

## Two-Year Outcome Following Group Cognitive Behavioural Therapy for Adolescents with Anxiety Disorders in Low- and Middle-Income Country

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### Abstract

Anxiety disorders (ADs) are common in adolescents, and can greatly influence psychosocial development, especially if untreated. Cognitive behavioural therapy (CBT) has shown short-term effectiveness in the treatment of ADs. However, few studies have assessed the long-term effectiveness of CBT in low- and middle-income countries (LaMICs). The objective of the study was to assess symptoms of anxiety and depression and quality of life in participants two years after group CBT (GCBT). The present study consisted of a follow-up assessment of adolescents two years after undergoing GCBT for ADs. Outcome measures were assessed at baseline, after the end of therapy and at a two-year follow-up. Fifteen (79%) out of the 19 adolescents who completed GCBT were reassessed at follow-up. There was significant improvement in Global Clinical Impression (GCI) and Children's Global Assessment Scale (CGAS) scores with a large effect size (1.61 and 1.41, respectively), but no significant improvement was observed in anxiety and depression symptoms. There was significant improvement in general quality of life, with moderate effect size (0.74). The results underscore the long-term benefits of CBT and encourage its use in treating adolescents with ADs in LaMICs.

**Keywords:** Cognitive behavioural therapy. Anxiety disorders in childhood and adolescence. Follow-up studies. Quality of life

### 1. Introduction

Anxiety disorders (ADs) are among the most frequent conditions afflicting children and adolescents, with a lifetime prevalence of up to 24.9% (Kessler et al., 2012). Retrospective (Klein, 1995; Pollack et al., 1996) and prospective studies (Beesdo et al., 2007; Bittner et al., 2007; Moffit et al., 2007) indicate that ADs in childhood and adolescence are chronic conditions that do not spontaneously remit over time. In the absence of early treatment, ADs increase the risk of school dropout or underachievement (Woodward & Fergusson, 2001; Duchesne et al., 2008), and psychopathologies such as depression (Flannery-Schroeder, 2006; Bittner et al., 2007; Moffit et al., 2007; Copeland et al., 2009; Beesdo et al., 2010) and substance use (Woodward & Fergusson, 2001; Kendall & Kessler, 2002) in adulthood. In the last two decades, an increasing number of randomized clinical trials of treatments for ADs have produced evidence for the short-term effectiveness of CBT (In-Albon & Schneider, 2007; Silverman, Pina & Viswesvaran, 2008). Kendall (1994) conducted the first study of CBT in children and adolescents with ADs using the Coping Cat programme.

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The programme consisted of teaching patients to recognize symptoms of anxiety, change negative cognitions in anxiety-provoking situations, develop a plan for dealing with anxiety, and stimulate gradual exposure to anxiety-provoking situations, as well as rewarding the patient for his efforts. After 16 weeks of treatment, improvement was observed in self- and parental reports, and 66% of the patients randomized to CBT versus 5% of the waiting list group no longer met diagnostic criteria for ADs (Kendall, 1994). However, follow-up studies assessing long-term effects of CBT are scarce. The few follow-up studies that have been conducted found that the benefits of CBT persist for 6 and 12 months after treatment (Barrett et al., 2001). In a study with a longer follow-up period, patients were reassessed 2 to 5 years (mean of 3.5 years) after CBT, and results from self-report and parent questionnaires as well as diagnostic criteria indicated that benefits persisted at follow-up (Kendall & Southam-Gerow, 1996). Similarly, a follow-up study of children who underwent 16 weeks of CBT for ADs (separation anxiety disorder, social anxiety disorder and generalized anxiety disorder) found that therapy benefits persisted and rates of depression and substance use were low after a mean period of 7.4 years since treatment (Kendall et al., 2004). In developing countries, there is a markedly low number of studies of the short- and long-term effects of CBT for ADs. Recently, a study of the effectiveness of group CBT (GCBT) in pre-adolescents with ADs was conducted in Southern Brazil (de Souza et al., 2013). Participants were recruited from a previous study (Salum et al., 2011), and underwent 14 sessions of GCBT based on the Coping Cat protocol (Kendall & Hedtke, 2006a; 2006b). Results showed significant reductions in anxiety symptoms and improvement in global assessment after treatment, with moderate to large effect sizes (de Souza et al., 2013). Since the long-term effects of CBT for ADs in adolescents in low- and middle-income countries (LaMICs) are unknown, the goal of the present study was to assess treatment response to GCBT after two years in terms of anxiety and depression symptoms and quality of life

