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ABSTRACT

The study investigated the role of parental anxiety symptoms in treatment outcomes for children with a primary social anxiety disorder compared to children with other primary anxiety disorders. Participants were 152 children between 7 and 18 years and their parents (146 mothers, 123 fathers). Anxiety was assessed pretreatment, posttreatment, and at three months and one year follow ups. There were no baseline differences in parental anxiety symptoms between the two groups. In both groups parental anxiety symptoms decreased from pretreatment to posttreatment, and only mothers' anxiety symptoms decreased further from posttreatment to the one year follow up. Parental anxiety symptoms before the treatment were not related to the being free of all anxiety diagnoses in the children at posttreatment. However, some indications were found for *greater* improvements during treatment when parents had higher anxiety symptoms before treatment. Changes in parental anxiety symptoms were found to be related to changes in child anxiety symptoms. This was not found for the total clinical severity of all inclusion anxiety disorders. This relation was visible independently in fathers or mothers, or in groups of children with a primary social anxiety disorder or with another primary anxiety disorder. In conclusion, we did not find clear indications that parental anxiety symptoms explain the differences in treatment outcomes for children with a primary social anxiety disorder compared to children with other primary anxiety disorders. More research with larger samples is needed to draw stronger conclusions.

Anxiety disorders are among the most common psychological disorders with debilitating outcomes (Bandelow & Michaelis, 2015). Social anxiety disorder is characterized by an intense fear of situations in which one is exposed to possible scrutiny by others (American Psychiatric Association, 2013). Even though there are effective treatments available for childhood anxiety disorders, social anxiety disorder in children has been associated with worse treatment outcomes compared to other anxiety disorders (Baartmans, Van Steensel, Klein, & Bögels, 2021; Hudson, Keers et al., 2015; Hudson, Rapee, et al., 2015; Waters, Groth, Purkis, & Alston-knox, 2018). A recent review and meta-analysis has shown that children and adolescents are less likely to recover from a primary social anxiety disorder compared to other primary anxiety disorders after a generic Cognitive Behavioral Therapy (CBT; Evans et al., 2021). It has been suggested that targeting the specific processes that maintain social anxiety (e.g. self-focused attention) should be included in the interventions (Evans et al., 2021). Research has shown that individual CBT with attention to the specific factors from the

well-established Clark and Wells model (1995) is promising (Ingul, Aune, & Nordahl, 2014; Leigh & Clark, 2016). Other suggestions that have been made are adding social skills training and the use of video-feedback (Bögels & Mansell, 2004; Waters et al., 2018).

Parental factors are important in the development and maintenance of childhood anxiety (McLeod, Wood, & Weisz, 2007). Several studies have examined whether parental anxiety is related to treatment outcome in childhood anxiety, however, their results have been inconsistent (Rapee, 2012). Some studies have found that the anxiety of parents was not related to treatment outcomes for anxious children or that parental anxiety is not a risk factor for worse treatment effects (Cobham, Dadds, Spence, & McDermott, 2010; Legerstee et al., 2008), while other studies have indicated that CBT was less effective when children had an anxious parent (Bodden et al., 2008; Cobham, Spence, & Dadds, 1998; Creswell, Willetts, Murray, Singhal, & Cooper, 2008; Kendall, Hudson, Gosch, Flannery-Schroeder, & Suveg, 2008). Several studies have compared CBT with a family component (i.e., treatment

protocols in which more parenting sessions or family sessions are included) to child-focused CBT. Thus far meta-analyses and/or reviews have failed to conclusively demonstrate whether family CBT outperforms child CBT (Breinholst, Esbjørn, Reinholdt-Dunne, & Stallard, 2012; Creswell & Cartwright-Hatton, 2007; In-Albon & Schneider, 2007; Rapee, Schniering, & Hudson, 2009; Öst & Ollendick, 2017). However, CBT with a larger family component is thought to be more effective than child-focused CBT when children have an anxious parent (Cobham et al., 1998), although (again) results have been mixed (Bodden et al., 2008). Taboas, McKay, Whiteside, and Storch (2015) have proposed that more attention should be paid to exposure and family behavioral responses in order to obtain better results when involving parents in the treatment, however this suggestion still needs empirical testing. In the meta-analyses of Manassis et al. (2014) it has been found that when parents learned skills to encourage their child to do exposure therapy, this was more effective than child-only CBT. More specifically, the results of this meta-analysis has shown that the way in which parents are involved in the treatment is associated with different treatment outcomes. Parental involvement with an emphasis on contingency management and transfer of control are important for maintaining long-term treatment gains. Finally, Silverman, Kurtines, Jaccard, and Pina (2009) have noted the importance of considering a bidirectional effect between child and parental anxiety during treatment suggesting that not only children's anxiety but also parental anxiety is a changing factor during the children's treatment. Parental anxiety could therefore be seen as a moving target that changes during the child's treatment.

Since children with a primary social anxiety disorder benefit less from a generic CBT-program for childhood anxiety than children with other primary anxiety disorders (Evans et al., 2021), it could be suggested that predictors of treatment effectiveness – like parental anxiety - may differ between the different types of anxiety disorders. These different predictors may also explain the differences in treatment outcomes between social anxiety and other anxiety disorders. For example, while there is considerable evidence for intergenerational effects of anxiety problems (Hettema, Neale, & Kendler, 2001), some studies found indications for more specificity in the intergenerational transmission of social anxiety within families (Hudson & Rapee; 2000; Lawrence, Creswell, Cooper, & Murray, 2020; Telman, van Steensel, Maric, & Bögels, 2018). In addition, behavioral inhibition seems to be especially important for the development of social anxiety disorder. Behavioral inhibition is a temperamental characteristic with a genetic component that is thought to be an important factor in the relation between parental factors and specifically childhood social anxiety. It can be defined as a tendency to show anxiety, distress, fear, avoidance, and or resistance when exposed to unfamiliar situations, persons, and objects (Kagan, Reznick, & Snidman, 1987). Ollendick and Benoit (2012) described a parent-child interaction model about the development of social anxiety in children and adolescents in which behavioral inhibition is a central factor that is strongly related to parental anxiety, parenting practices, parent-child attachment, and the children's social anxiety. It may thus play an important role in the relation between parental anxiety and the development of social anxiety disorder specifically through biased information processing in both the parents and the children. Additionally, there are environmentally related risk factors that come with parental anxiety such as overprotective parenting styles and the transmission of parental overestimation of threat, but there are also a number of parental factors that have been related to parental anxiety which are associated with specifically the development of social anxiety (Bögels & Brechman-Toussaint, 2006). That is, relations have been found between children's social referencing and picking up parents socially anxious signals in social situations (de Rosnay, Cooper, Tsigaras, & Murray, 2006), parents' worries about negative judgment of their children (de Vente, Majdandžić, Colonnesi, & Bögels, 2011), parents showing less challenging behavior in social situations (Majdandžić, Möller, de Vente, Bögels, & van den Boom, 2014), and limited sociability and social skills within the families (Bögels, van Oosten, Muris, &

Smulders, 2001). It might also be that these issues play a role in – and undermine – treatment effects for socially anxious children. However, no studies to date have compared children with and without social anxiety disorders and examined the possible role of parental anxiety as a moderator (or mediator) for treatment outcomes. Thus, although there are some suggestions for a specific link between parental anxiety and children's social anxiety, it is unknown whether the anxiety of the parents plays a different role in treatment for children with and without social anxiety disorder.

