBT Dropouts Versus Completers

Figure 1 shows that 12 of 64 families (19 %) from the FCBT dropped out during treatment as opposed to 2 of 64 families (3 %) from the CCBT condition, $\chi^2(1, N = 128) = 8.02$, $p < .01$, $phi = .25$. Within the FCBT condition, no differences were found on pretreatment measurements between treatment completers and treatment dropouts regarding child's age, gender, sum of severities of the child's anxiety disorders, anxiety symptoms, and regarding parents' age, educational and professional level, parental anxiety symptoms, parental autonomy granting and overprotection. However, in the dropout group, there were more stay-at-home mothers than in the completer group, 73 % ($n = 8$) versus 28 % ($n = 14$), $\chi^2(2, N = 62) = 8.18$, $p < .05$, Cramer's $V = .36$. There was also trend for the presence of relatively more broken families in the dropout group (36 %, $n = 4$) versus the completers (14 %, $n = 7$), $\chi^2(1, N = 62) = 3.18$, $p = .08$, $phi = .23$. Furthermore, families who dropped out of treatment, reported more rejective parenting, $t(57) = -3.15$, $p < .01$, Cohen's $d = 1.05$, more dysfunctional family control, $t(61) = -2.63$, $p < .05$, Cohen's $d = .87$, and less positive family relations, $t(61) = 2.95$, $p < .01$, Cohen's $d = .98$. This indicates that families who dropped out of FCBT are more complex with regard to their family structure, display more negative parenting, and experience less positive and more negative family interactions. However, given the fact that pretreatment comparisons for the sample with only completers showed no significant differences between FCBT versus CCBT on the various variables, differential FCBT dropout is not expected to influence the current study outcome.

Efficacy of FCBT Versus CCBT on Parenting and Family Functioning

Mixed between-within subjects ANOVA's (Table 2) were conducted to assess the impact of condition (CCBT and

FCBT) on aggregated participants' scores on the parenting scales autonomy granting, overprotection and rejection and the family functioning scales relational functioning and control across four time points (pre-intervention, post-intervention, 3-months and 1-year follow up). The analyses show main effects for time on all variables, with both groups showing an increase in autonomy granting parenting and a decrease in overprotective and rejection parenting (all effect sizes are large), as well as an increase in family relational functioning and decrease in dysfunctional family control (both moderate effect sizes). There were no significant interactions on any of the measurements between treatment format and time, suggesting no difference in the effectiveness of the two therapies on parenting and family functioning. Analyses were also performed separately for child and parent-reports. Results were similar and therefore only the analyses on aggregated measurements are reported.

Previous research on the efficacy of FCBT versus CCBT on anxiety measurements in this sample showed that older children (13–18 years) improved less on anxiety diagnostic status than younger children (aged 8–12 years) immediately after treatment (Bodden et al. 2008), though this effect disappeared at 3-months follow-up. To study whether this also accounted for the parenting and family measurements as outcome variables, the mixed between-within subjects ANOVA's were repeated, adding age group (8–12 versus 13–18) as a between factor. Similar outcomes were found (results are not listed in this paper but can be retrieved from the first author): the main effects for time were all significant; the main effect for between-subject effects (age group and treatment format) and the interaction effects were non-significant for autonomy granting, overprotection, family relations and family control. This indicated that age was not of influence on any of those parenting and family functioning scales. Only for the parenting scale rejection a main effect was found for age group, $F(1,100) = 5.43$, $p < .05$, $\eta_p^2 < .05$, suggesting a difference between the two age groups on their scores for parental rejection. Further analyses revealed that the 13+ group reported higher parental rejection as opposed to the 12- group at pre-treatment ($t(146) = -2.12$, $p < .05$, $d = .44$) and post-treatment ($t(72.32) = -2.78$, $p < .01$, $d = .58$). However, no significant interaction effects time \times age group (Wilks' Lambda = .98, $F(3,98) = .69$, $p = .56$, $\eta_p^2 = .02$) and time \times treatment format \times age group (Wilks' Lambda = .93, $F(3,98) = 2.30$, $p = .08$, $\eta_p^2 = .07$) nor a main effect for treatment condition ($F(1,100) = 1.02$, $p = .32$, $\eta_p^2 = .01$) were found, indicating that age differences did not influence the treatment effectiveness FCBT or CCBT on parental rejection.

