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Journal of Clinical Child & Adolescent Psychology

Publication details, including instructions for authors and subscription information:
<http://www.tandfonline.com/loi/hcap20>

Parenting and Parental Anxiety and Depression as Predictors of Treatment Outcome for Childhood Anxiety Disorders: Has the Role of Fathers Been Underestimated?

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Available online: 15 Jun 2010

To cite this article: Juliette M. Liber, Brigit M. van Widenfelt, Arnold W. Goedhart, Elisabeth M. W. J. Utens, Adelinde J. M. van der Leeden, Monica T. Markus & Philip D. A. Treffers (2008): Parenting and Parental Anxiety and Depression as Predictors of Treatment Outcome for Childhood Anxiety Disorders: Has the Role of Fathers Been Underestimated?, *Journal of Clinical Child & Adolescent Psychology*, 37:4, 747-758

To link to this article: <http://dx.doi.org/10.1080/15374410802359692>

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Parenting and Parental Anxiety and Depression as Predictors of Treatment Outcome for Childhood Anxiety Disorders: Has the Role of Fathers Been Underestimated?

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A substantial percentage of children with anxiety disorders do not respond adequately to Cognitive Behavioral Therapy (CBT). Examination of parental factors related to treatment outcome could contribute to a further understanding of treatment outcome responses. This study investigated the predictive value of paternal and maternal emotional warmth, rejection, overprotection, anxiety, and depression for CBT outcome in clinic-referred anxious children (ages 8–12). Levels of maternal emotional warmth, paternal rejection and anxiety, and depressive symptoms predicted treatment success and failure. A higher level of maternal emotional warmth was associated with a less favorable treatment outcome. Higher levels of paternal rejection, anxiety, and depressive symptoms were consistently associated with a less favorable treatment outcome.

Having an anxiety disorder (AD) in childhood puts children at risk for ADs and major depression during adolescence, young adulthood, and adulthood (Goodwin, Fergusson, & Horwood, 2004; Reinherz, Paradis, Giaconia, Stashwick, & Fitzmaurice, 2003). Even though the empirical support is the strongest for the effectiveness of a Cognitive Behavioral Therapy (CBT) approach (Chambless & Ollendick, 2001; Reisner, 2005; Weisz, Weiss, Han, Granger, & Morton, 1995), still 20% to 50% of the children in research trials for childhood anxiety disorders do not show an adequate

treatment response (see Compton, Burns, Egger, & Robertson, 2002). Subsequently, there is a need to identify factors associated with success and failure. The few studies that have examined potential predictors of treatment outcome for children with AD found partial support for the predictive value of parental psychopathology and family functioning (e.g., Berman, Weems, Silverman, & Kurtines, 2000; Crawford & Manassis, 2001). In particular, parental affective symptoms and parental rearing style are important to study, because previous research has shown that these variables are related to an increase or maintenance of anxious responding and anxious cognitions in children with AD (e.g., Beidel & Turner, 1997; McLeod, Wood, & Weisz, 2006).

This study was funded by the Netherlands Foundation for Mental Health, Utrecht. We thank all children and parents for their participation and all dissertation students for their help with the data collection. The Committee for Medical Ethics of the Leiden University Medical Center approved this study.

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PARENTAL ANXIETY AND DEPRESSION

Both top-down (Beidel & Turner, 1997; Weissman et al., 2005) and bottom-up (Lieb et al., 2000; Messer & Beidel,

1994) research has suggested a relation between elevated levels of parental anxiety and depressive symptoms and elevated levels of childhood anxiety symptoms. The results from previous studies on the predictive role of parental anxiety and depression for the outcome of CBT for children with AD appear mixed (Berman et al., 2000; Rapee, 2000). The majority of studies that used parental self-report measures did not find a relationship between parental anxiety and treatment outcome (Crawford & Manassis, 2001; Nauta, 2005), with the exception of two studies that reported a relation between parental (Cobham, Dadds, & Spence, 1998) and paternal (Rapee, 2000) anxiety and a less favorable treatment outcome. Results from studies that included diagnostic interviews of the parents were contradictory, with one large randomized clinical trial of individual versus family treatment suggesting that children with at least one parent with a current AD benefited less from CBT in both treatment conditions than children of parents without an AD (Bodden, 2007). The results from two smaller studies that included mothers only showed greater improvement for children of mothers with an AD during the child's lifetime (Thienemann, Moore, & Tompkins, 2006) or a current AD (Toren et al., 2000) than children of mothers without an AD.

Some studies also investigated if parental self-reports of depressive symptoms were related to treatment outcome of CBT for children with an AD. The majority of these studies did not find an association (Crawford & Manassis, 2001; Rapee, 2000; Victor, Bernat, Bernstein, & Layne, 2006) with the exception of one study (Berman et al., 2000). Parental depressive symptoms (of which 90% of the parents in the study were mothers) significantly predicted treatment failure in the latter study. In sum, the results suggest a weak negative correlation between the presence of an AD or depressive disorder in one of the parents and treatment success of CBT for children with an AD.

