



# Evidence-based treatment of anxiety and phobia in children and adolescents: Current status and effects on the emotional response

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## ABSTRACT

Research on treatments for childhood anxiety disorders has increased greatly in recent decades. As a result, it has become increasingly necessary to synthesize the findings of these treatment studies into reviews in order to draw wider conclusions on the efficacy of treatments for childhood anxiety. Previous reviews of this literature have used varying criteria to determine the evidence base. For the current review, stricter criteria consistent with the original Task Force (1995) guidelines were used to select and evaluate studies. Studies were divided by anxiety disorder; however, many studies combine various anxiety disorders in their samples. As a result, these were included in a combined anxiety disorder group. Using more traditional guidelines, studies were assigned a status of well-established, probably efficacious, or experimental based on the available literature and the quality of the studies. While some treatments do meet the criteria for well-established status, it is clear from this examination that gaps remain and replication is necessary to establish many of these treatments as efficacious. In addition, there still appears to be a lack of research on the effects of treatment on the physiological and cognitive aspects of fear and anxiety.

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## 1. Introduction

Anxiety and fear are normal responses to emotional events and do not require clinical intervention unless the fear is of unusual duration, intensity, content, or frequency (*DSM-IV-TR*; [American Psychiatric Association, 2000](#)). Normal childhood fears typically resolve themselves

with age and fear at any age can be healthy and adaptive. Fear and anxiety that linger and are clinically significant, however, are excessive in duration and intensity and interfere with daily life. Attempting to take these developmental issues into account, the *DSM-IV-TR* incorporates the adjusted duration criteria for children: for childhood anxiety disorders, symptoms must be present for one to sixth months, varying by disorder. However, a key ongoing debate in the literature remains: for childhood worries and fears that are clinically significant, what are the “best” treatments, and how does one even define “best”?

Anxiety disorders are among the most prevalent disorders in children and adolescents, with estimates ranging between 5 and 10%

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(Anderson, Williams, McGee, & Silva, 1987; Costello et al., 1996; Klein & Pine, 2002). Early onset of these disorders can lead to either a fluctuating or chronic course into adulthood (Achenbach, Howel, McConaughy, & Stanger, 1995; Pine, Cohen, Gurley, Brook, & Ma, 1998). The median age of onset for anxiety disorders is 11 years-old. Lifetime prevalence for anxiety disorders is 28.8% with each anxiety disorder occurring as follows: specific phobia – 12.5%, social phobia – 12.1%, generalized anxiety disorder – 5.7%, posttraumatic stress disorder – 6.8%, obsessive–compulsive disorder – 1.6%, separation anxiety disorder – 5.2%, panic disorder – 4.7%, and agoraphobia without panic – 1.4% (Kessler et al., 2005). Anxiety disorders often go undetected and untreated, and can cause significant impairment in social, academic, occupational, and familial functioning. The need to identify and disseminate efficacious and effective treatments for these prevalent disorders to practitioners and the public is obvious.

As a result, the purpose for this review is twofold. First, there is currently a divide between research and clinical practice. It is necessary to summarize and evaluate the results of treatment studies so that clinicians can have a clear, comprehensive guide on where the evidence for efficacious treatments stands. Second, reviews of this type help the field as a whole focus further research, minimizing redundancy and filling gaps where needed. Currently the standard for evaluating what is efficacious is ill-defined, or better stated multiply-defined depending on which summary methodology one prefers. Given this, a return to the original evidence-based descriptions is endorsed, albeit with further description of a treatment's efficacy at alleviating specific components of fear or anxiety (Davis, 2009; Davis & Ollendick, 2005). It is asserted that the research community must consistently apply rigorous standards to review past treatments and set a bar for future studies in order for the science of clinical child psychology to progress.

## 2. Evidence-based practice

The evidence-based treatment movement began with the intention of clarifying the state of the literature while simultaneously enhancing the dissemination of such treatments to practitioners and training programs (Chambless et al., 1998). While this may have initially been the case, subsequent updates to the chosen “list” of evidence-based treatments have become confusing. Unfortunately, in some cases, there are now as many or more different ways of categorizing the evidence for a treatment as there are studies of a particular treatment. The result, though unintentional, has been arguably to further muddy the current state of evidence-based practice. For example, some have proposed two to three categories of evidence (i.e., well-established, probably efficacious, and experimental; Chambless et al., 1998), four categories (i.e., well-established, probably efficacious, possibly efficacious, and experimental; Chambless & Hollon, 1998), and even five categories (i.e., best support, good support, moderate support, minimal support, and no support; Chorpita & Daleiden, 2009). Even then, what constitutes evidence in support of a treatment's efficacy (e.g., improvement in diagnosis, symptoms, or both) and with whom (e.g., moderators of treatment outcome, issues of comorbidity)? How should treatments be categorized (e.g., techniques vs. theoretical orientations vs. named, specific interventions; as an example, exposure vs. behavioral vs. systematic desensitization)? In many ways, by seeking the “prize” of empirical support for certain treatments (Rosen & Davison, 2003), the field has possibly spent too much effort on rearranging the evidence with the best of intentions, rather than pushing forward to address the evidentiary holes.