Table 2 Mixed between-within subjects ANOVA's, means, standard deviations, and effect size partial eta squared (η_p^2) of CCBT (n = 57) and FCBT (n = 47)

Scale	Pre M (sd)	Post M (sd)	Follow up 1 M (sd)	Follow up 2 M (sd)	Time F	Condition			Time*condition	
						η_p^2	F	η_p^2	F	η_p^2
RBQ autonomy granting										
Total CBT	20.24 (2.68)	20.92 (2.82)	21.72 (2.90)	22.27 (3.28)	15.92*** ^a	.14	.12	.00	.94	.01
Child CBT	19.98 (2.90)	20.69 (3.10)	21.56 (3.06)	22.17 (2.93)						
Family CBT	20.56 (2.37)	21.19 (2.45)	21.92 (2.73)	22.40 (3.68)						
RBQ overprotection										
Total CBT	12.10 (2.62)	10.98 (2.29)	11.05 (2.71)	10.42 (2.48)	21.61*** ^a	.18	.94	.01	.53	.01
Child CBT	11.86 (2.31)	10.89 (1.99)	10.80 (2.65)	10.45 (2.46)						
Family CBT	12.40 (2.95)	11.10 (2.63)	11.35 (2.79)	10.38 (2.53)						
RBQ rejection										
Total CBT	12.58 (2.70)	11.89 (2.20)	12.13 (2.84)	11.16 (2.47)	8.61***	.21	.83	.02	1.49	.01
Child CBT	13.01 (3.04)	12.15 (2.20)	12.15 (2.63)	11.30 (2.62)						
Family CBT	12.07 (2.15)	11.57 (2.18)	12.12 (3.11)	11.00 (2.29)						
FFS relational functioning										
Total CBT	89.76 (9.14)	91.36 (8.31)	92.07 (9.96)	92.55 (10.17)	5.97*** ^a	.06	3.08	.03	.73	.01
Child CBT	88.22 (9.01)	90.56 (7.75)	90.89 (10.43)	90.90 (9.80)						
Family CBT	91.63 (9.05)	92.32 (8.93)	93.50 (9.26)	94.55 (10.37)						
FFS family control										
Total CBT	59.90 (5.31)	57.30 (5.45)	57.31 (6.78)	56.89 (6.83)	14.40*** ^a	.12	1.82	.02	1.69	.02
Child CBT	60.79 (5.18)	57.33 (5.34)	57.95 (7.25)	57.84 (6.80)						
Family CBT	58.81 (5.31)	57.27 (5.64)	56.54 (6.15)	55.74 (6.77)						

Analyses were also performed separately for child- and parent-reports. Results were similar and therefore the analyses on aggregated measurements are reported. Analyses were repeated including age group (8–12 and 13–18 years) as a between factor. Results indicated that age of the child was not of influence on outcome measures; *RBQ* rearing behavior questionnaire averaged child about father and mother, father self-report, mother self-report. Autonomy granting: higher scores indicate more autonomous parenting; Overprotection and Rejection: higher scores indicate more anxiety-enhancing parenting; *FFS* family functioning scale averaged child, father- and mother reports. Family Control: higher scores indicate more dysfunctional and less functional family control; Relational Functioning: higher scores indicate more positive relations within the family and with the outside world

*** $p < .001$ (two-tailed)

^a Machly's Test of Sphericity indicated that the assumption of sphericity was violated. Greenhouse-Geisser's correction of the degrees of freedom was applied

Associations Between Parental Rearing, Family Post-Measurements and Improvement on Anxiety Measurements

Pearson correlations were calculated to assess whether the level of family functioning (i.e. relational functioning and family control) and parenting (i.e. autonomy granting, overprotection, and rejection) after treatment is associated with improvement on the anxiety of the child (i.e. anxiety symptoms–SCARED-71, and the summed interference due to all anxiety disorders–ADIS-C/P) from pretreatment to 3 months follow-up and pretreatment to 1 year follow-up. By using the post-measurement of the parental rearing- and family functioning scales, we assessed whether longer-term reduction in child anxiety is associated with anxiety-reducing parenting and good family functioning, regardless of whether this 'good' parenting and family functioning is

the result of the treatment or was already on an sufficient level, given the finding that families of referred anxiety-disordered children, on average, were not characterized by anxiety-enhancing parenting or poor family functioning.

Table 3 displays the correlation coefficients for children aged 8–12 years and 13–18 years. The majority of the significant correlations are found in the age group 13+, suggesting that good parenting and family functioning is associated with improvement in adolescents' anxiety levels while this association is less clear in the younger age group.