PARENTAL REARING

Parental rearing style (warmth, rejection, [over]protection, and anxious behavior) has been linked to the transmission of anxiety from parents to their children (Lieb et al., 2000; Moore, Whaley, & Sigman, 2004). Empirical evidence illustrated for instance that parents might enhance anxious responding in their children, as children who discussed ambiguous situations with family members showed an increased tendency for avoidant strategies (Barrett, Rapee, Dadds, & Ryan, 1996). In a theoretical analysis of environmental influences on the development of anxiety, Chorpita and Barlow (1998) noted that the combination of the parenting styles overprotection (a pattern of intrusive governance and

associated constraint imposed on the child's actions) and low warmth (responsiveness) by the parent has a relatively strong influence on the development of anxiety in children. The authors suggest that when parents are highly controlling, the experience of diminished control in children might lead to an increased tendency to interpret events as out of one's control. Similarly, by a lack of warmth or responsiveness, children are taught that their actions may not control or influence important reinforcers in the environment (Chorpita & Barlow, 1998). A recent meta-analysis (McLeod et al., 2006) and two reviews consistently identified higher rates of parental control as a substantial parenting factor related to anxiety in children (Bögels & Brechman-Toussaint, 2006; Wood, McLeod, Sigman, Hwang, & Chu, 2003). There is accumulating evidence that emotional warmth in families is also related to childhood AD. Two observational studies supported a relation between lower rates of emotional warmth or care (emotional climate) and higher levels of anxiety symptoms in their children (Barrett, Fox, & Farrell, 2006; Whaley, Pinto, & Sigman, 1999). The meta-analysis by McLeod et al. identified a relationship between parental rejection and child anxiety.

Researchers have started to investigate a variety of family factors as predictors of treatment outcome in children with AD and some of the results support the relation between familial predictors and treatment outcome. Family dysfunction has been found to predict improvement as based on information from clinicians, children, and both mothers and fathers (Crawford & Manassis, 2001). Higher pretreatment levels of family cohesion (emotional bonding of family members) were associated with a greater decrease in child anxiety at posttreatment for children treated with group CBT (Victor et al., 2006).

FATHERS AND MOTHERS OR PARENTS?

The results from several studies showed differences between fathers and mothers in parenting styles and parental rearing behaviors; these differences suggest that parental rearing of fathers and mothers should not be considered equivalent a priori (Aunola & Nurmi, 2005; Bögels & van Melick, 2004). Moreover, the findings of studies investigating maternal and paternal treatment outcome predictors separately showed differential results for mothers and fathers (Crawford & Manassis, 2001; Rapee, 2000). These findings underline the importance to investigate the impact of parental predictors for treatment outcome separately for mothers and fathers.

Studies tend to report parenting from either the parental or the child perspective and seldom from both perspectives. The use of a multi-informant perspective

appears important, as it has been shown that parents and children tend to perceive parenting differently (Caster, Inderbitzen, & Hope, 1999). A useful approach to cope with discrepancies in perception of informants is the use of corresponding questionnaires for children and parents.

THIS STUDY

The study presented here investigates if maternal and paternal anxiety and depression, and maternal and paternal rearing style are predictive for the outcome of CBT for children with an AD. We examined both single and combined variables as predictors of outcome.

METHOD

Participants

The sample was selected from all consecutive referrals of 8- to 12-year-old children to the Anxiety and Depression Unit of the outpatient university clinic for Child and Adolescent Psychiatry of Leiden University Medical Center/Curium and Erasmus Medical Center Rotterdam/Sophia. This study is part of a larger study on a stepped care model investigating the effect of an additional treatment protocol for nonresponders to the CBT program. As part of the routine clinic procedure, all children and their parents were interviewed with the child version of the Anxiety Disorders Interview Schedule (ADIS-C/P; Silverman & Albano, 1996). Children who received a primary diagnosis of separation anxiety disorder (SAD), generalized anxiety disorder (GAD), social phobia (SOP), or specific phobia (SP) were included in the target sample. Exclusion criteria were an IQ below 85, poor command of the Dutch language, serious physical disease, substance abuse disorder, pervasive developmental disorder, selective mutism, schizophrenia, or another psychotic disorder. Children with obsessive compulsive disorder, posttraumatic stress disorder, and panic disorder were excluded because at that time there was no empirical evidence that children would benefit more from CBT compared to medical or combined treatment. Children who received medication for ADs were withdrawn from medication, if possible, or excluded. Children who received methylphenidate for attention deficit/hyperactivity disorder problems ($n = 5$) were not excluded from the study.

In total, 142 children (aged 8–12) diagnosed with an AD and their parents were invited to participate. Parents of 133 participants signed informed consent, and both parents and children started treatment.

TABLE 1
Demographic Data on Participants, Treatment Completers

| Variable | Boys | Girls |
|--------------------------------------|--------------|--------------|
| Child Gender (n) | 68 | 56 |
| Age (M, SD) ^a | | |
| Child | 9.96 (1.16) | 10.19 (1.41) |
| Mother | 40.15 (4.43) | 39.78 (4.20) |
| Father | 43.34 (5.34) | 42.87 (5.55) |
| SES (n) | | |
| Low | 14 | 5 |
| Middle | 33 | 24 |
| High | 21 | 27 |
| Diagnosis (n) | | |
| SAD | 32 | 18 |
| GAD | 19 | 17 |
| SP | 7 | 11 |
| SOP | 10 | 10 |
| Comorbidity (M, SD) ^a | 2.00 (1.08) | 1.75 (0.92) |
| Treatment Success ($n, \%$) | | |
| Clinician (ADIS-C/P) | 30 (44) | 26 (46) |
| Child (MASC) | 27 (40) | 20 (36) |
| Parents (CBCL-Int) | 13 (19) | 9 (16) |

Note. SAD = separation anxiety disorder; GAD = generalized anxiety disorder; SP = specific phobia; SOP = social phobia; ADIS-C/P = Anxiety Disorders Interview Schedule; MASC = Multi-dimensional Anxiety Scale for Children; CBCL-Int = Child Behavior Checklist-Internalizing scale.

^aMean of the total number of disorders.