Research suggests that it is important to consider both the roles of fathers and mothers when studying parental anxiety in relation to childhood anxiety (Möller et al., 2015). However, relatively few studies so far have included fathers, and it is only in the last decades that studies have begun to compare fathers' and mothers' role in the development of child (social) anxiety (Möller et al., 2015). Studies so far indicate that the relation between expressed parental anxiety and infants' avoidance is comparable for fathers and mothers, and fathers are as important as mothers in the transmission of anxiety via social referencing in toddlerhood (Aktar, Majdandžić, de Vente, & Bögels, 2013, 2014). With respect to the presence of parental anxiety disorders, it has been found that mothers of children with anxiety disorders were more likely to have an anxiety disorder themselves when compared to mothers of children without anxiety disorders (Cooper, Fearn, Willetts, Seabrook, & Parkinson, 2006). In addition, in one other study which included both fathers and mothers, it was found that children with anxiety disorders were more likely to have mothers with current anxiety disorders and fathers with lifetime anxiety disorders than control children (Telman et al., 2018).

The aim of the current study was to investigate whether the relation between parental anxiety symptoms and CBT-outcomes for childhood anxiety differed for children with a primary social anxiety disorder versus children with another primary anxiety disorder. We aimed to not only look at parental anxiety symptoms at pretreatment as a predictor of the children's outcomes, but we also examined the change in parental anxiety during the children's treatment and its relation with treatment outcomes. Our previous study had already shown that the children with a primary social anxiety disorder (but not children with a social anxiety disorder in the profile) differed in their outcomes from children with another primary anxiety disorder (Baartmans et al., 2021). In the current study we tested in which phase of the treatment (from pretreatment to posttreatment or from posttreatment to the one year follow up) children with a primary social anxiety disorder differed in their outcomes compared to the group of children with other primary anxiety disorders. This information was needed to further investigate at what moment parental anxiety could have had an effect on the differences in treatment outcomes for children with and without a primary social anxiety disorder. We aimed to answer the following question: (1) 'Do parental anxiety symptoms change during the children's treatment?' Next, we formulated three main questions to investigate how parental anxiety symptoms were related to child anxiety treatment outcomes: (2a) 'Are parental anxiety symptoms at pretreatment related to how often children are free of their primary anxiety diagnosis and how often children are free from all anxiety diagnoses at posttreatment? And is there a different in effect of parental anxiety for children with a primary social anxiety disorder and children with another primary anxiety disorder?', (2b) 'Are parental anxiety symptoms at pretreatment related to the decrease in children's anxiety disorder severity and anxiety symptoms, and does this explain the differences between the children with a primary social anxiety disorder and children with another primary anxiety disorder?', (2c) 'Is the change in parental anxiety symptoms during the treatment related to the change in childhood anxiety during the treatment, and is this relation different for children with a primary social anxiety disorder versus children with another primary anxiety disorder?'. (See Supplementary Table 1 for an overview of the study). Given the bi-directional relations between child and parental anxiety, we tentatively hypothesized (1) that not only children's anxiety but also

parental anxiety symptoms would change during the child treatment, and (2) that the change in parental anxiety symptoms would be related to change in child anxiety given the intergenerational relations between children's and parents' anxiety. Given the preliminary evidence of the more specific role that parental anxiety could have in childhood social anxiety disorder, we expected (3) that parental anxiety could be a stronger predictor for treatment outcomes in the group of children with a primary social anxiety disorder than for children with another primary anxiety disorder, and might partly explain why children with a primary social anxiety benefit less from treatment.

1. Methods

1.1. Participants

The participants of the current study were originally recruited for two other studies (Bodden et al., 2008; van Steensel & Bögels, 2015) that focused on examining the effectiveness of (the same) CBT-program for childhood anxiety problems. One of the studies investigated the effectiveness of CBT for childhood anxiety for children with an Autism Spectrum Disorder (ASD) in comparison to children without ASD ($n = 88$; van Steensel & Bögels, 2015) and the other study was a Randomized Controlled Trial (RCT) that investigated the effectiveness of child CBT in comparison to family CBT for childhood anxiety ($n = 64$; Bodden et al., 2008). The included data in the current study were from the group without ASD (van Steensel & Bögels, 2015) and from the group that received child CBT (Bodden et al., 2008). Descriptive information about the sample and subsamples is presented in Table 1. In total, both father and mother reported about their own anxiety symptoms in 78.9% ($n = 120$) of the cases. In 17.1% ($n = 26$) of the cases only the mother

reported about her own symptoms and in 2.0% ($n = 3$) of the cases only the father reported about his own anxiety symptoms. In 2.0% ($n = 3$) of the cases none of the parents reported about their own symptoms.

2. Materials

The *Anxiety Disorders Interview Schedule for DSM-IV – Child Version (ADIS-C/P)* was used for clinical diagnostics (Albano & Silverman, 1996). The ADIS-C/P is a structured clinical interview for diagnosing anxiety disorders in children and adolescents. Both children and (at least) one of their parents participated in the interview, which was administered to the child and it's parent(s) separately at each time-point. Composed diagnoses, primary diagnoses, and Clinical Severity Ratings (CSR's; on a scale from 0 to 8) were determined according to the ADIS-C/P-manual. The ADIS-C/P interview resulted in dichotomous scores for the presence/absence of an anxiety disorder. An anxiety disorder was indicated as present when a child met the symptom criteria and a CSR of 4 or higher was given. Total clinical severity ratings for all inclusion anxiety disorders were computed by adding up all CSRs for the anxiety diagnoses at each time point. The ADIS-C/P has satisfactory to good reliability (Silverman, Saavedra, & Pina, 2001; Silverman & Rabian, 1995). The ADIS-C/P and corresponding CSRs had an excellent interrater agreement (Bodden et al., 2008; van Steensel & Bögels, 2015). The ADIS-C/P interviews were conducted in the treatment center by clinically trained researchers who were independent from the clinicians who provided treatment. The interviewers were all research assistants with a degree in pedagogy or developmental psychology. They were trained in conducting the ADIS-C/P-interviews with a two-day training with practice interviews and instruction video tapes from the developers of the original interview.

Table 1
Descriptive information about the complete sample and both of the samples from the original studies. The test statistics show that there were no significant differences between the two subsamples.

