Looking for mediators: cognition, perceived control and coping in the treatment of anxiety-disordered children

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Appendix
The effectiveness of the Coping Cat protocol in Dutch anxious youth: A Randomized Controlled Trial
Cognitive Behavioral Therapy (CBT) has generally been found to be efficacious in the treatment of childhood anxiety disorders, with reported remission rates between 54% and 74% (James, Soler, & Weatherall, 2009; Silverman, Pina, & Viswesvaran, 2008). More specifically, treatment efficacy of the Coping Cat protocol was established several times (see for instance Kendall, 1994; and for the twelve-week Dutch version Bodden et al., 2008; Nauta, Scholing, Emmelkamp, & Minderaa, 2001). However, in order to establish treatment efficacy of the Coping Cat protocol in the particular population we used in our study of putative mediators, we compared a twelve-week treatment condition with an eight-week waitlist condition using a Randomized Controlled Trial (RCT). We expected that CBT would be more beneficial than the waitlist condition on the primary outcome (anxiety diagnosis) and secondary outcome (anxiety symptoms) variables.

**Method**

**Design and Procedure**

The recruitment of participants and inclusion and exclusion criteria were the same as described in Chapter 7. Note that the number of children included in the study of putative mediators ($n = 145$), described in Chapter 7, differs from the number of children ($n = 148$) included in the RCT. The reason is that two children dropped out after the waitlist period and one child did not have a primary anxiety disorder anymore. These three children were excluded from the analysis described in Chapter 7.

In the RCT, children were randomized to an immediate, active treatment condition (twelve weeks CBT) or to an eight-week waitlist condition followed by CBT. Computerized and blind randomization was performed using a block-design with three levels: center (Accare / de Bascule), age (8-11 or 12-18 years old) and gender (boy/girl). Children who did not attend school due to the severity of their disorder were not randomized and immediately received treatment. Children in the waitlist condition were assessed pre- (T0) and post-waitlist (T1), after eight sessions of treatment (in-treatment, T2), after twelve sessions of treatment (post-treatment, T3) and three months after T3 (follow-up, T4). Children in the treatment condition were assessed at T1, T2, T3 and T4. In this appendix we only report the results of treatment efficacy using the pre and post-condition data (T0/T1 for the waitlist group and T1/T3 for the CBT group).
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Figure 1. Consort flowchart of inclusion and attrition of participants

Participants

Figure 1 displays a flow chart of participant inclusion, attrition rates and reasons for attrition. Of the 161 informed patients, 155 were included in the study. A part of the sample (n = 31) was not randomized due to serious school refusal (n = 28) or because of technical problems with the randomization program. Two of the 61 children that were allocated to the waitlist condition were lost for the first assessment because they refused the waitlist condition and one because of missing self-report questionnaires. Three other children emerged to be school refusers and were
replaced to the immediate treatment condition. In the intervention condition, four children never showed up for treatment or assessment and, therefore, were not included in the analysis.

The final sample consisted of 148 children and adolescents. Their mean age was 12.53 (SD = 2.84, range 8-18) and 56.8% were girls. Primary diagnoses were Social Phobia (n = 53, 35.8%), Separation Anxiety Disorder (n = 17, 11.5%), Specific Phobia (n = 32, 21.6%), Generalized Anxiety Disorder (n = 30, 20.3%) and Panic Disorder with or without Agoraphobia (n = 16, 10.8%). Eighty-eight children (59.5%) had one or more comorbid disorders, namely anxiety disorder (n = 61), mood disorder (n = 6), a combination of anxiety and mood disorder (n = 16), a combination of anxiety and externalizing disorder (n = 3), or a combination of anxiety, mood and externalizing disorder (n = 2). The total number of diagnoses per child ranged from 1 to 6 (M = 2.22, SD = 1.36). Mean ADIS-IV C/P Clinical Severity Rating (CSR) score for the primary diagnosis was 6.43 (SD = 1.03, range 4 to 8).

Demographic characteristics are outlined in Table 1. Half of the children (54.8%) had received professional help in the past for a range of problems, including anxiety problems (n = 26), symptoms of Attention Deficit Hyperactivity Disorder (n = 9), Pervasive Developmental Disorder (n = 8), learning problems (n = 3), language problems (n = 5) or other problems (n = 8). No children received protocollized CRT for anxiety problems in the past half year. A minority of children (n = 20) reported the use of medication before treatment, including drugs for anxiety problems (e.g. benzodiazepines or herbal drugs, but no SSRIs and only sporadically; n = 6), ADHD related behaviors (methylphenidate or risperidone, kept constant over study; n = 7), or other conditions (e.g. sleep problems, allergies, stomach aches; n = 6). One child used puberty suppressors for gender dysphoria.