Because nine children did not complete the treatment protocol, the resulting sample of treatment completers consisted of 124 children. Sixty-five children were individually treated, and 59 were treated in group format. Seventy-five boys and 58 girls participated. The primary diagnoses of the children ($n = 124$) were SAD ($n = 50$), GAD ($n = 36$), SOP ($n = 20$), or SP ($n = 18$). Seventy children (56%) had at least one comorbid disorder: 42 children (32%) were comorbid with another AD, and 19 children (15%) had two or more comorbid ADs. Eight children (6%) had either comorbid depression or dysthymia. The socioeconomic status (SES) of 19 children was low, the SES of 57 children was medium, and the SES of 48 children was high at baseline (Central Bureau of Statistics Netherlands, 2001).

One hundred twenty-three mothers and 108 fathers participated. Seven children did not maintain contact with their fathers or the fathers were unknown, one father and one mother died, and two fathers lacked sufficient proficiency in Dutch. Six fathers refused to participate. One hundred and one children (81%) lived in a two-parent household. Demographic variables are presented in Table 1.

Treatment

Children were treated with a Dutch translation of the FRIENDS program (Barrett & Turner, 2000; Utens,

de Nijs, & Ferdinand, 2001). The FRIENDS program is an adaptation of the Coping Cat workbook (Kendall, Kane, Howard, & Siqueland, 1990). FRIENDS is a manualized treatment and based on a theoretical framework with three main target areas for change: physical symptoms, cognitive processes, and coping skills. Children are taught coping techniques such as relaxation and breathing exercises to learn to cope with physical symptoms of anxiety. Children are also taught to challenge negative cognitions, irrational beliefs, and negative self-talk by changing them into helpful cognitions, realistic beliefs, and positive self-talk. Increased awareness of avoidant strategies is stimulated, as well as the development of problem-solving skills and coping skills. In the second half of the therapy, gradual exposure to the feared stimulus and underlying fears is more prominent. Attempts to cope are positively rewarded. The FRIENDS treatment is delivered individually and in group format in 10 weekly child sessions and 4 parent sessions. Parent sessions focus mainly on psychoeducation. The treatments of the individual and group format corresponded as much as possible. Differences were inherently related to the formats, the presence or absence of peers, and the presence of either one or two therapists.

MEASURES

Diagnostic Status

The Anxiety Disorders Interview Schedule for *DSM-IV* child and parent version (ADIS-C/P; Silverman & Albano, 1996) is a semistructured interview schedule for children aged 6 to 18. In this study the interview was administered to both parents and children at pre- and posttreatment to obtain clinical information and to derive *DSM-IV* diagnoses for the children (Silverman & Albano, 1996). The interview is organized according to *DSM-IV* criteria and yielded kappa coefficients of agreement for SAD, SOP, SP, and GAD ranging from .62 to .92 for both the child and the parent interview in an American sample (Silverman, Saavedra, & Pina, 2001). A Dutch translation of the ADIS-C/P (Siebelink & Treffers, 2001) was made in close consultation with the first author (Silverman).

Child Completed Measure of Anxiety

Children's self-reported anxiety symptoms were assessed with the Multidimensional Anxiety Scale for Children (MASC; March, 1997; March, Sullivan, & Parker, 1999). The MASC is a 39-item general measure of pediatric anxiety. A translation of the MASC by Utens and Ferdinand (2000) was used to generate Dutch normative

data ($n = 299$, ages 8–12). Reliability analyses revealed an excellent Cronbach's alpha ($\alpha = .93$) and good test-retest reliability ($r = .81$, $n = 196$, aged 8–12). The total score of the MASC was used to determine the child completed anxiety outcome score.

Parent Completed Measure of Child Functioning

The Child Behavior Checklist (CBCL) is a well-known and researched 113-item scale that assesses child behavior problems by parents and has shown good reliability and validity (Achenbach & Rescorla, 2001). The internalizing scale of the CBCL (CBCL-Int) was used for this study. Cronbach's alpha of the CBCL-Int for the clinical population in this study ranged from .84 for mothers to .85 for fathers.

Child and Parent Completed Measures of Parenting Styles

Two versions of the EMBU (Egna Minnen Beträffande Uppfostran; Swedish acronym for My Memories of Upbringing, child and parent versions) have been developed for the measurement of parental rearing from both the child's and parent's perspective (Markus, Hoogendijk, & Treffers, 2007; Markus, Lindhout, Boer, Hoogendijk, & Arrindell, 2003). The items of the EMBU-C and EMBU-P reflect children's and parents' current thoughts on parenting practices and experiences of parenting behavior with regard to emotional warmth, rejection, and overprotection. Higher amounts of emotional warmth correspond with parents who are emotionally warm and responsive toward their children by showing affection and interest and by being supportive, comforting, and rewarding. Higher levels of rejection correspond with more harsh and unfriendly attitudes of the parents such as unnecessarily punishment or rudeness toward their children. Overprotection resembles parental control and higher levels correspond with being more (overly) protective and frequently interfering with the activities of the children.

In an exploration of the underlying dimensional framework of the Dutch child version of the EMBU (EMBU-C) the full range of 81 items was grouped into four reliable factors: Emotional Warmth (19 items), Rejection (17 items), Overprotection (12 items), and Favoring Subject (4 items; Markus et al., 2003). Data were collected from a school-based sample of 824 children aged 7 to 13. Alpha coefficients for the child reported scales on mothers and fathers ranged from .64 for Overprotection to .89. The scale Favoring Subject resulted in lower reliability scores (.54 and .58, respectively) in the original sample as well as in the present clinical sample and was therefore excluded from further analyses. Grüner, Muris, and Van Brakel (2003)

developed an additional EMBU scale for the Dutch child version with satisfactory psychometric properties ($\alpha = .79$, 9 items) assessing children's perceptions of parents' anxious rearing practices as parental modeling of anxious behavior is possibly related to children's fears.