Variable	Descriptives Total ($N = 152$)	Subsample ($n = 64$) Bodden et al. (2008)	Subsample ($n = 88$) van Steensel et al. (2015)	Test statistics
Child - age	*Range* = [7, 18], *M* = 12.68, *SD* = 2.81 (7–12 years old: *n* = 74, 48.7%; 13–18 years old: *n* = 78, 51.3%)	*Range* = [8, 17], *M* = 12.67, *SD* = 2.77 (7–12 years old: *n* = 33, 51.6%; 13–18 years old: *n* = 31, 48.4%)	*Range* = [7, 18], *M* = 12.98, *SD* = 2.85 (7–12 years old: *n* = 41, 46.6%; 13–18 years old: *n* = 47, 53.4%)	$t(150) = -.05, p = .963$
Child - gender	58.5% girls ($n = 89$), 41.5% boys ($n = 63$)	62.5% girls ($n = 40$), 37.5% boys ($n = 24$)	55.7% girls ($n = 49$), 44.3% boys ($n = 39$)	$\chi^2(1) = .71, p = .400$
Child - comorbid anxiety diagnoses	*M* = 2.61, *SD* = 1.30	*M* = 2.43, *SD* = 1.67	*M* = 2.72, *SD* = 1.39	$t(150) = -1.36, p = .684$
Child - primary diagnosis	Social anxiety disorder = 34.2% ($n = 52$) Separation anxiety disorder = 19.7% ($n = 30$) Specific phobia = 19.1% ($n = 29$) Generalized anxiety disorder = 17.1% ($n = 26$) Panic disorder and/or agoraphobia = 9.9% ($n = 15$)	Social anxiety disorder = 42.2% ($n = 27$) Separation anxiety disorder = 18.8% ($n = 12$) Specific phobia = 18.8% ($n = 12$) Generalized anxiety disorder = 15.6% ($n = 10$) Panic disorder and/or agoraphobia 4.7% ($n = 3$)	Social anxiety disorder = 28.4% ($n = 25$) Separation anxiety disorder = 20.5% ($n = 18$) Specific phobia = 19.3% ($n = 17$) Generalized anxiety disorder = 18.2% ($n = 16$) Panic disorder and/or agoraphobia = 13.6% ($n = 12$)	$\chi^2(4) = 5.27, p = .261$
Mother - age	*Range* = [31, 52], *M* = 42.27, *SD* = 4.86	*Range* = [32, 51], *M* = 41.86, *SD* = 5.02	*Range* = [31, 52], *M* = 42.58, *SD* = 4.74	$t(144) = -.89, p = .376$
Mother - education level	Primary education = 2.6% ($n = 4$) Secondary education = 28.4% ($n = 43$) Vocational education low level = 19.7% ($n = 30$) Vocational education average level = 23.7% ($n = 36$) Vocational education high level = 19.1% ($n = 29$)	Primary education = 4.7% ($n = 3$) Secondary education = 23.5% ($n = 15$) Vocational education low level = 26.6% ($n = 17$) Vocational education average level = 20.3% ($n = 13$) Vocational education high level = 18.8% ($n = 12$)	Primary education = 1.1% ($n = 1$) Secondary education = 31.8% ($n = 28$) Vocational education low level = 24.8% ($n = 13$) Vocational education average level = 26.1% ($n = 23$) Vocational education high level = 19.3% ($n = 17$)	$\chi^2(4) = 6.62, p = .469$
Father - age	*Range* = [33, 57], *M* = 45.16, *SD* = 4.67	*Range* = [34, 57], *M* = 44.98, *SD* = 4.67	*Range* = [33, 57], *M* = 45.33, *SD* = 4.70	$t(121) = -.41, p = .684$
Father - education level	Primary education = 2.0% ($n = 3$) Secondary education = 19.7% ($n = 30$) Vocational education low level = 17.8% ($n = 27$) Vocational education average level = 21.7% ($n = 33$) Vocational education high level = 19.1% ($n = 29$)	Primary education = 3.1% ($n = 2$) Secondary education = 26.6% ($n = 17$) Vocational education low level = 21.9% ($n = 14$) Vocational education average level = 23.4% ($n = 15$) Vocational education high level = 17.2% ($n = 9$)	Primary education = 1.1% ($n = 1$) Secondary education = 14.8% ($n = 13$) Vocational education low level = 14.8% ($n = 13$) Vocational education average level = 20.5% ($n = 18$) Vocational education high level = 20.6% ($n = 18$)	$\chi^2(4) = 7.32, p = .396$

The self-report and the parent-report version of the *Screen for Child Anxiety Related Emotional Disorders-71 (SCARED-71)* was used to measure anxiety symptoms (Bodden, Bögels, & Muris, 2009). This questionnaire consists of nine different subscales and measures panic disorder symptoms, generalized anxiety symptoms, social anxiety symptoms, separation anxiety symptoms, obsessive-compulsive symptoms, posttraumatic stress symptoms, animal phobia symptoms, blood-injection-injury phobia symptoms, and situational-environmental phobia symptoms. For each of the 71 statements participants (children, mothers and fathers) indicated on a 3-point scale ranging from 0 (never) to 2 (often) how much the statement applied to the child. The SCARED-71 has good psychometric properties (Bodden et al., 2009). The internal consistencies for the child version, mother version, and father version of the total scale of the SCARED-71 in our sample across time-points were excellent (α = 0.93 - 0.94). The total scores on these questionnaires were included in the analyses.

Mothers and fathers reported on their own anxiety symptoms on the *Screen for Child Anxiety Related Emotional Disorders-Adult (SCARED-A;* van Steensel & Bögels, 2014). The SCARED-A also consist of nine subscales and uses a 3-point scale ranging from 0 (never) to 2 (often), which is comparable to the SCARED-71. The internal consistencies for the SCARED-A across time points was excellent (α = 0.92 - 0.95). The total scores on this questionnaire of the mothers and fathers were included in the analyses. Among mothers, 30.2% (N = 46) scored above the clinical cut-off on the SCARED-A and 23.0% (N = 35) of fathers had a clinical score on the SCARED-A at pretreatment. At pretreatment 47.4% (N = 72) of the children had at least one anxious parent with a clinical score and 5.9% (N = 9) of the children had two parents with a score above the clinical cut-off.

2.1. Procedure

All participants were recruited through the participating treatment centers. Ethical approval for the studies was provided by the ethical committee of two universities (Maastricht University and University of Amsterdam; Bodden et al., 2008; van Steensel & Bögels, 2015). The inclusion criteria were that children were aged between 7 and 18 years, were diagnosed with a primary anxiety disorder in both original studies, and had at least an IQ of 70 in the van Steensel and Bögels (2015) study or an IQ above 80 in the Bodden et al. (2008) study. The IQ inclusion was determined based on the clinicians' clinical judgement during the intake procedure. Exclusion criteria were an autism spectrum disorder, untreated attention deficit hyperactivity disorder, recent suicide attempts, physical or sexual abuse, and psychotic episodes. Also, children, mothers, and fathers were asked to complete the questionnaires at all time points. All participants received a gift voucher of 25 euros after participating in the study.

2.2. Intervention

The CBT-program 'Discussing + Doing = Daring' (DDD; Bögels, 2008) consists of twelve sessions focusing on psycho-education, challenging thoughts, helping behavior, exposure, behavioral experiments, talking about anxiety, and relapse prevention. All participants received the same treatment and the same workbook was used across treatment groups. Following the treatment protocol, parents were (partly) present in six sessions; the first therapy session was a combined session for the parent and the child, in the fourth and twelfth session parents were present half of the session together with the child, and there were three parent sessions. The main goal of the parents' presence in the session was to inform the parent about the treatment of the child. Furthermore, parents received information on parental influence on children's anxiety, guiding the child with exposure, promote the autonomy of the child, talking about anxiety with the child, and on working together as parents when supporting the child during the anxiety treatment. Following the classification of Manassis et al. (2014) for parental involvement we can

conclude that parental involvement in treatment was limited (i.e., <50% of the treatment time) but emphasis on contingency management – but not on transfer of control – was present. All treatment sessions were audiotaped and at least one of the treatment sessions was coded. As a measure for treatment integrity, objective raters rated the extent to which the goals of the sessions were achieved. Treatment integrity was found to be good (for more details, see Bodden et al., 2008 and van Steensel & Bögels, 2015).

2.3. Data-analyses

Data was prepared by dividing all participants into two groups: children diagnosed with a primary social anxiety disorder (Soc, n = 52) and children with other primary anxiety disorders (Other, n = 100). See Supplementary Table 1 for an overview of the research questions and operationalization. First of all, to test whether and in which phase (from pretreatment to posttreatment or from posttreatment to one year follow up) children in the Soc and Other-group differed in their outcomes, we conducted two linear mixed model analyses with random intercepts with the total clinical anxiety severity (CSR total) in the first model and total anxiety symptoms (SCARED-71 total) in the second model as outcome measures. In both models we included the children's age as a covariate and we used time (i.e., four time points; pre- and posttreatment and two follow up's) as a predictor. In addition, we included an extra slope for the pretreatment to post-treatment to correct for steeper changes from pretreatment to posttreatment. In the model predicting the change in total anxiety symptoms we included the reports by the child, mother and father on the SCARED-71 in one level in the linear mixed model. Finally, we included group (Soc/Other) as a predictor in both models and added this predictor in interaction with time, and with the slope for pretreatment to posttreatment.