In the 13+ group, corresponding with high-school in the Netherlands, several significant small to large correlations were found between improvement (pretest to 3-months follow-up and/or 1 year follow-up) on the anxiety measurements and the family and parenting measurements (i.e., autonomy granting, rejection, family relations and family

Table 3 Pearson correlations for the age groups 12– (8–12 years, n = 63) and 13 + (13 to 18 years, n = 41) of post measurements (immediate after treatment) on parenting and family functioning

scales and improvement on anxiety symptoms (SCARED-71) and sum of severity of the anxiety disorders (ADIS C/P) from pre- to 3 months (fu1) and 1 year follow up (fu2)

postmeasurement Change scores	RBQ-autonomy granting		RBQ-overprotection		RBQ-rejection		FFS-relational functioning		FFS-family control	
	12–	13+	12–	13+	12–	13+	12–	13+	12–	13+
SCARED-anxiety symptoms										
Pre–fu 1	.12	.33*	.13	–.11	–.08	–.27*	.18 ⁺	.47**	–.21 ⁺	–.10
Pre–fu 2	.08	.19	.11	.01	–.15	–.22 ⁺	.07	.36*	–.16	.00
ADIS sum of severity AD										
Pre–fu 1	–.03	.15	.04	–.19	–.05	–.04	.02	.36**	–.24*	–.25 ⁺
Pre–fu 2	.07	.18	.08	–.15	–.03	–.16	.01	.43***	–.16	–.32*

RBQ rearing behavior questionnaire averaged child about father and mother, father self-report, mother self-report, FFS family functioning scale averaged child, father–and mother reports, SCARED screen for anxiety related emotional disorders aggregated child self-report, father about child and mother about child report, ADIS anxiety disorders interview schedule, child and parent combined, AD anxiety disorder

* $p < .05$; ** $p < .01$ (one-tailed); *** $p < .001$; ⁺ borderline significance $p < .10$

control) (see Table 3) at post treatment. All correlations were in the expected direction, meaning that more improvement on anxiety in adolescents is associated with anxiety-reducing parenting (i.e. more autonomy granting and less rejection) and good family functioning. Positive family relations are associated with a decrease of the anxiety problems measured on a symptom (SCARED-71) and disorder (ADIS C/P) level from pretest to 3-months follow-up and from pretest to 1-year follow-up. In the younger age group only lower dysfunctional family control was associated with a decrease in interference due to summed severity of the anxiety disorders from pretest to 3-months follow-up.

Post hoc, we tested whether the correlations between the two age groups were statistically different, using the following procedure (Pallant 2010): Correlations were converted into z scores and put into the following equation:

$$Z_{obs} = \frac{Z_1 - Z_2}{\sqrt{\frac{1}{N_1 - 3} + \frac{1}{N_2 - 3}}}$$

If $-1.96 \geq Z_{obs} \geq 1.96$, correlation

coefficients were considered significantly different. Only the correlations between the improved sum of severities of the anxiety disorders and family relational functioning were statistically different for the 12– and 13+ group ($Z_{obs} = -2.17$), suggesting that the association between family relational functioning and the improvement on the sum of severity of anxiety is different for children aged 13–18 years then children below 13 years of age.

Discussion

The main findings of this study can be summarized as follows: (1) parents in families of referred anxiety-disordered

children self-reported *less* autonomy granting parenting and *less* family relational functioning than parents in control families. On the contrary, referred anxiety-disordered children reported *more* autonomy granting behaviour in their parents than typically developing children. (2) Families of referred anxiety-disordered children did not differ from families of control children with regard to the other anxiety-enhancing parenting behaviours (i.e. more overprotection, and rejection) and family functioning (i.e. less family relations (only child report) and more family control); (3) Nevertheless, in the families of the referred anxiety-disordered children, anxiety-enhancing parenting/family functioning (i.e. overprotective and rejective parenting, family control) *decreased* and anxiety-reducing parenting/family functioning (i.e. autonomy granting parenting, family relational functioning) *increased* after treatment; (4) Contrary to expectations, FCBT did not outperform CCBT on improving parenting and family functioning; (5) Improvements on anxiety symptoms and the summed severity of anxiety disorders from pretreatment to 3-months and 1-year follow up were associated with good family relations immediately after treatment for children aged 13–18, but not for children aged 8–12. Furthermore, although not consistent for all measurements, autonomy granting is positively, and rejection and family control are negatively associated with reductions of anxiety problems after treatment in children aged 13–18 years. For children aged 8–12 years only lower levels of family control at post treatment were associated with a decrease of the summed severity of the anxiety disorders from pretreatment to 3-months follow up.