Measures
The measures used in the RCT were the same as described in Chapter 7. To examine treatment efficacy we used the Anxiety Disorder Interview Schedule for Children-Child and Parent version (ADIS-IV C/P; Silverman & Albano, 1996) to assess diagnostic status. Clinicians rated severity of symptoms based on interference in school, peer relationships, family life and internal distress on a 9-point scale, ranging from 0 to 8. A clinician severity rating (CSR) of four or higher is indicative of a diagnosis. The Revised Child Anxiety and Depression Scale-Child and Parent version (RCADS-C/P; Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000) was used to assess the level of anxiety symptoms as reported by children and parents.
Table 1. Demographic characteristics of the total group and separate for the waitlist group and the intervention group

<table>
<thead>
<tr>
<th></th>
<th>Waitlist n = 55</th>
<th>Intervention n = 93</th>
<th>Total group n = 148</th>
<th>Difference test, p, effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>12.04 (2.92)</td>
<td>12.82 (2.77)</td>
<td>12.53 (2.84)</td>
<td>t(146) = -1.62, p &gt; .05, d = 0.28</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>25 (45.5%)</td>
<td>39 (41.9%)</td>
<td>64 (43.2%)</td>
<td>χ²(1) = 0.17, p &gt; .05, V = 0.03</td>
</tr>
<tr>
<td>Girls</td>
<td>30 (54.5%)</td>
<td>54 (58.1%)</td>
<td>84 (56.8%)</td>
<td>p &gt; .05, V = 0.03</td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 – 11 years</td>
<td>29 (52.7%)</td>
<td>34 (36.6%)</td>
<td>63 (42.6%)</td>
<td>χ²(1) = 3.70, p &gt; .05, V = 0.16</td>
</tr>
<tr>
<td>12 – 18 years</td>
<td>26 (47.3%)</td>
<td>59 (63.4%)</td>
<td>85 (57.4%)</td>
<td>p &gt; .05, V = 0.16</td>
</tr>
<tr>
<td>Centre</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMC/Bascule</td>
<td>15 (27.3%)</td>
<td>35 (37.6%)</td>
<td>50 (33.8%)</td>
<td>χ²(1) = 1.66, p &gt; .05, V = 0.09</td>
</tr>
<tr>
<td>Accare</td>
<td>40 (72.7%)</td>
<td>58 (62.4%)</td>
<td>98 (66.2%)</td>
<td>p &gt; .05, V = 0.09</td>
</tr>
<tr>
<td>Education M</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>16 (32.0%)</td>
<td>19 (21.8%)</td>
<td>35 (25.5%)</td>
<td>χ²(2) = 2.04, p &gt; .05, V = 0.12</td>
</tr>
<tr>
<td>Medium</td>
<td>22 (44.0%)</td>
<td>40 (46.0%)</td>
<td>62 (45.3%)</td>
<td>p &gt; .05, V = 0.12</td>
</tr>
<tr>
<td>High</td>
<td>12 (24.0%)</td>
<td>28 (32.2%)</td>
<td>40 (29.2%)</td>
<td>p &gt; .05, V = 0.12</td>
</tr>
<tr>
<td>Education P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>17 (36.2%)</td>
<td>16 (20.5%)</td>
<td>33 (26.4%)</td>
<td>χ²(2) = 4.03, p &gt; .05, V = 0.18</td>
</tr>
<tr>
<td>Medium</td>
<td>16 (34.0%)</td>
<td>29 (37.2%)</td>
<td>45 (36.0%)</td>
<td>p &gt; .05, V = 0.18</td>
</tr>
<tr>
<td>High</td>
<td>14 (29.8%)</td>
<td>33 (42.3%)</td>
<td>47 (37.6%)</td>
<td>p &gt; .05, V = 0.18</td>
</tr>
<tr>
<td>Treatment history</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>27 (49.1%)</td>
<td>53 (58.2%)</td>
<td>80 (54.8%)</td>
<td>χ²(1) = 1.16, p &gt; .05, V = 0.09</td>
</tr>
<tr>
<td>Yes</td>
<td>28 (50.9%)</td>
<td>38 (41.8%)</td>
<td>66 (45.2%)</td>
<td>p &gt; .05, V = 0.09</td>
</tr>
<tr>
<td>Medication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>49 (89.1%)</td>
<td>78 (84.8%)</td>
<td>127 (86.4%)</td>
<td>χ²(1) = 0.54, p &gt; .05, V = 0.06</td>
</tr>
<tr>
<td>Yes</td>
<td>6 (10.9%)</td>
<td>14 (15.2%)</td>
<td>20 (13.6%)</td>
<td>p &gt; .05, V = 0.06</td>
</tr>
<tr>
<td>Medication type</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADHD</td>
<td>1 (16.7%)</td>
<td>6 (42.9%)</td>
<td>7 (35.0%)</td>
<td>χ²(1) = 1.41, p &gt; .05, V = 0.27</td>
</tr>
<tr>
<td>Anxiolytic</td>
<td>2 (33.3%)</td>
<td>4 (28.6%)</td>
<td>6 (30.0%)</td>
<td>p &gt; .05, V = 0.27</td>
</tr>
<tr>
<td>Other</td>
<td>3 (50.0%)</td>
<td>4 (28.6%)</td>
<td>7 (35.0%)</td>
<td>p &gt; .05, V = 0.27</td>
</tr>
<tr>
<td>Family type</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-parent</td>
<td>43 (78.2%)</td>
<td>80 (86.0%)</td>
<td>123 (83.1%)</td>
<td>χ²(1) = 1.51, p &gt; .05, V = 0.10</td>
</tr>
<tr>
<td>1-parent/other</td>
<td>12 (21.8%)</td>
<td>13 (14.0%)</td>
<td>25 (16.9%)</td>
<td>p &gt; .05, V = 0.10</td>
</tr>
<tr>
<td>Siblings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>48 (87.3%)</td>
<td>80 (86.0%)</td>
<td>128 (86.5%)</td>
<td>χ²(1) = 0.05, p &gt; .05, V = 0.02</td>
</tr>
<tr>
<td>No</td>
<td>7 (12.7%)</td>
<td>13 (14.0%)</td>
<td>20 (13.5%)</td>
<td>p &gt; .05, V = 0.02</td>
</tr>
</tbody>
</table>