To answer the first research question, whether parental anxiety symptoms changed from pretreatment to posttreatment or from posttreatment to one year follow up and whether this change was different for parents of children in the Soc-group versus in the Other-group, we again conducted two linear mixed models with random intercepts. In the first model mothers' total anxiety symptoms (SCARED-A mother) was used as the outcome measure and in the second model fathers' total anxiety symptoms (SCARED-A father) was used as the outcome measure. Time, with an extra slope for pretreatment to posttreatment, and group (child in the Soc-group or child in the Other-group) were included as predictors.

To answer the second question, how parental anxiety symptoms were related to treatment outcomes and whether parental anxiety symptoms could explain differences in treatment outcomes between the Soc-group and the Other-group, we conducted three groups of analyses. (a) In the first set of analyses, we conducted logistic regression analyses to test whether parental anxiety symptoms predicted how often children were free of their primary anxiety diagnosis (Primary Diagnosis) and all anxiety diagnoses (All Diagnoses). That is, we tested if children were free of all their anxiety disorder diagnoses. We followed a step-wise approach comparable to Majdandžić, de Vente, Colonnesi, and Bögels (2018) to test both the separate and combined effects of mothers' and fathers' anxiety on the outcomes. Predictors of the dichotomous outcome 'free of Primary Diagnosis' were group (Soc/Other) and SCARED-A Mother and SCARED-A Father at pretreatment. In the second step, a relative effects model was tested where both SCARED-A Mother and SCARED-A Father at pretreatment were included simultaneously as predictors. In the third step, we included group (Soc/Other), a dichotomous variable for having a clinically anxious parent (Clinically Anxious Parent; Yes/No; determined by a score on the SCARED-A above the clinical cut-off), and the interaction between these variables as predictors in the model to further explore the combined effect of parental anxiety on being free of anxiety diagnoses in the children. This step-wise approach was repeated for being free of All Diagnoses at posttreatment. (B) In the second set of analyses, we tested whether SCARED-A Mother

and SCARED-A Father at pretreatment were predictors of the treatment effect by using children's total clinical anxiety severity (CSR total) and total anxiety symptoms (SCARED-71 total) as measures of effect. Using a similar step-wise approach as before, we conducted linear mixed model analyses with children's age, time, a pretreatment to posttreatment slope, group, parents' anxiety symptoms, and interactions between time, group and parents' anxiety symptoms as predictors. (C) In the third set of analyses, we tested how the change in maternal anxiety symptoms (SCARED-A Mother) and paternal anxiety symptoms (SCARED-A Father) were related to changes in child anxiety (CSR total and SCARED-71 total). The random slopes (from linear mixed models) of children's change in anxiety were extracted and compared to the change in parental anxiety symptoms between the pretreatment and posttreatment measure. The mothers' and fathers' anxiety symptoms score were combined into the parental anxiety symptoms score by including them in one level (Informant) as an aggregated score in the mixed linear model. In linear models we tested if the relation between the change in parental anxiety symptoms and the change in children's anxiety was significant. In a following linear model, we added Informant as a predictor to test whether the relation between the change parental anxiety symptoms and child anxiety was different for fathers and mothers. Finally, we added Group (Soc/Other) as a predictor to the model to test whether the relation between change in parental anxiety symptoms and change in child anxiety was different for children in the Soc-group compared to children in the Other-group.

3. Results

3.1. Baseline analyses

All outcome measures at baseline had acceptable to good levels of skewness (between -2 and $+2$) and kurtosis (<3). There was one outlier on the pretreatment measure of mothers' own anxiety symptoms on the SCARED-A. Since this outlier did not have an effect on the results, we decided to leave it in. Information on the amount of data for each outcome measure at all time points is presented in Table 2. The Little MCAR test revealed that the missing data was at random, $\chi^2(661) = 671.33$, $p = .382$.

See Table 2 for the descriptive statistics of the anxiety measures of the children, mothers and fathers at all timepoints. No significant differences at baseline were found in SCARED-A Mother in the Soc- ($M = 0.40$, $SD = 0.24$) versus the Other-group ($M = 0.38$, $SD = 0.24$), $t(139) = -0.48$, $p = .631$, nor in SCARED-A Father in the Soc- ($M = 0.22$, $SD = 0.17$) versus the Other-group ($M = 0.26$, $SD = 0.19$), $t(119) = 1.12$, $p = .406$. SCARED-A Mother-scores ($M = 0.39$, $SD = 0.24$) were significantly higher at baseline than SCARED-A father ($M = 0.24$, $SD = 0.17$), $t(116) = 5.15$, $p < .001$.

3.2. Preliminary analyses

The results of the first linear mixed model CSR total over time showed a significant reduction during pretreatment to posttreatment

and a continued (but less steep) reduction during posttreatment to one year follow up (see Table 3). Children in the Soc-group decreased significantly less from pretreatment to posttreatment in CSR total (significant interaction between pretreatment to posttreatment and Group) than children in the Other-group, but no significant differences in slopes were found from posttreatment to one year follow up (no significant interaction between the total time slope and Group). The results of the linear mixed model predicting SCARED-71 total also showed that there was a significant decrease of children's anxiety symptoms from pretreatment to posttreatment, and a small further decrease of symptoms from posttreatment to one year follow up. Again, children in the Soc-group decreased less from pretreatment to posttreatment, but not from posttreatment to one year follow up, than children in the Other-group.[1]

3.3. Question 1: Changes in parental anxiety symptoms

The results of the mixed linear model predicting SCARED-A Mother revealed that SCARED-A Mother significantly decreased during their children's treatment from pretreatment to posttreatment and continued to decrease from posttreatment to one year follow up (post - one year follow up; see Table 4 and Fig. 1). Mothers of children in the Soc-group and mothers of children in the Other-group did not differ in their pattern of decrease. SCARED-A Father also significantly decreased from pretreatment to posttreatment but did not change from posttreatment to one year follow up. Also, fathers of children in the Soc-versus the Other-group did not differ in their pattern of decrease (see Fig. 1).

3.4. Question 2: Relation between parental anxiety symptoms and (differences in) treatment effectiveness

3.4.1. Subquestion 2.1: Predicting (differences in) children free of diagnoses by parental anxiety symptoms

The results of the logistic regression analysis predicting how often children were free of Primary Diagnosis at posttreatment revealed that Group (Soc/Other) was the only significant predictor. Thus, Children in the Soc-group were less often free of their primary anxiety disorder at posttreatment than children in the Other-Group. SCARED-A Mother, SCARED-A Father, and Clinically Anxious Parent at pretreatment did not significantly predict children's being free of the Primary Diagnosis at posttreatment. In line, results of the second logistic regression analysis revealed that SCARED-A Mother, SCARED-A Father, and Clinically Anxious Parent did not significantly predict how often children were free of All Diagnoses at posttreatment. The effect of Group was only a significant predictor when no other predictors were included, demonstrating that children in the Soc-group were less often free of All diagnoses at posttreatment than children in the Other-group. However, this group difference was not significant when parental anxiety symptoms were included in the model (Table 5).