The results of explorative factor analyses showed that a total of 81 items for the Dutch parent version of the EMBU (EMBU-P) could be reduced to 57 items covering Emotional Warmth (16 items), Rejection (22 items), Protection (11 items), and Favoring (8 items). Data were collected from 439 mothers and 373 fathers. Alpha coefficients ranged from .65 for the scale Favoring to .89 for the scale Emotional Warmth (Markus, Hoogendijk, & Treffers, 2007). Conceptually, the four scales are very similar to the EMBU-C.

Parent-Completed Measure of Parental Anxiety and Depressive Symptoms

The Depression, Anxiety, and Stress Scales (DASS) provides a self-report assessment of depression, anxiety, and stress symptoms in adults (De Beurs, Van Dyck, Marquenie, Lange, & Blonk, 2001; Lovibond & Lovibond, 1995). The DASS includes 42 items, each loading on one of the following three factors: depression, anxiety, and stress. The psychometric properties of the Dutch translation were studied in a clinical ($n = 173$) and a nonclinical adult sample ($n = 289$). The structure of the original instrument was replicated in both samples with exploratory and confirmatory factor analyses. Alpha coefficients for the three scales ranged from .94 to .97 for the nonclinical population, and from .75 to .89 for the clinical population. Because the focus of our study is on anxiety and depressive symptoms, the stress scale will be left out of the analyses. The Depression and Anxiety scales of fathers and mothers in our study showed a skewed distribution and were recoded into ordinal variables (0 = no symptoms, 1 = one or more symptoms), this distinction was supported by ROC analysis.

Procedure

Experienced psychologists using a translated version of the ADIS for *DSM-IV* interviewed children and parents separately (Siebelink & Treffers, 2001). After the initial routine clinical assessment verbal and written consent were obtained from the parents as well as children aged 12. Children were assigned to either individual or group CBT by sequential randomization. Previous analyses showed that there are no significant differences in outcome (free of any anxiety disorders at posttreatment) between individual and group treatment, $\chi^2(1, 124) = 0.55$, $p = .46$ (Liber et al., 2008). Pretreatment measures

were administered to both parents and children. A waiting list condition was not used, as there is strong evidence that CBT for children with an AD is more effective than a waiting list condition (Cartwright-Hatton, Roberts, Chitsabesan, Fothergill, & Harrington, 2004).

Sample Size and Missing Data

Analyses were conducted on the sample of children ($N = 133$) who started treatment minus nine children (6.8%) who dropped out of treatment ($n = 124$). To examine the predictive value of parental factors for treatment outcome in children and their parents the treatment completers sample was used in all analyses. Treatment completers and noncompleters did not differ significantly on social economic status, age, gender or primary diagnosis. Neither did the treatment completers and noncompleters differ significantly on the predictors (EMBU-C, EMBU-P, or DASS), on the outcome measures (MASC or father- and mother-completed CBCL internalizing scale) or with regard to individual reliable change (RC_{IND} ; see data analysis) or clinically significant change (CS; see data analysis). Means and standard deviations of predictors and outcome measures are presented in Table 2.

Data Analyses

To assess the predictive value of parental rearing and parental affective symptoms a stepwise data-analytic

TABLE 2
Distribution of Parental Rearing Styles and Parental Anxiety and Depressive Symptoms

| | Mother (<i>M</i> , <i>SD</i>) | Father (<i>M</i> , <i>SD</i>) |
|--------------------------|---------------------------------|---------------------------------|
| Child Report | | |
| Rejection | 24.22 (5.52) | 24.78 (5.88) |
| Protection | 21.50 (5.33) | 20.23 (4.83) |
| Emotional Warmth | 63.64 (9.37) | 60.10 (11.10) |
| Anxious Rearing | 18.76 (4.62) | 17.38 (4.64) |
| Parent Report | | |
| Rejection | 33.47 (4.77) | 33.65 (4.66) |
| Protection | 22.73 (3.56) | 20.98 (3.56) |
| Emotional Warmth | 57.38 (4.77) | 53.31 (6.50) |
| Parental | | |
| Anxiety | 2.52 (4.59) | 1.55 (3.45) |
| Depression | 3.41 (4.48) | 2.66 (4.67) |
| Parental Outcome Measure | | |
| CBCL-Int Pretreatment | 20.05 (9.20) | 15.94 (8.10) |
| CBCL-Int Posttreatment | 15.23 (9.28) | 13.31 (8.28) |
| | <i>Child (M, SD)</i> | |
| MASC Pretreatment | 51.41 (18.33) | |
| MASC Posttreatment | 36.93 (18.27) | |

Note. CBCL-Int = Child Behavior Checklist-Internalizing scale; MASC = Multidimensional Anxiety Scale for Children.

strategy was used. First the large number of potential predictors was reduced. Therefore, associations between the predictors and treatment outcome were explored by calculating partial correlations. In addition, the means of the predictors were compared for the treatment success and treatment failure groups. Bonferroni correction was additionally reported to correct for Type I errors; as a criterion of significance the α level was divided by the number of scales per test. Variables that showed a significant association with outcome or were significantly different between the treatment success and failure groups were selected as predictors, variables that showed a trend after Bonferroni correction were also included as predictors. The thus obtained predictors were subsequently entered into a logistic regression analysis to confirm and verify the predictive value. Regression analyses offer the possibility to test a model including and testing more than one predictor simultaneously.