Note. Sample size per variable may differ because not all parents reported educational level or treatment history. M = Mother; P = Father; d = Cohen’s d; V = Cramer’s V. Educational levels: low = primary school / lower general secondary education; medium = higher general secondary education / intermediate vocational education; high = higher vocational education or university.
Data Analytic Strategies

Baseline characteristics. All children with at least one assessment (T0 or T1, n = 148) were included in the analyses following the intent-to-treat approach. Children who dropped out at different time points were compared on baseline scores and change scores. We compared the waitlist and treatment group on first assessment scores (T0 or T1) to check whether the randomization procedure was successful. Missing data points (missing questionnaires or complete missing data points in the case of drop-out) were imputed using the Expectation-Maximization procedure in SPSS 18.0. Results displayed in the tables are imputed scores.

Treatment efficacy. First, diagnostic status (number of responders and non-responders) at outcome (post-waitlist and post-treatment) was compared between groups using a χ2 test. Cramer’s V is reported as effect size: < .10 is negligible, < .20 is weak, < .40 is moderate, < .60 is relatively strong, < .80 is strong, and < 1.00 is a very strong effect.

Second, Individual Reliable Change scores (RC_indiv, Hageman & Arrindell, 1999) were computed for the pre- and post-condition scores on the RCADS-C/P and total ADIS-IV C/P CSR score. The RC-score indicates whether a specific individual has shown benefit from treatment. RC-scores can be transformed into three categories (RC_index): improved (RC-score < -1.65); not reliably changed (-1.65 ≤ RC-score ≥ 1.65); and deteriorated (RC-score > 1.65). A client whose RC-score indicates improvement and whose post-score on the outcome measure is outside the range of the dysfunctional population, is considered to have recovered or to show a clinically significant (CS) change. The individual CS-index was computed for the ADIS-IV C/P total CSR score using cutoff type a (Hageman & Arrindell, 1999). The individual CS-score is, analogous to the RC-score, the normal deviate of the cutoff score within the (conditional) distribution of true post-scores given the observed post-score.