3.4.2. Subquestion 2.2: Predicting (differences in) change in anxiety by parental anxiety symptoms

The analyses in which the change in CSR Total from pretreatment to

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[1] The same analyses were conducted for the group of children with a social anxiety disorder anywhere in the diagnostic profile compared to the group of children without a social anxiety disorder. The descriptive statistics and the results of the linear mixed models are presented in Supplementary Tables 2 and 3 In summary (and in agreement with our previous study; Baartmans et al., 2021), results showed that children with a social anxiety disorder anywhere in their diagnostic profile have more severe anxiety before the treatment. However, they also decrease more in anxiety during the treatment. Based on the previous and current results, we decided that with the aim to explain why children with a social anxiety disorder benefit less from treatment, further analyses should be focused on children who did or did not have a social anxiety disorder as their primary diagnosis.

Table 2
Descriptive statistics for the anxiety measures before and after the treatment.

			Pretreatment			Post-treatment			Three month follow up			One year follow up		
			M	SD	n	M	SD	n	M	SD	n	M	SD	n
CSR		Soc	13.79	6.3	52	5.8	6.1	52	4.75	5.74	45	3.05	4.86	43
		Other	13.81	8.43	100	3.51	5.48	100	2.71	4.31	85	1.46	3.58	71
SCARED-71	C	Soc	47.08	20.45	52	32.59	18.49	46	26.25	17.77	44	25.62	18.62	42
		Other	51.75	22.99	93	31.1	17.58	86	29.31	20.3	82	26.77	19.33	68
	M	Soc	46.62	17.82	52	33.47	18.84	47	26.1	12.97	40	25.2	12.92	40
		Other	50.26	22.2	92	30.59	16.41	83	26.53	16.89	78	23.58	14.39	64
	F	Soc	38.09	15.68	43	24.71	10.23	41	22.29	13.36	34	22.85	14.31	33
		Other	45.95	20.28	77	27.13	13.37	70	23.14	16.00	64	26.37	17.4	54
SCARED-A	M	Soc	28.59	17.22	51	24.15	16.43	46	20.63	11.69	38	17.71	14.16	24
		Other	27.13	17.24	90	21.19	13.93	79	19.81	14.32	74	21.00	15.63	43
	F	Soc	15.91	12.13	43	12.37	8.58	38	13.69	10.93	29	15.44	10.89	18
		Other	18.63	13.21	78	12.65	10.42	68	11.48	10.62	59	13.94	10.49	33

Note. C = child report, M = mother report, F = father report, CSR = child's severity of all anxiety disorders, SCARED-71 = total child anxiety symptoms, SCARED-A = total anxiety symptoms in the parents, Soc = group of children with a primary social anxiety disorder, Other = group of children with a primary other anxiety disorder.

Table 3
Parameter estimates of the mixed linear models predicting total anxiety severity and total anxiety symptoms.

	CSR Total		SCARED-71 Total	
	B	SE	B	SE
Intercept	−0.60*	0.23	0.00	0.27
Age	0.04*	0.02	0.01	0.02
Group	0.32*	0.16	−0.02	0.20
Time-total	−0.12**	0.03	−0.12**	0.03
Time-prepost	−1.23**	0.06	−0.83**	0.08
Time-total*Group	−0.03	0.04	0.00	0.05
Time-prepost*Group	0.35**	0.11	0.26*	0.13

Note. *p < .05, **p < .001.
CSR Total = child's clinical severity of all inclusion anxiety disorders, SCARED-71 Total = total child anxiety symptoms, Group = group of children with a primary social anxiety disorder or group of children with another primary anxiety disorder, Time-total = posttreatment to one year follow up, Time-prepost = pretreatment to posttreatment.

Table 4
Parameter estimates of the mixed linear models predicting total anxiety symptoms in mothers and fathers.

	SCARED-A Mother		SCARED-A Father	
	B	SE	B	SE
Intercept	0.15	0.12	0.18**	0.02
Time-total	−0.11**	0.02	0.00	0.00
Time-prepost	−0.26**	0.05	−0.08**	0.01
Group	0.25	0.19	−0.01	0.03
Time-total*Group	−0.06	0.04	−0.00	0.01
Time-prepost*Group	0.13	0.08	0.03^	0.02

Note. ^ p < .10 * p < .05, **p < .001.
SCARED-A Mother = total mothers' anxiety symptoms, SCARED-A Father = total fathers' anxiety symptom, Group = group of children with a primary social anxiety disorder or group of children with another primary anxiety disorder, Time-total = posttreatment to one year follow up, Time-prepost = pretreatment to posttreatment.

posttreatment was predicted by parental anxiety symptoms showed that SCARED-A Mother, SCARED-A Father, and Clinically Anxious Parent predicted the decrease of anxiety from pretreatment to posttreatment. That is, when the anxiety of the parents at pretreatment was higher, children improved *more* from pretreatment to posttreatment. However, these effects did not differ significantly between children in the Soc- and Other-group (Table 6).

The analyses in which the change in SCARED-71 Total from pretreatment to posttreatment was predicted by parental anxiety symptoms (SCARED-A Mother, SCARED-A Father, Clinically Anxious Parent)

yielded somewhat different results. The first linear mixed model predicting the change in SCARED-71 Total from pretreatment to posttreatment revealed that higher SCARED-A Mother at pretreatment was significantly related to higher SCARED-71 Total (i.e., main effect of mother's own anxiety symptoms), but not to the decrease of SCARED-71 Total (i.e., non-significant interaction between SCARED-A Mother and Time). The second model showed that higher SCARED-A Father at pretreatment was significantly related to higher SCARED-71 Total (i.e., main effect of SCARED-A Father) and the interaction between SCARED-A Father and Time was also significant. The significant negative interaction between SCARED-A Father and Time indicates that higher levels of SCARED-A Father at pretreatment was related to a stronger decrease in SCARED-71 Total from pretreatment to posttreatment. Furthermore, the significant interaction between Group and SCARED-A Father showed that the relation between SCARED-A Father and the decrease in SCARED-71 Total differed significantly between children in the Soc- and Other-group. Additional analyses revealed that only in the Other-group, SCARED-A Father predicted a steeper decline. In the Soc-group, no relation between SCARED-A Father and SCARED-71 Total was found. Also, no relation between the decrease in SCARED-A Father and SCARED-71 Total was found. The third model predicting the change in SCARED-71 Total showed that having a Clinically Anxious Parent at pretreatment was related to a significantly stronger decrease in SCARED-71 Total from pretreatment to posttreatment. The significant interaction between having a Clinically Anxious Parent and Group and the additional analyses revealed that the effect of having a Clinically Anxious Parent at pretreatment on the decrease in SCARED-71 Total was only significant for children in the Other-group and not for children in the Soc-group (Table 6).

3.4.3. Subquestion 2.3: Relation between change in parental anxiety symptoms and change in child anxiety

The first linear model revealed that there was no significant relation between the change in SCARED-A (combined Mother and Father) and change in CSR Total from pretreatment to posttreatment (see Table 7 and Fig. 2). The second linear model showed that there was no difference between fathers and mothers (in the table indicated as 'Informant') in the relation between change in SCARED-A and change in CSR Total. The final linear model predicting children's change in CSR Total from pretreatment to posttreatment showed that there was no difference between children in the Soc-group and children in the Other-group in the relation between change in SCARED-A and change in CSR Total.