## 3. Evidence-based criteria for the current review

Originally, treatment efficacy for anxious youth was evaluated using the guidelines set by the *Task Force on Promotion and Dissemination of Psychological Procedures* (1995); i.e., the Task

Force). The aim of such an evaluation is to provide practitioners with recommendations for the most efficacious and efficient treatments available for patients. Depending upon the findings of empirical investigations, treatments included and evaluated in this review were divided into three classifications: “well-established,” “probably efficacious,” or “experimental” per established guidelines (see Chambless et al., 1998). Those treatments meeting well-established criteria were found, in at least two independently conducted randomized controlled trials, to be equivalent to other established treatments, or found superior to placebo conditions or other treatments with less empirical support. In these trials, treatment must be conducted according to a manualized protocol. Probably efficacious treatments have been shown to be superior to a wait-list control group in at least two investigations. Alternatively, treatments may be considered probably efficacious if all criteria for well-established treatments have been met with the exception of replication by independent research teams. Experimental treatments do not meet investigatory standards to be considered probably efficacious or, alternatively, may have not even been systematically investigated yet.

In addition, a componential review (Davis, 2009; Davis & Ollendick, 2005) will be conducted where data is available using Lang's (1979) model of emotion in which fear (and emotion broadly) is conceptualized as involving three response components: behavior, cognition, and physiology. In this way, pathological fear and anxiety are a combination of avoidance of the feared stimulus, distorted beliefs about the feared stimulus, and exaggerated physiological responses to the stimulus. Beyond this model, an additional subjective component of the emotional experience will be included as Barlow (2002) has suggested. Though a less precisely defined factor, patients often report feelings of subjective fear or worry (the degree to which one feels fearful or nervous) as the most salient component of anxiety disorders. Thus, treatment efficacy will be evaluated as a whole, subjective experience in addition to using diagnostic outcomes broadly and a componential analysis across each of these objective and subjective experiences of anxiety (Davis, 2009; Davis & Ollendick, 2005).

To identify potential studies for inclusion in the current review, a number of strategies and searches were used. Previous recent reviews were examined for possible candidates for inclusion (Chorpita & Southam-Gerow, 2006; Davis, 2009; Davis & Ollendick, 2005; Silverman, Pina, & Viswesvaran, 2008; Zlomke & Davis, 2008). In addition, articles were chosen using a PsycINFO search using the terms obsessive–compulsive disorder, social phobia, separation anxiety, specific phobia, posttraumatic stress disorder, generalized anxiety disorder, anxiety disorders, cognitive-behavioral therapy, behavioral therapy, systematic desensitization, eye-movement desensitization and reprocessing, exposure and response prevention, one-session treatment, and coping cat. In addition, this review only focuses on behavioral and cognitive-behavioral therapies with typically developing children due to the limited support of other therapies based on previous reviews of the literature. Studies were only included if diagnostic status was confirmed by evidenced-based assessments [For a full review of evidence based assessments see Davis (2009) and Silverman and Ollendick (2005)]. Additionally, studies were only included if participants were randomly assigned to conditions and basic demographic information was described. Often, when comparing two treatments, studies do not have the necessary power to detect small to medium effect sizes (Kazdin & Bass, 1989). For this reason, studies were excluded that found treatment groups to be equivalent but had fewer than the approximately 30 participants needed per group (Kazdin & Bass, 1989). Similar procedures have been used in other reviews of the literature (Chorpita & Southam-Gerow, 2006; Davis, 2009).

This review was organized to go through the main anxiety disorders that have treatment studies meeting the inclusionary criteria (specific phobia, social phobia, obsessive–compulsive disorder, and posttraumatic stress disorder). Also, to address the current debate on “lumping” versus “splitting” anxiety disorders, studies done which