## 2. Method

The present study conducted a follow-up assessment of adolescents two years after undergoing GCBT for ADs. The study was approved by the Hospital de Clínicas de Porto Alegre Research Ethics Committee (protocol number 110181). Adolescents and guardians provided written informed consent.

### 2.1 Participants

The sample consisted of adolescents who participated in GCBT between 2009 and 2010, attended at least 50% of the 14 therapy sessions, and were last assessed after the end of therapy (de Souza et al., 2013). Inclusion criteria for GCBT were: age between 10 and 13 years, not undergoing psychotherapeutic or psychopharmacological therapy at time of recruitment, and availability to participate in CBT groups for 14 weeks. Exclusion criteria were: severe comorbidities requiring immediate treatment, primary diagnosis of post-traumatic stress disorder (PTSD), obsessive-compulsive disorder (OCD), psychotic disorders or pervasive developmental disorders and marked cognitive impairment or intellectual disability. A total of 19 patients completed treatment at the end of the original study. Two years after completing GCBT, guardians were contacted via telephone and invited to take part in the follow-up assessment. Participants and guardians could choose, at their convenience, to be assessed at the hospital or in their homes.

### 2.2 Intervention

The GCBT was based on the Coping Cat protocol, developed by Phillip Kendall and Kristina Hedtke (2006). The sessions have been described elsewhere (de Souza et al., 2013). In brief, 14 weekly 90-minute sessions were conducted, and guardians took part in two psycho education sessions. In the first part of therapy (sessions 1 through 6), participants received psycho education about the physiological, behavioural and cognitive symptoms of anxiety, and were taught coping strategies to deal with anxiety. In the second half of therapy (sessions 7 through 14) participants practised coping strategies, as well as the identification of and gradual exposure to anxiety-provoking situations, and relapse prevention (de Souza et al., 2013).

### 2.3 Assessment Instruments

Upon entering the group, participants were assessed using the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL), a semi-structured diagnostic interview with parents and the patient to assess current and past episodes of psychopathology according to DSM-III-R and DSM-IV criteria (Kaufman et al., 1997). The K-SADS-PL was performed by independent child and adolescent psychiatrists or psychiatric residents receiving supervision (Salum et al., 2011). Symptom severity was assessed using the Clinical Global Impression (CGI) and Child Global Assessment Scale (CGAS).