Treatment success and failure were determined by posttreatment diagnostic status and symptom reduction. Posttreatment diagnostic status (presence [1] or absence [0] of any AD) as assessed with the ADIS-C/P was used to reflect the clinical point of view on treatment success. The CBCL-Int for fathers and mothers were used to reflect the parental point of view on symptom reduction and the MASC was used to reflect the child's point of view on symptom reduction.

Individual reliable change and clinically significant change are the methods of choice to describe pre- and posttreatment change based on questionnaire information (Wise, 2004) as comparison of pre- and post-treatment scores do not tell how individuals fared in treatment or whether a clinical significant change was obtained. The child's and parental point of view on treatment success was expressed by the RC scores (RC-scores) and CS indices (CS-index) that were computed from the pre- and posttreatment self-reports (MASC) and parent-reports (CBCL-Int), using the computation methods developed by Hageman and Arrindell (1999). Treatment outcome studies tend to use observed difference scores (difference between the pre- and post-measurement for individual clients). However, observed difference scores are influenced by regression to the mean because of errors of measurement. Therefore, RC-scores, the most precise possible estimation of the true pre-post differences, were used. The RC-score is the normal deviate (z score) of the value 0 within the (conditional) distribution of true difference scores given the observed difference score. For measures with a nearly perfect reliability, the RC-score is nearly a linear function of the observed difference score, as the observed and true differences scores will be almost similar. When the reliability of the measure approaches zero the RC-score will approach a constant, representing the

overall mean of the observed difference scores. So using the RC-score in outcome prediction studies represents a more conservative approach than using the observed difference score, if the outcome measure has a lower than nearly perfect reliability.

The RC-score can be transformed into three categories (RC_{IND} index); improved ($RC\text{-score} < 1.65$), not reliably changed ($-1.65 \leq RC\text{-score} \leq 1.65$) and deteriorated ($RC\text{-score} > 1.65$). A client whose RC-score indicates improvement and whose postscore on the outcome measure is passing the cutoff for "normal" functioning in the correct direction, is considered to have "recovered" or to show a clinically significant change. The CS-index as used in this study is a dichotomy of "recovered" versus "not/partially recovered." To determine which clients have reliably passed the cutoff for "normal functioning," the CS_{INDIV} -score was computed (using cutoff type c). The CS_{INDIV} -score is, analogous to the RC-score, the normal deviate of the cutoff score within the (conditional) distribution of true postscores given the observed postscore. A CS_{INDIV} -score < 1.65 is used to conclude that the individual client has passed the cutoff for "normal" functioning (a lower score indicates more "normal" functioning with all outcome measures used in this study).

The CS indexes from fathers and mothers were combined: if the pre- and posttreatment CBCL-internalizing scores of either parent resulted in a CS index of *recovered*, the outcome was considered successful unless the RC-score of the other parent was > 1.65 (*deteriorated*). The CS of the CBCL internalizing scores for mothers and fathers showed a correlation of .67 ($p < .001$). Logistic regression analyses were conducted to confirm the validity of the selected predictors. Variables were used if they were associated with outcome or had shown a significant difference between the treatment success and failure groups for the ADIS-C/P, the MASC, or CBCL-Int.

RESULTS

Preliminary Analysis

The recovered and not/partially recovered groups (ADIS-C/P, MASC, and CBCL-Int) were compared with regard to age, gender, and SES. Results did not show any significant differences between the two groups. Therefore these variables were left out of subsequent analyses. The CS index revealed that 37.9% ($n = 47$) of the children were recovered when assessed with the MASC. The combined CBCL-Int results of the parents revealed that 17.7% ($n = 22$) of the children fell into the recovered group and 80.6% ($n = 100$) fell into the not/partially recovered group. With regard to diagnostic status, the results showed that 45.2%

($n=56$) were free of any AD at posttreatment (*recovered*), and 58.9% ($n=73$) were free of their primary disorder at posttreatment.

The agreement between the MASC-based grouping and the combined CBCL-Int results of the parents ($\kappa = .06$, *ns*) was nonsignificant. The agreement between the MASC-based grouping and diagnostic status was slight ($\kappa = -.31$, $p < .001$). The agreement between the grouping based on the CBCL-Int and diagnostic status was also slight ($\kappa = -.25$, $p < .001$).

Selection of Predictors for Treatment Outcome

Potential predictors of child and parent reported outcome (MASC, CBCL-Int) were identified by calculating the partial correlations that express the relationships between each of the potential predictor variables (measuring parental affective symptoms or parental rearing styles) and the posttreatment levels of anxiety symptoms (MASC) and internalizing symptoms (CBCL-Int) with the pretreatment levels of anxiety respectively internalizing symptoms entirely controlled. The CBCL-Int scales for fathers and mothers were highly correlated both pre- and posttreatment (pre: $r = .56$, $p < .001$, post: $r = .67$, $p < .001$) and therefore combined. Partial correlations for the CBCL internalizing symptoms were calculated for the combined scores of fathers and mothers.

Paternal anxiety ($r = .21$, $p < .05$) and depressive symptoms ($r = .25$, $p < .05$) showed a significant partial correlation with internalizing symptoms on the combined CBCL-Int, indicating less reduction of parent reported internalizing symptoms with higher levels of paternal anxiety and depressive symptoms. The results regarding paternal depressive symptoms remained significant after Bonferroni correction ($p < .017$), whereas the results regarding paternal anxiety revealed a trend ($.017 < p < .050$). No predictors were found for symptom-change as measured by the MASC.