The second group of linear models predicting change in SCARED-71 Total showed a positive relation between change in SCARED-A (combined Father and Mother) and change in SCARED-71 Total. The second model revealed that the relation between change SCARED-71 Total and change in SCARED-A was not different for fathers and mothers. Finally,
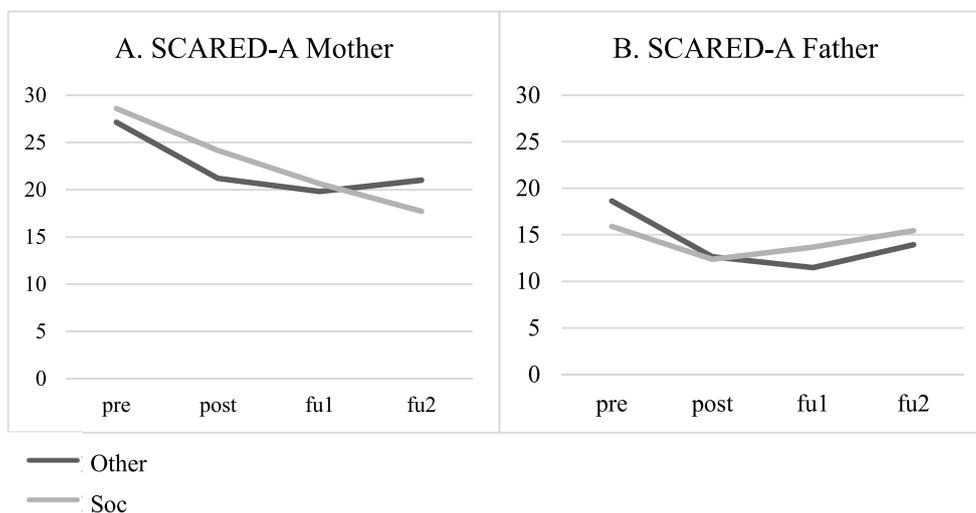
Fig. 1. Illustration of the change in total anxiety symptoms in mothers (A) and fathers (B).
Note. SCARED-A Mother = mothers' total anxiety symptoms, SCARED-A Father = fathers' total anxiety symptoms.

Table 5
Parameter estimates of the logistic regression analyses concerning the effects on being free of the primary anxiety diagnosis and being free of all anxiety diagnoses before and after the treatment.

Outcome	Predictors	Group	Direct model		Relative model	Combined model
			Mother	Father		
		OR [95% CI]	OR [95% CI]	OR [95% CI]	OR [95% CI]	OR [95% CI]
Free of primary diagnosis - posttreatment	Group	4.16** [1.94, 8.95]	3.91^ [0.93, 16.45]	4.33* [1.12, 16.84]	5.56 [0.71, 43.63]	3.89* [1.17, 12.85]
	Clin-Anx P					0.95 [0.35, 2.61]
	Anx M		2.57 [0.37, 17.79]		3.71 [0.42, 32.18]	
	Anx F			0.59 [0.03, 10.51]	1.08 [0.05, 24.9]	
	Anx M * Group		0.83 [0.04, 17.34]		0.54 [0.02, 15.11]	
	Anx F * Group			0.26 [0.00, 28.27]	0.17 [0.00, 22.66]	
	Clin-Anx P * Group					0.78 [0.16, 3.78]
Free of all diagnoses - posttreatment	Group	0.43* [0.22, 0.87]	0.27^ [0.07, 1.07]	0.83 [0.23, 3.03]	0.60 [0.08, 4.31]	0.43 [0.13, 1.38]
	Clin-Anx P					0.97 [0.41, 2.29]
	Anx M		0.15 [0.02, 0.97]		0.23 [0.03, 1.89]	
	Anx F			2.79 [0.23, 33.18]	1.42 [0.09, 21.82]	
	Anx M * Group		5.13 [0.24, 108.31]		2.43 [0.09, 69.52]	
	Anx F * Group			0.10 [0.00, 10.01]	0.17 [0.00, 20.19]	
	Clin-Anx P * Group					0.68 [0.30, 6.39]

Note. ^$p < .01$, *$p < .05$, **$p < .001$. Group = group of children with a primary social anxiety disorder or group of children with another primary anxiety disorder, Clin-Anx P = having a clinically anxious parent, Anx M = mothers' total anxiety symptoms on the SCARED-A, Anx F = fathers' total anxiety symptoms on the SCARED-A.

the third model showed that the relation between change in SCARED-71 Total and change in SCARED-A was not different in the Soc-group and Other-group.

4. Discussion

The overall goal of the study was to investigate how parental anxiety symptoms are related to treatment outcomes for childhood anxiety and to differences in these outcomes for children with a primary social anxiety disorder compared to children with another primary anxiety disorder. Before answering the first research question, we tested if children with a primary social anxiety disorder differed in their treatment outcomes compared to children with another primary anxiety disorder from pretreatment to posttreatment and/or from posttreatment to the one year follow up. It was found that children in both groups decreased in their total anxiety severity scores and total anxiety symptoms from pretreatment to posttreatment, which continued up until the one year follow up. However, from pretreatment to posttreatment children with a primary social anxiety disorder decreased less in their anxiety scores than children with another primary anxiety disorder.

After the treatment, children decreased equally in their anxiety scores from posttreatment to one year follow up (but note that as children with a primary social anxiety disorder had decreased less from pretreatment to posttreatment, the initial difference in effect that was found at posttreatment remained to one year follow up). Thus, the difference in treatment effectiveness between the two groups of anxious children emerged during the treatment and children with social anxiety disorder did not catch up afterwards. Also note, that these results (indicating less treatment effect for children with social anxiety disorders) were found specifically for children with a primary social anxiety disorder, and not for children with a social anxiety disorder in the profile. Therefore, we focused further analyses on the role of parental anxiety from pretreatment to posttreatment, and we compared the role of parental anxiety on treatment outcomes between the group of children with a primary social anxiety disorder and the group of children with other primary anxiety disorders.

The finding in the current study that children with a primary social anxiety disorder improved less suggests that a generic CBT intervention has less impact on children with a primary social anxiety disorder than on children with other types of primary anxiety disorders. These results

Table 6

Parameter estimates of the models concerning the effects on total anxiety severity and total anxiety symptoms in the children. Additional analyses are included when the interaction terms with the groups were significant by rerunning the models separately for the two groups.

Predictors	Anx M	Anx F	Other	Soc	Clin-Anx P		
		Total			Total	Other	Soc
	B (SE)	B (SE)			B (SE)		
CSR Total							
Intercept	1.83** (0.29)	1.64** (0.31)			1.71** (0.31)		
Age	0.04 (0.02)	0.04^ (0.02)			0.05* (0.02)		
Time	−1.30** (0.05)	−1.23** (0.05)			−0.32** (0.06)		
Group	−0.30 (0.18)	−0.07 (0.19)			−0.34^ (0.20)		
Time * Group	0.25* (0.08)	0.13 (0.09)			0.23* (0.09)		
Anx P	0.35** (0.11)	0.54** (0.11)			0.29* (0.11)		
Anx P * Time	−0.10* (0.05)	−0.27** (0.05)			−0.13* (0.06)		
Anx P * Group	−0.10 (0.18)	−0.28 (0.19)			0.17 (0.20)		
Anx P * Time * Group	0.01 (0.08)	0.12 (0.09)			−0.11 (0.09)		
SCARED-71 Total							
Intercept	1.57** (0.28)	1.64** (0.28)	1.56** (0.36)	1.37* (0.48)	0.92** (0.08)	1.42** (0.33)	1.32* (0.48)
Age	0.02 (0.02)	0.00 (0.02)	0.01 (0.03)	−0.01 (0.03)	0.01 (0.01)	0.03 (0.03)	−0.01 (0.03)
Time	−0.95** (0.07)	−0.93** (0.07)	−0.93** (0.06)	−0.71** (0.09)	−0.28** (0.02)	−0.96** (0.07)	−0.70** (0.09)
Group	−0.60* (0.20)	−0.48* (0.21)			−0.18* (0.06)		
Time * Group	0.27* (0.11)	0.22* (0.11)			0.08* (0.03)		
Anx P	0.37* (0.12)	0.66** (0.12)	0.66** (0.12)	−0.02 (0.17)	0.16** (0.03)	0.55** (0.12)	−0.09 (0.16)
Anx P * Time	−0.08 (0.07)	−0.29** (0.07)	−0.29** (0.07)	−0.05 (0.09)	−0.04* (0.02)	−0.16* (0.07)	0.01 (0.09)
Anx P * Group	−0.36^ (0.20)	−0.68** (0.21)			−0.18* (0.06)		
Anx P * Time * Group	0.14 (0.11)	0.24* (0.12)			0.05 (0.03)		