Finally, treatment efficacy was evaluated using 2 x 2 mixed ANOVAs with condition (waitlist or direct CBT) as between-group variable and time (pre-post condition) as within-group variable. Separate ANOVAs were performed for different outcome variables (parent, child and total reported diagnostic status on the ADIS-IV CSR; and parent and child reported symptoms on the RCADS). We report results of the main effect of time and the intended interaction effect of condition x time. To accommodate for Type I error, a Bonferroni correction was used and α was set at .05 / 5 = .01. For the ANOVAs eta squared (η²) is reported as effect size with small (.01), medium (.06), and large (.14) effects. Effect sizes of group difference at pre- and post-condition were computed using Cohen’s d, with a positive sign indicating improvement in the CBT group relative to the waitlist group. Effects can be small (.20), medium (.50), or large (.80).
Results

Baseline Characteristics
Several children dropped out during treatment ($n = 33$) or during the follow-up period ($n = 12$, see Figure 1). Attrition rates were 19.1% during treatment (T2), 22.6% at post-treatment (T3), and 30.8% at follow-up (T4). There were four different reasons to withdraw from treatment. Four patients started a different treatment after a few sessions, because of a shift in primary diagnosis or because another treatment was more convenient (e.g. treatment at school). Eight children did not need further treatment because their anxiety problems decreased to a nonclinical level. Twelve children dropped out because their anxiety problems were so severe that they needed inpatient treatment or medication. Finally, 21 children dropped out because they did not want to participate in the study any longer (e.g. they found it too time-consuming). Children who dropped out at different points in time (at T2, T3 or T4) were compared on their pre-treatment scores on the putative mediators, outcome variables, age and gender. There were no significant differences between the groups, indicating no selection bias due to attrition.

Demographics and scores on outcome variables on the first assessment for both the waitlist-group (T0) and the immediate treatment group (T1) are displayed in Table 1 and 2. Bonferroni-corrected difference tests showed that there were no differences on demographic variables and outcome variables between the children in the treatment group and the waitlist group.

Table 2. Means and standard deviations of the outcome variables at the first assessment, and group differences between the waitlist group (T0) and the direct treatment group (T1)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Waitlist group (T0, N = 55)</th>
<th>Treatment group (T1, N = 93)</th>
<th>Difference test</th>
<th>Cohen's d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child</td>
<td>5.07 (2.19)</td>
<td>5.67 (2.00)</td>
<td>$U = 2970.00^{ns}$</td>
<td>-0.29</td>
</tr>
<tr>
<td>Parent</td>
<td>5.99 (1.27)</td>
<td>6.31 (1.35)</td>
<td>$U = 2896.00^{ns}$</td>
<td>-0.24</td>
</tr>
<tr>
<td>Total</td>
<td>6.24 (0.94)</td>
<td>6.55 (1.06)</td>
<td>$U = 2974.00^{ns}$</td>
<td>-0.31</td>
</tr>
<tr>
<td>RCADS-C/P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child</td>
<td>27.05 (16.68)</td>
<td>26.35 (13.17)</td>
<td>$U = 2490.00^{ns}$</td>
<td>0.04</td>
</tr>
<tr>
<td>Parent</td>
<td>32.86 (12.65)</td>
<td>30.19 (13.31)</td>
<td>$t(146) = 1.20^{ns}$</td>
<td>0.21</td>
</tr>
</tbody>
</table>

Note. CSR = Clinical Severity Rating ADIS-C/P; RCADS = Revised Child Anxiety and Depression Scale.

$^{ns}$ difference test is not significant. Cohen’s $d$ is reported as effect size.
Table 3. Reliable change and clinically significant change scores and indices separate for the waitlist and treatment group