Differences Between Treatment Success and Treatment Failure Groups

Predictor variables for treatment recovery were selected by testing differences (in predictors) between the recovered and not/partially recovered groups based on diagnostic status, the MASC and the CBCL-Int scales using *T* tests or chi-square tests. Comparison of the treatment success and the treatment failure groups based on diagnostic status (free of an AD or not) revealed a significant difference for paternal self-reported rejection and paternal depressive symptoms. Fathers of children who did not respond sufficiently to the treatment (treatment failure) reported more often depressive symptoms and

higher levels of rejection (see Table 3). After Bonferroni correction the results for paternal rejection (α level = .017) revealed a trend ($.017 < p < .050$), whereas the results for paternal depressive symptoms remained significant ($p = .012$).

The recovered and not/partially recovered groups as reported by parents (CBCL-Int) showed significant differences for paternal self-reported rejection, overprotection, depressive symptoms and anxiety symptoms, and child-reported paternal anxious rearing. The results indicated that fathers of children in the not/partially recovered group reported more often anxiety and depressive symptoms and higher levels of rejection, overprotection, and anxious rearing. After Bonferroni correction only the results regarding paternal anxiety remain significant, the α levels for paternal rejection ($p = .03$), overprotection ($p = .04$), depressive symptoms ($p = .02$), and anxious rearing ($p = .05$) revealed trends. In addition, child-reported maternal warmth and child-reported maternal anxious rearing were significantly different for the parent-reported recovered and not/partially recovered groups. Children in the not/partially recovered group reported significant higher levels of maternal anxious rearing. The results for maternal emotional warmth are contrary to what was expected: Children in the recovered group described their mothers as significantly less emotional warm (see Table 3). After Bonferroni correction the results for child-reported emotional warmth remained significant ($p = .01$), but the results for child-reported anxious rearing revealed a trend ($p = .02$). The recovered and not/partially recovered groups as reported by the children (MASC) did not show any differences with regard to parenting styles or parental anxiety and depression.

Logistic Regression Analyses

The variables that showed a (partial) correlation with outcome or showed a difference between the recovered and not/partially recovered groups were included as predictor variables in the regression analyses (backward) to confirm their predictive value. Variables that showed a trend after Bonferroni correction were also included. The resulting model showed that paternal rejection, child-reported maternal warmth, and paternal anxiety predicted parent-reported treatment outcome. Paternal depressive symptoms predicted posttreatment diagnostic status (see Table 4). There were no indications for multicollinearity, though paternal depressive symptoms and paternal rejection correlated significantly ($r = .24$, $p < .05$). It was hypothesized that the contribution of the predictors might be different for boys and girls, therefore the analyses were repeated with gender as an interaction variable, the results did not support interaction effects with any of the selected predictors.

TABLE 3
Predictors of Treatment Recovery and Failure

| Predictor Variables | Clinical Outcome | | Parental Outcome | | Child-Reported Outcome | |
|---|------------------|---------------------------|------------------|---------------------------|------------------------|---------------|
| | Recovered | Not Recovered | Recovered | Not Recovered | Recovered | Not Recovered |
| <i>I. Rearing Styles</i> | | | | | | |
| EMBU-C scales | | | | | | |
| Rejection M | 24.12 (5.14) | 24.30 (5.84) | 23.97 (4.75) | 24.28 (5.69) | 24.46 (5.62) | 24.15 (5.48) |
| E Warmth M | 62.62 (9.25) | 64.45 (9.45) | 59.11 (12.64) | 64.60 (8.27)* | 63.20 (10.23) | 63.80 (9.06) |
| Protection M | 21.39 (5.61) | 21.60 (5.21) | 20.10 (5.05) | 21.81 (5.36) | 21.20 (6.49) | 21.40 (4.72) |
| Anx R M | 18.79 (4.77) | 18.82 (4.51) | 16.65 (4.80) | 19.27 (4.47) ^f | 17.91 (4.91) | 19.28 (4.08) |
| Rejection F | 24.48 (5.16) | 25.03 (6.46) | 23.98 (5.19) | 24.96 (6.04) | 24.62 (5.65) | 24.80 (6.12) |
| E Warmth F | 60.11 (9.79) | 60.10 (12.14) | 56.60 (13.42) | 60.85 (10.47) | 61.20 (10.84) | 59.74 (4.68) |
| Protection F | 20.22 (5.07) | 20.24 (4.66) | 19.26 (4.15) | 20.52 (4.94) | 20.03 (5.48) | 20.35 (4.52) |
| Anx R F | 17.51 (4.61) | 17.38 (4.67) | 15.55 (4.26) | 17.86 (4.62) ^f | 16.71 (4.93) | 18.02 (4.46) |
| EMBU-P Scales Mother | | | | | | |
| Rejection | 33.01 (4.35) | 33.85 (5.10) | 33.45 (5.03) | 33.47 (4.74) | 33.16 (4.65) | 33.77 (4.94) |
| E Warmth | 57.37 (4.14) | 57.38 (5.27) | 58.20 (3.83) | 57.20 (4.94) | 57.35 (5.05) | 57.19 (4.59) |
| Protection | 22.56 (3.20) | 22.87 (3.85) | 22.35 (2.86) | 22.91 (3.70) | 22.77 (3.68) | 22.71 (3.58) |
| EMBU-P Scales Father | | | | | | |
| Rejection | 32.59 (4.28) | 34.58 (4.82) ^f | 31.76 (3.91) | 34.12 (4.74) ^f | 33.63 (4.05) | 33.72 (5.08) |
| E Warmth | 53.64 (6.56) | 53.04 (6.49) | 52.18 (5.69) | 53.59 (6.69) | 53.94 (6.38) | 52.86 (6.69) |
| Protection | 20.82 (3.93) | 21.12 (3.25) | 19.62 (2.64) | 21.32 (3.69) ^f | 20.76 (3.92) | 21.34 (3.36) |
| <i>II. Affective Problems^a</i> | | | | | | |
| DASS Mother | | | | | | |
| Depression | 46.4% | 50.7% | 45.5% | 49.5% | 66.0% | 66.2% |
| Anxiety | 66.1% | 61.2% | 77.3% | 60.4% | 46.8% | 56.9% |
| DASS Father | | | | | | |
| Depression | 44.6% | 59.7%* | 22.7% | 41.6% ^{†*} | 65.1% | 64.3% |
| Anxiety | 39.3% | 37.3% | 40.90% | 55.4% ^{†*} | 48.8% | 44.6% |