As expected, parent-reported autonomy granting was lower in parents of referred anxiety-disordered children than in parents of typically developing children. In contrast to our hypothesis, the other parenting dimensions,

overprotection and rejection, did not differ between the families of anxiety-disordered children before treatment and the control families. Autonomy granting might be the most important parenting behaviour with regard to the development of childhood anxiety disorders, as a meta-analysis (McLeod et al. 2007) found autonomy granting to explain almost twice as much proportion of the variance of childhood anxiety ($ES = .42$) compared to overprotection ($ES = .22$) and rejection ($ES = .20$). Surprisingly, and opposite to what was hypothesized, children referred with anxiety disorders described their parents as *more* autonomy granting than children of the control families. Tentatively, anxious children might tend to overreport their parents' autonomy granting behaviors compared to control children because autonomous actions might evoke more tension in anxious children.

With regard to family functioning, parent-reported family relational functioning was lower in the families of anxiety-disordered children versus control families. In line, (Hughes et al. 2008) found lower parent-reported general family functioning (which encompassed aspects of both family relational functioning and control) in the families of anxiety-disordered versus control children. Parents of anxiety-disordered children notice less positive and more negative interactions and less engagement within their family. Childhood-anxiety might develop in such a family atmosphere, but having an anxiety-disordered family member might also influence family disengagement and more negative family interactions.

An explanation for not finding differences between families of referred anxiety-disordered children and control families on parental overprotection, rejection, and family control might be the self-report nature of our parenting and family assessments. (McLeod et al. 2007) found measurement technology of parenting measures to moderate the association between child anxiety and parenting, in the direction that observational studies produced larger effect sizes than questionnaire studies. However, it is questionable whether this explains the lack of differences in our sample, given the fact that (Bögels et al. 2008) also did not find differences on parenting between the current control and clinically anxious group based on observational methods.

A final explanation for the lack of difference in parenting and family functioning between families of anxiety-disordered children and control families is that some children are more susceptible to negative effects of unsupportive environments and parenting as well as to the positive effects of a supportive environment and parenting (Belsky 1997). Recently, this theory was supported with regard to the negative effects of anxious parental rearing on infants who had a moderate to high temperamental disposition for anxiety (behavioral inhibition, BI), whereas these negative effects were not found for children with low BI

(Aktar et al. 2013). Therefore, if children with anxiety disorders are more susceptible to the effects of anxiety-enhancing parenting and family functioning, parenting and family functioning do not need to be different between families of anxious and control children. Still, the families of anxious children may need to adapt their parenting and family functioning style to the needs of their susceptible and anxious child (Kochaska and Aksan 2006).

With regard to our second research question, we found, in line with previous research (e.g., Crawford and Manassis 2001; Keeton et al. 2013), anxiety-enhancing parenting/family functioning *decreased* and anxiety-reducing parenting/family functioning *increased* after treatment that focused on childhood anxiety disorders. But contrary to our expectations, the FCBT that, besides child anxiety, targeted anxiety-enhancing parenting and family functioning was not more successful in reducing anxiety-enhancing parenting and family functioning than the CCBT, in which no explicit instructions were given to parents about parenting or family interactions.

A first explanation for the lack of difference in parenting and family functioning effect between FCBT and CCBT might be the fact that the influence of parents is not completely ruled out in the CCBT, although they are only present at session one, four and 12. They are explained the treatment rationale, and play a role in rewarding the child for points earned by doing exposures and challenging their catastrophic beliefs. This may make them less overprotective and rejective and more autonomy granting. Parents may also have studied the workbook of their child, and may have used the principles for overcoming own anxieties. A second explanation for not finding differences between CCBT versus FCBT interventions on parenting and family functioning is that according to system theory, a change in one part of the family system will affect the system as a whole, searching for new homeostasis (Minuchin 1974). In other words: changing the child will affect the family, and changing the family will affect the child. Given the fact that the CCBT does not target parenting or family functioning directly, it appears that the reductions of the child's anxiety change parenting and family functioning. In line with other research (Settipani et al. 2013; Wood et al. 2009), the FCBT may have improved parenting and family functioning, which may have reduced child anxiety. Note that the FCBT targeted *both* child anxiety and parenting/family functioning, which makes the direction of change more difficult to determine.