<table>
<thead>
<tr>
<th></th>
<th>Waitlist group (T0, N = 55)</th>
<th>Treatment group (T1, N = 93)</th>
<th>Difference test</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC-Score (M, SD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCADS-Child</td>
<td>-0.54 (1.08)</td>
<td>-1.84 (2.04)</td>
<td>t(144.68) = 5.05***</td>
<td>d = 0.75</td>
</tr>
<tr>
<td>RCADS-Parent</td>
<td>-1.13 (0.53)</td>
<td>-1.44 (1.68)</td>
<td>t(119.23) = 1.67</td>
<td>d = 0.23</td>
</tr>
<tr>
<td>CSR Total</td>
<td>-1.37 (3.77)</td>
<td>-10.53 (6.91)</td>
<td>t(144.68) = 5.05***</td>
<td>d = 1.55</td>
</tr>
<tr>
<td>CS-Score (M, SD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSR Total</td>
<td>5.96 (5.04)</td>
<td>-6.64 (11.03)</td>
<td>t(138.94) = 9.47***</td>
<td>d = 1.37</td>
</tr>
<tr>
<td>RC-Index (n, %)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCADS-Child Deteriorated</td>
<td>1 (1.8%)</td>
<td>3 (3.2%)</td>
<td>χ²(2) = 23.89***</td>
<td>V = 0.39</td>
</tr>
<tr>
<td></td>
<td>NRC</td>
<td>Improved</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>47 (85.5%)</td>
<td>47 (50.5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCADS-Parent Deteriorated</td>
<td>0 (0.0%)</td>
<td>3 (3.2%)</td>
<td>χ²(2) = 12.10**</td>
<td>V = 0.29</td>
</tr>
<tr>
<td></td>
<td>NRC</td>
<td>Improved</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>46 (83.6%)</td>
<td>52 (55.9%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSR total</td>
<td>Deteriorated</td>
<td>Recovered</td>
<td>χ²(3) = 61.75***</td>
<td>V = 0.65</td>
</tr>
<tr>
<td></td>
<td>9 (16.4%)</td>
<td>24 (43.6%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NRC</td>
<td>Improved</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>24 (43.6%)</td>
<td>24 (25.8%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recovered</td>
<td>1 (1.8%)</td>
<td>58 (62.4%)</td>
<td></td>
</tr>
</tbody>
</table>

Note: RC = Reliable Change; CS = Clinical Significant Change; CSR = Clinical Severity Rating ADIS-C/P; RCADS = Revised Child Anxiety and Depression Scale; NRC = No Reliable Change.
*** p < .001, ** p < .01, * p < .05. Cohen’s d and Cramer’s V are reported as effect size.

Diagnostic Status and Clinical Significant Change
Children were responders when their combined ADIS-IV C/P CSR score was below four. In the waitlist group, ADIS-IV C/P CSR scores remained in the clinical range for all children but one (1/53 = 1.9%). In the treatment condition significantly more children (42/75 = 56.0%) were free of any diagnosis after twelve sessions of CBT, χ²(1) = 40.76, p < .001. This effect was moderate, Cramer’s V = .56.

Results for reliable change and clinical significant change are reported in Table 3. Children showed more reliable change after treatment in comparison to the waitlist condition as reported on the RCADS-child and ADIS-IV C/P total score. There was no difference between groups on the parent reported RCADS. More children in the treatment condition improved after treatment based on the RCADS-child and RCADS-parent. Based on the ADIS-IV C/P, only one child (1.8%) in the waitlist condition recovered, in comparison to 58 (62.4%) in the treatment condition.
Table 4. Pre- and post-intervention means (and SDs), and repeated measures ANOVAs on the outcome variables for the waitlist group (WL) and treatment group (CBT)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre-intervention M (SD)</th>
<th>Post-intervention M (SD)</th>
<th>ANOVAs F(1, 146), part.η²</th>
<th>Cohen's d post</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSR child</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBT</td>
<td>5.67 (2.00)</td>
<td>2.10 (2.72)</td>
<td>Time: 66.82***, .31</td>
<td>1.24</td>
</tr>
<tr>
<td>WL</td>
<td>5.07 (2.19)</td>
<td>5.11 (1.85)</td>
<td>Time x cond: 69.64***, .32</td>
<td></td>
</tr>
<tr>
<td>CSR parent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBT</td>
<td>6.31 (1.34)</td>
<td>2.72 (2.85)</td>
<td>Time: 119.11***, .45</td>
<td>1.20</td>
</tr>
<tr>
<td>WL</td>
<td>5.99 (1.27)</td>
<td>5.60 (1.41)</td>
<td>Time x cond: 76.84***, .35</td>
<td></td>
</tr>
<tr>
<td>CSR total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBT</td>
<td>6.55 (1.06)</td>
<td>2.76 (2.90)</td>
<td>Time: 133.33***, .48</td>
<td>1.26</td>
</tr>
<tr>
<td>WL</td>
<td>6.24 (0.94)</td>
<td>5.79 (1.21)</td>
<td>Time x cond: 83.07***, .36</td>
<td></td>
</tr>
<tr>
<td>RCADS-child</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBT</td>
<td>26.35 (16.17)</td>
<td>17.09 (13.03)</td>
<td>Time: 35.94***, .20</td>
<td>0.54</td>
</tr>
<tr>
<td>WL</td>
<td>27.05 (16.68)</td>
<td>24.76 (16.38)</td>
<td>Time x cond: 13.06***, .08</td>
<td></td>
</tr>
<tr>
<td>RCADS-parent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBT</td>
<td>30.19 (13.31)</td>
<td>23.16 (14.01)</td>
<td>Time: 79.98***, .35</td>
<td>0.11</td>
</tr>
<tr>
<td>WL</td>
<td>32.86 (21.65)</td>
<td>24.57 (10.98)</td>
<td>Time x cond: 0.55**, .00</td>
<td></td>
</tr>
</tbody>
</table>