Adolescents also completed the Screen for Child Anxiety Related Emotional Disorders (SCARED), Children's Depression Inventory (CDI) and Youth Quality of Life (YQOL) scales. Parents or guardians completed the Strengths and Difficulties Questionnaire (SDQ-P). Instruments were administered at baseline, after 14 sessions of GCBT and two years after the end of treatment by evaluators who had not participated as coordinators of the sessions. The CGI is a clinical scale that assesses symptom severity and ranges from 1 (normal) to 7 (extremely ill). Remission rates were defined by CGI  $\leq 2$  in the previous month (Guy, 1976). The CGAS assesses global impairment and functioning during the previous month. The scale ranges between 1 and 100. Scores equal to or smaller than 60 indicate a need for treatment (Schaffer et al., 1983). The SCARED, child version, (SCARED-C) comprises 41 items and assesses anxiety symptoms according to DSM-IV criteria for separation anxiety disorder, social anxiety disorder, generalized anxiety disorder and school phobia. This scale has been validated in Brazilian Portuguese and showed satisfactory internal consistency (Isolan et al., 2011). The CDI assesses depression symptoms in individuals aged between 7 and 17 years. The scale consists of 20 items, scored from 0 to 2, which investigate depressive symptoms during the previous two weeks. Item scores were added to give a total score for each participant (Fleitlich-Bilyk & Goodman, 2004). The YQOL was used as a multidimensional assessment of general quality of life. The YQOL-R consists of 41 perceptual and 15 contextual items. The perceptual items are known only by patients themselves and are not observable by others, while contextual items are observable by others (Edwards et al., 2002; Patrick, Edwards & Topolski, 2002). The scale is divided into four domains: self, relationships, environment and general quality of life. It also provides a total quality of life score. The YQOL-R displayed adequate psychometric properties in the Brazilian validation study (Salum et al., 2012). The SDQ-P screens for mental health conditions during childhood and adolescence through 25 questions regarding prosocial behavior, hyperactivity, and emotional, conduct and relationship problems (Goodman, 1997) The questionnaire was validated in Brazil, and has a number of advantages over other instruments: it is more compact, focuses more on strengths and difficulties, and provides specific information about difficulties related to attention/hyperactivity, peer relationships and prosocial behaviours (Fleitlich-Bilyk, Cortazar & Goodman, 2000).

#### 2.4 Statistical Analysis

**Table 1 – Demographic Characteristics and Sample Diagnoses**

Variables	n=19
Age (years)*	12.3 (0.99)
Sex**	
Female	15 (79)
Ethnicity**	
Caucasian	10 (53)
Anxiety Disorders**	
GAD	16 (84)
Specific phobia	13 (68)
Agoraphobia	13 (68)
SeAD	10 (53)
SoAD	8 (42)
Panic disorder	2 (10)
OCD	1 (5)
PTSD	1 (5)
Other disorders**	
ADHD	5 (26)
Depression	1 (5)
Comorbidities*	3.7 (1.3)

Abbreviations: ADHD = Attention Deficit/Hyperactivity Disorder; SeAD = Separation Anxiety Disorder; SoAD = Social Anxiety Disorder; GAD = Generalized Anxiety Disorder; OCD = Obsessive-Compulsive Disorder; PTSD = Post-traumatic Stress Disorder.

\* Continuous variables presented as mean (standard deviation).

\*\* Categorical variables presented as absolute frequencies (percentages).

Quantitative variables were described as a mean and standard deviation, while categorical variables were described as absolute and relative frequencies. The Generalized Estimating Equation (GEE) method was used to estimate regression parameters and investigate correlations while taking into account missing data due to follow-up loss. Bonferroni corrections were used to compare the three assessments (baseline, four months and two-years after therapy). Results were considered significant at 5%, and analyses were conducted using the Statistical Package for the Social Sciences (SPSS), version 18.0.

### 3. Results

Of the 19 patients who completed GCBT, 15 (79%) took part in the follow-up assessment, and six of the interviews were conducted in the patient's homes. Two GCBT patients were unwilling to participate in the follow-up assessment, while the parents of two other patients considered their children to be functioning adequately and not in need of reassessment, so that a total of four patients were lost at follow-up. Demographic and diagnostic characteristics of the sample are displayed in Table 1. Table 2 presents the assessment results. Significant improvements in clinical impression (CGI) and global functioning (CGAS) scores were observed between baseline and both the end of the 14 GCBT sessions and the two-year follow-up assessment, with a large effect size (CGI=1.61 and CGAS=1.41). However, no significant differences were observed between assessments at the end of GCBT and the two-year follow-up. Seven (47%) out of the 15 patients reassessed at follow-up were in remission (CGI  $\leq$  2). No significant differences were observed in anxiety (SCARED) and depression (CDI) symptoms. There was a significant reduction in scores on the "emotional problems" subscale of the SDQ-P between baseline and post-treatment assessment, with a moderate effect size (0.61). However, no significant differences were observed between the assessment after the end of therapy and the two-year follow-up (Table 2). The YQOL-R scores indicated significant improvement in general quality of life two years after GCBT as compared to the beginning and end of treatment, with a moderate effect size (0.74). No significant differences were observed in other quality of life domains (Table 2).