Note. Means, standard deviations of child- and parent-reported predictors of success and failure for clinical, parental-, and child reported outcome. E Warmth = emotional warmth; Anx R = anxious rearing; M = mother; F = father; DASS = Depression, Anxiety, and Stress Scales.

^aPercentage of children per group with a mother/father with depressive or anxious symptoms. Significance based on Bonferroni: **p* < .017, ^f*p* < .05; significant correlation: **p* < .017, ^f*p* < .05.

DISCUSSION

This study investigated the predictive value of parental anxiety, depression, and parental rearing styles in treatment outcome for children with AD. It was assumed that potentially anxiety enhancing or anxiety maintaining parental characteristics could hinder generalization

of newly learned adaptive behavior from the therapy setting to daily life. The main results of our study indicate a negative role for paternal rejection, paternal depressive and anxiety symptoms, and surprisingly child-reported maternal warmth in the prediction of treatment success.

In this study, 124 clinically referred children were diagnosed and treated with FRIENDS, a structured

TABLE 4
Logistic Regression Analyses

| | B | SE (B) | Wald | df | Exp (B) (95% CI) |
|-------------------------------|-------|--------|--------|----|-------------------|
| Parental Outcome ^a | | | | | |
| Constant | 9.40 | 3.55 | 7.01** | 1 | 12,102.25 |
| Rejection F | -0.19 | 0.08 | 6.00* | 1 | 0.82 (0.71-0.96) |
| Child Warmth M | -0.09 | 0.04 | 6.61* | 1 | 0.91 (0.85-0.98) |
| Anxiety F | 1.80 | 0.73 | 6.01 | 1 | 6.04 (1.44-25.39) |
| Clinical Outcome ^b | | | | | |
| Constant | 0.45 | 0.26 | 3.01 | 1 | 1.56 |
| Depression F | -1.02 | 0.43 | 5.54* | 1 | 0.36 (0.16-0.84) |

Note. CI = confidence interval; F = father; M = mother; Child = child-reported.

^aNagelkerke *R*² = .30, Cox and Snell *R*² = .20, Hosmer and Lemeshow = 4.13, *p* > .05.

^bNagelkerke *R*² = .07, Cox and Snell *R*² = .05, Hosmer and Lemeshow = 0.00, *p* > .05.

p* < .05. *p* < .01.

and brief CBT program. Percentages of children who improved significantly as assessed with the ADIS-C/P were in line with previous treatment outcome studies including clinically referred children with AD (e.g., Kendall, 1994). The percentage of parent-reported recovered children was not as high as other studies in the literature, likely because of the data-analytic strategy used, which has been described as the most conservative in the estimation of treatment success (Bauer, Lambert, & Nielsen, 2004). A considerable number of children obtained significant improvement according to mothers ($n = 61$; 49.2%) and fathers ($n = 24$; 19.4%) but only a limited number of these children met criteria for the label *recovered*. Exploratory analyses were carried out to reduce the number of potential predictors. The thus-selected paternal predictors were father-reported rejection, anxiety and depressive symptoms, and child-reported paternal anxious rearing. Selected maternal predictors were child-reported emotional warmth and anxious rearing. Predictors that remained significant after Bonferroni correction were self-reported paternal depressive and anxiety symptoms and child-reported maternal emotional warmth. Predictors that were identified across informants (also including Bonferroni trends) were paternal self-reported rejection and depressive symptoms.

Regression analyses were conducted to confirm the validity of the selected predictors and showed that less paternal rejection, higher levels of child-reported maternal emotional warmth, and paternal anxiety symptoms significantly predicted parental defined recovery. Paternal depressive symptoms significantly contributed to the prediction of an AD posttreatment. In sum, the variables that consistently showed a significant contribution to the prediction of a less successful outcome were paternal anxiety and depressive symptoms, paternal rejection, and maternal emotional warmth.

It is an intriguing finding that studies including mothers and fathers separately found differential findings for mothers and fathers, with a significant contribution for fathers. The identified predictors vary from paternal anxiety (Rapee, 2000) and paternal somatization (Crawford & Manassis, 2001) to paternal anxiety and depressive symptoms and rejection in our study. In this study the level of anxiety, depression, and rejection was not significantly different for mothers and fathers but only for fathers these variables contributed to the prediction of treatment outcome. Fathers who reported depressive symptoms might act more rejecting because of a depressed mood. The significant correlation between paternal depressive symptoms and paternal self-reported rejection supports this hypothesis. The findings suggest that the impact on treatment outcome of parental anxiety and depressive symptoms and parental rejection is stronger for fathers than mothers.