Note. ^ $p < .01$, *$p < .05$, **$p < .001$. Group = group of children with a primary social anxiety disorder or group of children with another primary anxiety disorder, SCARED-A Mother = mothers' total anxiety symptoms, SCARED-A Father = fathers' total anxiety symptoms, CSR Total = total clinical severity of the inclusion anxiety disorders in the child, SCARED-71 Total = total anxiety symptoms in the child.
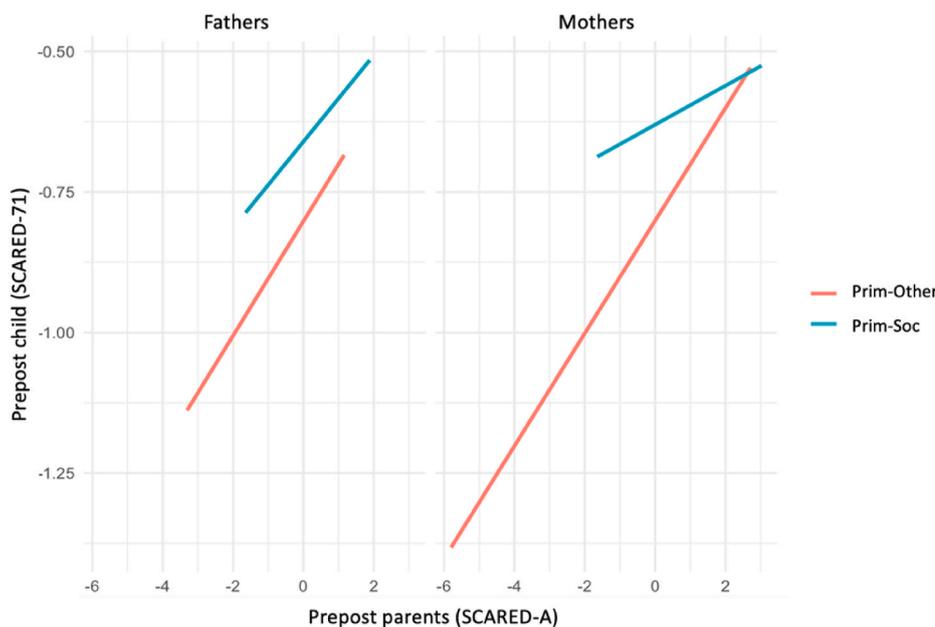

Fig. 2. Illustration of the relation between the change in total child anxiety symptoms and change in parental anxiety symptoms from pretreatment to posttreatment in the two groups.
Note. SCARED-71 Total = total anxiety symptoms in the child, SCARED-A = total anxiety symptoms in the mothers and fathers combined in a level of the mixed linear model, Prim-Soc = group of children with a primary social anxiety disorder, Prim-Other = group of children with a primary other anxiety disorder.

are in line with other studies that also found that children with a social anxiety disorder had worse outcomes directly after the treatment than children with other anxiety diagnoses (Hudson, Keers, et al., 2015; Hudson, Rapee, et al., 2015; Waters et al., 2018). Studies found that from posttreatment to follow up the treatment gains were maintained or even that children continued to improve after the initial response to the treatment (Ginsburg et al., 2014; Kendall, Safford, Flannery-Schroeder, & Webb, 2004; Saavedra, Silverman, Morgan-Lopez, & Kurtines, 2010). The finding of the current study that improvements from posttreatment to one year follow up are similar for children with and without social anxiety disorder is important as it suggests that similar treatment gains are maintained over time. This suggests that attempts to improve treatment outcomes for children with social anxiety disorders should

mostly focus on the treatment period and not necessarily in a follow up period.

Considering parental anxiety symptoms, we found that mothers' anxiety symptoms decreased significantly (small effect) from pretreatment to posttreatment and from posttreatment to the one year follow up, while fathers' anxiety symptoms also significantly decreased (small effect) during the treatment, but one year after the start of their child's treatment the level of fathers' anxiety symptoms was comparable to their initial levels. The change in parents' anxiety symptoms from pretreatment to posttreatment can possibly be explained by the bidirectionality between parents' and their children's anxiety. For example, parental anxiety symptoms can decrease because their child's anxiety decreases and as a consequence parents experience less parental

Table 7
Parameter estimates of the models concerning the effects of change in parental anxiety symptoms from pretreatment to posttreatment on change in child total anxiety severity and total anxiety symptoms.

Predictors	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)
CSR Total			
Intercept	−1.03** (0.06)	−1.04** (0.09)	−1.12** (0.07)
Change Anx P	0.09 (0.06)	0.21^ (0.11)	0.06 (0.07)
Informant		0.01 (0.11)	
Change Anx P * Informant		−0.17 (0.13)	
Group			0.22^ (0.12)
Change Anx P * Group			0.09 (0.13)
SCARED-71 Total			
Intercept	−0.74** (0.03)	−0.75** (0.04)	−0.80** (0.03)
Change Anx P	0.09* (0.03)	0.10* (0.05)	0.10* (0.03)
Informant		0.01 (0.06)	
Change Anx P * Informant		−0.02 (0.06)	
Group			0.16* (0.06)
Change Anx P * Group			−0.05 (0.06)

Note. $^\wedge p < .01$, $*p < .05$, $**p < .001$. CSR Total = child total clinical severity of all inclusion anxiety disorders, SCARED-71 Total = child total anxiety symptoms, Anx P = total anxiety symptoms in the parents, Group = group of children with a primary social anxiety disorder or group of children with another primary anxiety disorder, Informant = anxiety symptoms in the fathers or mothers. Model 1 is the model to test whether parental change in anxiety is related to change in child anxiety, model 2 the model to test if the effect of fathers' and mothers' anxiety symptoms differed, and model 3 the model to test if the effect of parental anxiety differed between the group of children with a primary social anxiety disorder and the group of children with another primary anxiety disorder.

stress and psychopathology (Costa, Weems, Pellerin, & Dalton, 2006; Telman, van Steensel, Maric, & Bögels, 2017). Moreover, parents could have benefitted from the CBT-techniques provided to the child and could have applied these techniques to their own anxiety, resulting in a decrease of their own symptoms. Future research could measure if parents consciously apply these techniques on their own anxiety, and whether this is related to their decrease in anxiety. The finding that mothers improve further on their anxiety levels from posttreatment to one year follow up, while fathers regress towards their baseline scores over time is interesting and warrants further investigation. Important to note here is that on average fathers' anxiety scores on the questionnaire (SCARED-A) were lower than those of mothers, and that therefore mothers may have had more room for improvement.