**Table 2 – Outcomes After Two Years of Group Cognitive-Behavioural Therapy for Anxiety Disorders (N=19)**

Variables	Baseline		4 months		2 years		GEE	
	Mean	95%CI	Mean	95%CI	Mean	95%CI	Effect of Time	Effect Size*
<b>Symptom severity</b>								
Anxiety (SCARED)	29.1	25.7-32.4	24.5	21.9-27.1	27.2	21.0-33.5	0.071	0.06
Depression (CDI)	6.2	5.0-7.3	4.8	3.7-5.9	6.0	3.6-8.3	0.206	0.03
<b>Global Assessment</b>								
CGI	<b>4.0<sup>b</sup></b>	<b>3.8-4.2</b>	<b>2.7<sup>a</sup></b>	<b>2.5-3.0</b>	<b>2.6<sup>a</sup></b>	<b>2.3-2.9</b>	<b>&lt;0.001</b>	<b>1.61</b>
CGAS	<b>55.4<sup>b</sup></b>	<b>53.2-57.7</b>	<b>68.8<sup>a</sup></b>	<b>66.3-71.4</b>	<b>73.4<sup>a</sup></b>	<b>68.3-78.5</b>	<b>&lt;0.001</b>	<b>1.41</b>
<b>Internalizing and externalizing symptoms (SDQ-P)</b>								
Emotional	<b>5.9<sup>b</sup></b>	<b>5.2-6.6</b>	<b>4.5<sup>a</sup></b>	<b>4.0-5.0</b>	<b>4.5<sup>ab</sup></b>	<b>3.7-5.4</b>	<b>0.023</b>	<b>0.61</b>
Behavioural	2.7	2.3-3.2	2.3	1.6-3.1	2.2	1.3-3.0	0.322	0.29
Hyperactivity	4.3	3.6-5.0	4.2	3.5-5.0	3.8	3.0-4.6	0.641	0.19
Relationships	3.4	2.9-3.8	2.6	2.0-3.1	2.4	1.7-3.1	0.078	0.51
Prosocial	8.2	7.7-8.7	8.5	7.9-9.2	7.4	6.7-8.2	0.218	0.46
<b>Quality of Life (YQOL)</b>								
General	<b>82.6<sup>a</sup></b>	<b>78.7-86.6</b>	<b>86.3<sup>ab</sup></b>	<b>81.9-90.8</b>	<b>94.1<sup>b</sup></b>	<b>87.7-100</b>	<b>0.041</b>	<b>0.74</b>
Self	69.9	66.1-73.7	75.1	71.8-78.4	74.5	68.3-80.7	0.184	0.27
Relationship	71.8	67.4-76.3	76.1	72.4-79.8	77.2	71.9-82.5	0.418	0.35
Environmental	85.2	81.8-88.7	88.3	85.6-91.1	90.6	86.1-95.0	0.326	0.43
Total	77.4	74.3-80.5	81.5	78.4-84.5	84.1	79.5-88.7	0.107	0.56

Abbreviations: GEE=Generalized Estimating Equations; CGI=Clinical Global Impression Scale; SCARED=Screen for Child Anxiety Related Emotional Disorders; CDI=Children's Depression Inventory; CGAS=Children's Global Assessment Scale ; SDQ-P=Strengths and Difficulties Questionnaire-Parents version; SE= Emotional problems; Behavioural Problems; Hyperactivity; Relationship Problems; Prosocial Behaviour Problems; YQOL= Youth Quality of Life.