Note. CSR = Clinical Severity Rating ADIS-C/P; RCADS = Revised Child Anxiety and Depression Scale. Time: main effect of time; Time x cond: interaction effect of time x condition (waitlist vs. treatment).
* p < .05, ** p < .01, *** p < .001, ns p > .05. Cohen's d is reported as effect size.

Treatment Outcome

Separate mixed ANOVAs revealed that children in the treatment condition improved more with respect to anxiety severity and level of anxiety symptoms than children in the waitlist condition (see Table 4). For the child reported, parent reported and total ADIS-IV C/P CSR scores, and the child reported RCADS scores, both main effects of time and interaction effects of condition x time were significant. Based on parent reported anxiety symptoms (RCADS-parent) there was no difference between groups: they both improved over time.

Discussion

The present RCT investigated the effects of a twelve-week cognitive behavioral treatment protocol (Coping Cat) compared to an eight-week waitlist in clinically anxious children. The main results can be summarized as: a) CBT was more effective in changing diagnostic status and child- and parent-reported anxiety severity, b) CBT was more effective in decreasing child-reported anxiety symptoms, but not in decreasing parent-reported anxiety symptoms.
As expected, diagnostic status significantly changed after treatment. Post-treatment, 56% of treatment completers were free of any diagnosis. This is highly comparable to earlier studies where the percentage of post-treatment responders ranged between 53% and 74% (Bodden et al., 2008; Cartwright-Hatton, Roberts, Chitsabesan, Fothergill, & Harrington, 2004; James et al., 2009; Silverman et al., 2008). Active treatment proved to be more efficacious than an eight-week waitlist. After the waitlist period only one child (1.8%) was free of any diagnosis. This is less than previously reported rates between 28%-35% for waitlist conditions (Cartwright-Hatton et al., 2004; James et al., 2009) and may be due to the present inclusion of severely affected children relative to former studies.

Further, anxiety symptoms and anxiety severity significantly decreased during treatment. On individual level and based on child and parent reported symptoms, respectively 51% and 41% of the children reliably improved after treatment, compared to only 13% and 16% after eight treatment-free weeks. Interestingly, on group level there were no differences between groups on parent reported anxiety symptoms. We do not know how to explain why parents in the waitlist group reported a decrease in anxiety symptoms on a questionnaire, while they reported no decrease in anxiety severity on a semi-structured interview.

A limitation of the current RCT is that not all children were properly randomized due to ethical reasons. Some children were so severely impaired that they did not attend school anymore and we did not consider it ethical to include them in a waitlist condition. We decided to include the youth with school refusal in the analyses as we did not want to have too stringent exclusion criteria and a representative sample of children referred to child- and adolescent psychiatric centers. Moreover, these youngsters were treated with the same protocol and did not receive special attention other than an exclusion of the randomization procedure. Pre-treatment demographic and outcome variables and attrition rates appeared to be comparable between children who did and did not attend school at the time of inclusion. Finally, and most importantly, results for the mixed ANOVAs investigating the effect of condition on outcome variables, were similar when children who were not randomized were excluded from the analyses.

To conclude, the current RCT replicated previous studies investigating treatment efficacy of a protocolized cognitive behavioral treatment for anxiety disordered children. CBT proved to be effective in reducing anxiety severity and anxiety symptoms.