The most important goal of our study was to test how parental anxiety was related to the treatment effectiveness of CBT for childhood anxiety. Specifically, we were interested in whether parental anxiety symptoms could explain differences in treatment effectiveness between children with a primary social anxiety disorder and children with a primary other anxiety disorder. First, we tested how parental anxiety symptoms were related to being free of the primary anxiety diagnosis and also to all anxiety diagnoses at posttreatment. We found that immediately after treatment (at post-assessment) parental anxiety did not predict how often children were free of their primary anxiety diagnosis and how often children were free from all of their anxiety diagnoses. Thus, we found no clear evidence for the level of parental anxiety symptoms explaining differences in treatment effectiveness for children with a primary social anxiety disorder versus children with other primary anxiety disorders. It was remarkable, however, that the statistically significant difference between the group with a primary social anxiety disorder compared to the group with another anxiety disorder disappeared when parental anxiety was included in the model. Thus, parental anxiety does seem to explain some part of the variance in the analyses, but not enough to become statistically significant. Perhaps the study did not have enough power to detect a significant relation, and/or the relation between parental anxiety and treatment effectiveness is rather small. Therefore, more research is needed with larger

samples to gain a better understanding of how parental anxiety might be related to the treatment outcomes, and if it is a stronger predictor than having a social anxiety disorder as a primary diagnosis. The statistically non-significant relation between parental anxiety symptoms at baseline and the presence/absence of anxiety diagnoses immediately after treatment (post-assessment) was in line with other studies that found no relation between parental anxiety and the presence or absence of diagnoses after treatment (Dadds, Spence, Holland, Barrett, & Laurens, 1997, 1999), but is also in contrast with other studies that did find a relation between parental anxiety at pretreatment and being free of child anxiety diagnoses after treatment (Bodden et al., 2008). This last study included parental anxiety disorder diagnoses determined by a clinical interview, which could possibly explain the difference in findings with our study that used a questionnaire to measure parental anxiety symptoms. Nevertheless, results across studies have been mixed and more research including larger samples and using multiple measurements for parental anxiety is needed.

Second, results showed that when parents had higher levels of anxiety symptoms before treatment, children decreased *more* in their total anxiety disorder severity during treatment, irrespective of type of anxiety disorder. When fathers had higher anxiety symptoms or children had at least one clinically anxious parent, children with a primary anxiety disorder diagnosis other than a social anxiety disorder decreased more during treatment than children with a less anxious father or without a clinically anxious parent. A possible explanation for this finding could be that parents with high levels of anxiety can better empathize with the anxiety of their child and could therefore be more helpful in the treatment. As it is known that parental psychopathology and parental distress are related to the amount of anxiety parent's report in their children, it might also be that (clinically) anxious parents (fathers) report higher anxiety scores at pretreatment (De Los Reyes & Kazdin, 2005; Krain & Kendall, 2000). In addition, as we saw that children's as well as parents' anxiety scores decreased from pretreatment to posttreatment, this finding might reflect that the children who had higher baseline scores (perhaps partly due to a reporting bias from parents with own psychopathology) also had more room to improve.

Finally, we found that the decrease in parental anxiety symptoms was related to the decrease in children's anxiety symptoms (but not to the children's anxiety disorder severity) during treatment. This relation was not different for children with social anxiety disorder from children with another anxiety disorder. The positive relation between parents' and children's decrease in anxiety could possibly (partly) be explained by the measures that were used. That is, parental anxiety symptoms were reported on a scale that was highly comparable to that of the children's anxiety symptoms (which were reported by the mothers, fathers, and children) and children's anxiety disorder severity was determined by an evaluation score by a clinician (based on the rating by the parents and children in a clinical interview). However, the finding also further strengthens the evidence of bi-directionality between children's and parents' anxiety (Silverman et al., 2009).

Strengths of the current study were the inclusion of both fathers' and mothers' anxiety in the analyses and the inclusion of both parents' pretreatment anxiety levels, as well as studying the change in parental anxiety during the children's treatment. Furthermore, to our best knowledge this is the first study that investigates parental anxiety as a factor to explain the worse treatment outcomes in children with a social anxiety disorder compared to children with other anxiety disorders. The current study also had several limitations. First, the sample was relatively small for studying effects on the outcome measures by multiple predictors. Given our sample size, it was difficult to detect significant differences when effects sizes are small to medium. Future studies should include larger sample sizes. Furthermore, it is suggested that addressing the parental anxiety symptoms specifically (in for instance family CBT) could be important in preventing negative outcomes after child CBT (Creswell & Cartwright-Hatton, 2007). Unfortunately, we did not collect information about whether parents received treatment

themselves for their anxiety before, during, or after their children's treatment. In addition, we did not look specifically at the role of parental anxiety as a disorder. That is, we used a cut-off on a questionnaire (SCARED-A) as a proxy for clinical anxiety in parents which does not capture the possible impairment for daily functioning that is needed for a diagnosis. In addition, no cut-offs for the SCARED-A subscale for social anxiety exists, and thus we did not examine the role of parental social anxiety specifically. Previous research suggested that social anxiety specifically runs in families (Hudson & Rapee, 2000; Telman et al., 2018) and perhaps specifically socially anxious fathers may not be able to fulfill their role of challenging the child, not overprotecting, and preparing them for the external world (Möller, Majdandžić, & Bögels, 2015). Therefore, future studies may want to address treatment for parents and assess social anxiety disorder in parents to study the relation between parental (social) anxiety disorder and treatment effectiveness of CBT for childhood social anxiety disorder. Furthermore, it should be noted that the decrease in parental anxiety during the treatment and the relation between parental anxiety and children's treatment outcomes were small. Future studies with larger samples and a control group (i.e., parents of children with clinical levels of anxiety who are not receiving treatment) are important to draw stronger conclusions on the change in parental anxiety during children's treatment and its effect on the children's treatment. In addition, our sample was not large enough to differentiate in age groups. Previous research suggested that there might be differences in age groups between the effectiveness of parental involvement. For instance, it has been found that family CBT was more effective for younger children compared to older children (Barrett, Dadds, & Rapee, 1996). Therefore, we recommend to further study the role of parental anxiety and involvement in treatment outcomes for child anxiety between age groups. Finally, although we controlled for the effect of age in the analyses, we did not explicitly examine the role of parental anxiety for the different age groups (e.g., children versus adolescents). Previous research showed that children and adolescents differ in their clinical characteristics (i.e., diagnoses, severity of the disorder and symptoms, and in comorbidity) and that parents of anxious adolescents show different parenting behavior than parents of anxious children (Waite & Creswell, 2014; 2015). Future studies with more power could include this as an additional research question.

In sum, the current study showed that the difference in treatment outcomes between children with and without a primary social anxiety disorder arises from pretreatment to posttreatment and not from posttreatment to the one year follow up. Furthermore, parental anxiety symptoms decreased during treatment even though the CBT-program was only directed at the child's anxiety problems. When parents had high levels of anxiety symptoms, children improved more during the treatment. Also, the extent to which parents improved on their own anxiety symptoms during the treatment was related to the children's decrease of anxiety symptoms during the treatment. Little evidence was found to explain differences in treatment outcomes for children with a primary social anxiety disorder versus children with other primary anxiety disorders based on the level of parental anxiety symptoms or the decrease in parental anxiety symptoms. Nevertheless, we also found indications that the reduced treatment gains for children with social anxiety disorder disappeared when parental anxiety was accounted for. This suggests that parental anxiety may be a factor to consider when studying predictors of treatment effectiveness for childhood (social) anxiety disorders. However, given the non-significant findings of parental anxiety in relation to treatment outcomes for (social) anxiety, it also suggests that other factors need to be considered to explain the worse treatment outcomes for childhood social anxiety disorder. With regard to all results, it could be noted that the sample size was relatively small and we encourage future studies to include larger sample sizes.

CRediT authorship contribution statement

J.M.D. Baartmans: Methodology, Writing – original draft, writing,

Bonny. **F.J.A. van Steensel:** Data curation, Data-collection, Methodology, Writing – original draft, writing. **A.M. Klein:** Writing – original draft, Writing. **R.W.H.J. Wiers:** Supervision. **S.M. Bögels:** Principal Investigator, Supervision.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.brat.2022.104157.

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