<sup>a,b</sup> Figures denoted by same letters are not significantly different at Bonferroni-adjusted  $p < .05$

#### 4. Discussion

The present results demonstrate improvements in clinical impression and global functioning scores between the beginning of treatment and the two follow-up assessments, indicating persistent benefits of GCBT for up to two years after treatment. These findings are similar to those reported in high income countries, where positive results were observed in follow-up periods ranging from 1 to 13 years (Kendall et al., 2004; Bernstein et al., 2008; Cobham et al., 2010; Saavedra et al., 2010). Anxiety and depression symptoms did not significantly change over time. A follow-up study assessing the effects of CBT for ADs in childhood after a mean period of 7.4 years since therapy found that, although a number of treatment benefits were observed (Kendall et al., 2004), there was a significant increase in anxiety scores between post-treatment and follow-up assessments (Kendall, 1997). However, follow-up scores remained significantly lower than at baseline. Depression symptoms significantly decreased from baseline to post-treatment (Kendall, 1997), and treatment benefits were stable during the follow-up period. In another study, considered one of the longest follow-up studies on ADs in childhood and adolescence (Manassis et al., 2004), the authors found that anxiety symptoms persisted for 6 to 7 years after CBT. Importantly, 70% of the sample did not report needing additional treatment after CBT. Findings regarding anxiety symptoms were similar to the present study. In fact, it was observed that scores in the "emotional problems" domain of the SDQ-P, which assesses mood, fears, insecurities and somatic symptoms, decreased significantly and remained stable (mean 4.5) over time. Furthermore, significant improvements were observed in general quality of life. It is hypothesized that the stable improvement in global functioning after the end of treatment led to long-term gains in quality of life. Follow-up studies of CBT for ADs do not generally use quality of life as an outcome measures. These studies focus on disease symptoms or remission (Kendall et al., 2004; Manassis et al., 2004) rather than on factors that influence social, occupational and interpersonal development, for instance. Therefore, as this is the first follow-up study in a LaMIC, it is especially important to assess the effect of GCBT on quality of life through statements such as "Life is worthwhile," "I'm satisfied with life" and "I enjoy life."

Although parents participated in two psycho education sessions and were present during patient interviews, parents were not directly assessed. There is no consensus in the literature regarding parent inclusion in CBT. A study by Cobham et al. (2010) compared the effect of CBT for children with ADs to the effects of CBT plus parental anxiety management. The study assessed 60 children in a follow-up period of three years. Seventy percent of children who underwent CBT alone versus 92% of those whose parents were also offered anxiety management no longer met diagnostic criteria at follow-up. Therefore, the intervention involving the family was considered significantly better. On the other hand, studies such as that of Barrett et al. (2001) did not find differences between the effectiveness of interventions with or without family involvement. Barrett et al. (2001) reassessed 52 children who had been previously randomized to CBT or CBT plus family support after a period of 5 to 7 years (mean of 6.17 years). After the follow up period, 85.7% of patients no longer met diagnostic criteria for ADs. These results were similar to the percentage of children who were no longer diagnosable with ADs after a year (79.6%), and these rates did not differ between interventions. The present study had some important limitations. The first is related to the small sample size, as only some participants from the previous study underwent follow-up assessment (de Souza et al., 2013). However, the percentage of participants who returned for follow-up is similar to other follow-up studies, which reassessed between 49 and 91% of the original samples (Barrett et al., 2001; Kendall et al., 2004; Manassis et al., 2004; Cobham et al., 2010; Saavedra et al., 2010). A second limitation, common in follow-up studies, is the lack of a control group for comparison. Therefore, the present findings may have been influenced by spontaneous improvement due to maturation. However, the present investigation is still a pioneer study in Brazil and one of the only studies to use quality of life as an outcome measure. The present results underscore the long-term benefits of therapy and support the use of CBT in adolescents with ADs in LaMICs. However, many questions remain unanswered, such as the response to group versus individual CBT and the influence of family involvement in the effectiveness of CBT

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