The results with regard to maternal emotional warmth are surprising, especially because no other studies have found similar results. High levels of child reported maternal emotional warmth could result from mothers who are extremely reassuring, which could be perceived by the child as emotionally warm. As mentioned before, the results of the various studies are inconsistent and often involved mothers; several studies showed a negative effect of maternal or parental anxiety on treatment outcome (Berman et al., 2000; Bodden, 2007; Cobham et al., 1998), whereas others showed that children from anxious mothers benefited more from treatment compared to children from nonanxious mothers (Thienemann et al., 2006; Toren et al., 2000). The finding that anxiety levels of the fathers are related to treatment failure group membership of the child is similar to the results of Rapee (2000).

Limitations and Strengths

The relationship between paternal depressive symptoms and treatment success or failure was not reported by both members of the parent-child dyad; treatment outcome based on child-reported anxiety symptoms was not predicted by any of the parenting or parental variables. Therefore these results should be interpreted with caution; we cannot say that the child's perception on treatment outcome is more or less important than the perception of parents or clinicians. As the aim of the study was to identify variables that could help to predict treatment outcome, the results were effective. In addition, even though the findings with regard to parental depressive symptoms and rejection were consistent across informants and outcome measures, the associations were moderate and the contribution to and improvement of the regression models fairly modest. Therefore, these results need further investigation and replication in future studies.

In this study, parental anxiety and depression were not clinically diagnosed but assessed with questionnaires. Therefore, it is important for future research to study if the presented results can be replicated when parental depressive symptoms are diagnostically assessed for both fathers and mothers. Depressive symptoms were operationalized as present (one or more symptoms) or absent (no symptoms). The usefulness of this distinction has both advantages and disadvantages. Information on parental diagnostic status would have been a more stringent method to assess parental depression and anxiety. For instance, children of mothers with a current AD ($n = 12$) improved more than children of nonanxious mothers ($n = 12$; Toren et al., 2000). The disadvantage of diagnostic status is in the risk of overlooking the impact of mild depressive symptoms. The presented findings suggest that parent-reported outcome

is sensitive to father-reported depressive symptoms. The relation between paternal depressive symptoms, father-reported rejection, and a less favorable treatment outcome might have been predisposed by a paternal negative response style, especially as child-reported treatment outcome was not predicted by these variables and tended to be more optimistic in general.

Parental factors of mothers and fathers were investigated separately, as if maternal and paternal parenting were unrelated. In reality, interaction patterns in parenting could be important to treatment outcome. For instance, mothers might try to compensate for the depressive symptoms and rejecting parenting style in their male parenting-partners by being warmer. This would imply that having two parents with elevated levels of psychopathology or disadvantageous parenting styles could be a stronger predictor than having one parent with similar problems.

A strength of our study is the considerable clinical population included and the low dropout rate. A second strength is the use of a refined and clinically relevant method to define treatment success and treatment failure groups, as well as the use of partial correlations to detect predictors. The strategic approach was chosen for its similarities with previous studies and therefore offers comparison possibilities. We did however not study if treatment led to changes in parenting styles, parental anxiety, or depression. Change in these variables could have been more important for treatment success or failure than pretreatment levels of parenting, parental anxiety, and depression as it might reflect the capacity of a family and its members to change and implement newly learned adaptive behavior.

Implications for Research, Policy, and Practice

Identification of predictors of treatment outcome might give direction to the individual tailoring of treatments and guide improvement of current treatments and subsequently treatment response. The results of our study suggest an important role for fathers, especially for those who report anxiety and depressive symptoms or rejection. For clinical practice it appears of great importance to know what might hinder treatment in being effective. Our findings indicate that several variables related to parental affective symptoms and parental rearing style impact negatively on treatment outcome. Therefore, parenting styles and parental anxiety appear barriers to treatment success. Although it is tempting to suggest that we should treat the anxiety and/or depression in parents and thereby removing anxiety-maintaining or anxiety-enhancing factors, it is premature to conclude that altering these variables will result in an enhanced or sustained treatment outcome. Even if it would be possible to alter anxiety-maintaining or

anxiety-enhancing variables in parents drastically, this does not necessarily result in a changed perception in the child of their parents as “anxious,” “depressed,” or “rejecting.”

A recent meta-analysis reported that the results of parental involvement in the treatment of children with an AD are inconsistent and no significant differences in outcome were found for child- and family-focused treatment ($n = 16$ vs. $n = 10$; In-Albon & Schneider, 2007). It should be noted that there were such essential differences between the family-focused studies mutually that a statement on the overall effect of parental involvement appears unjustified (e.g., parental anxiety or depressive symptoms vs. lifetime diagnoses, age of participants, design). Furthermore, family-focused treatment does not equal the treatment of adult anxiety and/or depression. For instance, several studies did not find a surplus value of (additional) parent sessions with a focus on training of parents in child anxiety management skills (Mendlowitz et al., 1999; Nauta, Scholing, Emmelkamp, & Minderaa, 2003), or the surplus value faded over years (Barrett, Duffy, Dadds, & Rapee, 2001). Conversely, when anxious parents received parental anxiety management training the percentage of children who no longer met diagnostic criteria for an AD was significantly higher compared to the percentage of AD diagnosis free children whose anxious parents did not receive this treatment (Cobham et al., 1998). The results of our study suggest that parental depression management might enhance treatment outcome. Given that we do not know whether altering of parental anxiety and depressive symptoms might lead to a changed perception in children of their parents, this point of view appears worthy of exploring.

In summary, the results from our study suggest that paternal anxiety and depressive symptoms, paternal rejection, and maternal emotional warmth are important for clinical change. These findings warrant further investigation and replication. Therapists should be aware of the possible negative impact of paternal depressive symptoms and paternal rejection on treatment outcome. These presented findings stress the importance to include fathers in future studies on treatment outcome for childhood AD and assess the paternal role in pre- to posttreatment recovery.

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