The final research questions addressed whether good family functioning and parenting after treatment are associated with child anxiety reductions on the short term (3-months) and on the longer term (1-year). This is an important question because it concerns the idea that family functioning and parenting play a role in the etiology and

maintenance of child anxiety. The most robust finding (it was found for both ADIS-C/P and SCARED 71, for improvement from pretreatment to three and 12-months follow up, and is statistically different from the correlation for the 12- group), is the association between improvements on anxiety measurements and good family relations at post treatment for children aged 13–18. So far, there is little research about family functioning as an outcome measure after treatment, especially for adolescents. Good family relations entail sociability, cohesion, engagement, and low conflicts/solving conflicts. Those are all aspects of a family in which adolescents can develop self-esteem, self-reliance and interpersonal skills (for an overview see Steinberg and Silk 2002). Tentatively, adolescents need this family atmosphere to overcome anxiety problems. Given the adolescent's developmental task of becoming more independent and autonomous, the association with good family relations was found for children aged 13–18 and not for children ages 8–12 years.

Interestingly, we did not find (consistent) associations between anxiety-enhancing parenting styles of autonomy granting, overprotection, rejection and anxiety-enhancing family control with improvement in child anxiety. Thus, although parenting and family control improved after treatment, they are not associated with improvements on child anxiety. This finding and the fact that CCBT was also able to improve parenting and family functioning, does not support the rationale of adding a parent component to child anxiety CBT. That is, even though parenting and family control may play a role in the etiology and maintenance of childhood anxiety disorders, targeting this in the treatment of childhood anxiety does not seem to influence treatment outcome.

Strengths of this study were the use of a clinical sample that consisted of children who were referred to community mental health centers, which increases external validity. Additionally, the research design had several strengths, i.e. the use of an active comparison condition, long-term follow up, measurement of parenting and family functioning, and a multiple informant approach (father, mother, child). Limitations were the absence of a waiting list condition to control for changes on parenting and family functioning as a result of time, and the use of questionnaire-based parenting and family measures only. The use of observational methods of parenting and family functioning would be an addition to the field. Both our clinical and control sample were mainly Caucasian making the study results less generalizable to other ethnic groups. Last, the high drop out rate ($n = 12, 19\%$) in the FCBT condition, compared to the low ($n = 2, 3\%$) drop out the CCBT condition needs to be addressed, as this suggests that the drop out might be related to treatment condition. The group of families who dropped out the FCBT contained more broken families

than the FCBT treatment completers, they also reported more negative parenting, and experienced less positive and more negative family interactions than the FCBT treatment completers. It is unclear whether the effects of FCBT on family and parenting variables would have been better or worse if these families would not have dropped out, and therefore, we were unable to estimate their results in a valid way. However, as randomization succeeded (no differences occurred on demographic, anxiety and family measurements between the two conditions pretreatment), it seems plausible that FCBT might take too many resources from families that experience negative interactions within the family or in which parents are divorced.

This study shows that CBT (both FCBT and CCBT) is not only successful in reducing anxiety in children, but also improves parenting and family functioning. The fact that both treatments contain overlapping but also unique features, apparently have similar effects on anxiety, parenting and family functioning, leads to research questions about how treatment effects are accomplished (Maric et al. 2012; Wood et al. 2009). Understanding the working mechanisms of therapy would provide opportunities for improving therapy effectiveness, for making them more (cost) efficient, and for providing clues for handling non-responders. Further research on differences between (the families of) treatment responders and non-responders might identify treatment goals or child and family characteristics that should be targeted when children do not sufficiently respond to CCBT. Given our finding that family relational functioning is associated with adolescents' anxiety improvement on the long-term, family functioning needs to be addressed when analyzing treatment responders versus non-responders.

To conclude, this study found that families of anxiety disordered children differ from families of control children on autonomy granting parenting (i.e. lower based on parent-report, higher based on child-report) and family relational functioning (i.e. lower based parent-report), but do not differ on overprotective and rejection parenting and on family control. FCBT and CCBT are not differently effective in improving anxiety-reducing parenting and family functioning, and good family relational functioning (but not family control, autonomy granting parenting, overprotection and rejection) are associated with better anxiety improvement on the short and longer term for adolescents but not for younger children. Subsequent, given the finding that adding a parent component to CCBT for childhood anxiety disorders, does not enhance treatment efficacy (In-Albon and Schneider 2007), or might be even less effective (Svrisky et al. 2012), we might have overestimated the need for the parental involvement in therapy (or underestimated the capacities of children) in overcoming anxiety. Furthermore, involving parents or the

whole family in therapy requires efforts of the family, and also efforts and costs of society (Bodden et al. 2008; Simon et al. 2012). If those extra efforts do not lead to more positive treatment outcomes or to differential effects on parenting and family functioning, the question is whether involving them has an additive value. Results of this study plead for an adjustment of our overestimation of the role of parents and family in the treatment of child anxiety. Children with clinical anxiety disorders can overcome their anxiety with child-focused CBT, and change their families.

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