**Table 1**  
Examination of empirical support for treatments for childhood anxiety disorders.

Disorder	Conditions	Study	Evidence for efficacy of treating response component symptoms			
			Cognition	Physiology	Behavior	Subjective
Specific phobia	SD vs. W-L	Cornwall et al. (1996)	*	NR	TX>W-L	TX>W-L
	OST vs. EMDR	Muris et al. (1997)	*	ns	OST>EMDR	OST>EMDR
	OST vs. EMDR vs. Psych PBO	Muris et al. (1998)	*	*	=	OST>EMDR & PBO
	OST vs. OST + Par vs. W-L	Öst et al. (2001)	*	ns	TXs>W-L	TXs>W-L
	OST vs. Psych PBO vs. W-L	Ollendick, Öst et al. (2009)	*	NR	=	TX>PBO & W-L
Social phobia	I + GBT vs. Psych PBO	Beidel et al. (2000)	*	*	TX>PBO	TX>PBO
	GCBT vs. GCBT + Par vs. W-L	Spence et al. (2000)	*	NR	ns	TXs>W-L
	GCBT vs. W-L	Gallagher et al. (2004)	*	*	TX>W-L	TX>W-L
OCD	ICBT vs. Med	de Haan et al. (1998)	NR	*	=	*
	ICBT vs. Med vs. ICBT + Med vs. Pill PBO	POTS (2004)	NR	*	NR	*
	ICBT vs. GCBT vs. W-L	Barrett et al. (2004)	NR	NR	NR	=
PTSD	ICBT vs. ParCBT vs. ICBT + Par vs. CC	Deblinger et al. (1996)	*	*	ns	ns
	ICBT vs. ICBT + Par vs. W-L	King et al. (2000)	ns	NR	TXs>W-L	TXs>W-L
	GCBT vs. W-L	Stein et al. (2003)	*	*	ns	TX>W-L
	ICBT + Par vs. Child Centered	Cohen et al. (2004)	*	*	ICBT + Par>Child Centered	ns
Childhood anxieties (combined)	ICBT vs. W-L	Kendall (1994)	TX>W-L	NR	TX>W-L	TX>W-L
	ICBT vs. ICBT + ParBT vs. W-L	Barrett et al. (1996)	*	NR	TXs>W-L	ns
	ICBT vs. W-L	Kendall et al. (1997)	TX>W-L	NR	TX>W-L	TX>W-L
	GCBT vs. GCBT + ParBT vs. W-L	Barrett (1998)	*	*	TXs>W-L	ns
	ICBT + ParBT vs. W-L	King et al. (1998)	TX>W-L	NR	TX>W-L	TX>W-L
	GCBT vs. W-L	Silverman et al. (1999)	*	NR	TX>W-L	TX>W-L
	ICBT vs. GCBT vs. W-L	Flannery-Schroeder and Kendall (2000)	TXs>W-L	NR	TXs>W-L	TXs>W-L
	GCBT + ParCBT vs. W-L	Shortt et al. (2001)	*	NR	TX>W-L	TX>W-L
	GCBT vs. Psych PBO	Ginsburg and Drake (2002)	*	*	*	TX>PBO
	GCBT vs. Psych PBO	Muris et al. (2002)	*	*	*	TX>PBO
	ICBT vs. ICBT + ParCBT vs. W-L	Nauta et al. (2003)	*	*	TXs>W-L	TXs>W-L
	GCBT vs. GCBT + internet vs. W-L	Spence et al. (2006)	*	NR	TXs>W-L	TXs>W-L
	ICBT vs. Med vs. ICBT + Med vs. Pill PBO	Walkup et al. (2008)	*	*	*	*
	Family-focused CBT vs. Child-focused CBT	Wood et al. (2006)	*	NR	*	ns
	GCBT vs. Bib vs. W-L	Rapee et al. (2006)	ns	*	TXs>W-L	ns
	Bib + phone vs. Bib + e-mail vs. Bib + client initiated contact vs. W-L	Lynham and Rapee (2006)	TXs>W-L	TXs>W-L	TXs>W-L	TXs>W-L

Note: "\*" not measured; "=" groups were equivalent; ns = no significant differences; NR = measured but not reported; W-L = wait-list condition; I = individual; G = group; SD = systematic desensitization; BT = behavior therapy; OST = one session treatment; EMDR = eye movement desensitization and reprocessing; Par = parent component; PBO = placebo; TXs = active treatments; Med = medication; CC = community care/treatment as usual; Bib = bibliotherapy CBT.

included participants having a variety of anxiety disorders were included in a combined anxiety disorder category. The results of these reviews are summarized in Table 1. Table 2 contains effect sizes (Cohen's *d*) for the most relevant post-treatment outcome measure in each study (post-treatment was chosen as not all studies reported longer term follow-up data). Table 3 summarizes each treatment's overall empirical standing along with the componential analyses. Overall conclusions for efficacy are presented based on the diagnostic outcomes provided and the results of the componential analyses. As a result and using the criteria laid out, the following review presents the current evidence from group studies about the evidence base for using behavioral and cognitive-behavioral therapies for childhood anxiety disorders.

#### 4. Specific phobia

A specific phobia is an intense fear of a stimulus (object, animal, situation, or environment) that is excessive and interferes with daily life. Five randomized controlled trials currently lend empirical support to behavioral and cognitive-behavioral treatments. Cornwall et al. (1996) used emotive imagery, a type of systematic desensitization, for children with a clinically significant phobia of the dark. Results showed a significant reduction in children's fear compared to a waitlist condition as measured by parent and child reports as well as a behavioral task. These results were maintained at a three-month follow up. This study showed promising results for systematic desensitization but still needs replication and comparison to other interventions. As such, systematic desensitization only warrants experimental status for treating childhood specific phobias. For the

componential analysis, individual systematic desensitization was superior to the wait-list control at improving behavioral symptoms as well as the subjective experience of anxiety. Cognition was not directly measured as part of the study, and although physiology was measured the results were not reported.

Individual cognitive-behavioral therapy (ICBT) in the form of one-session treatment (OST; Davis, Ollendick, & Öst, 2009) has been shown to have empirical support in four studies: Muris et al. (1998), Muris et al. (1997), Öst et al. (2001), and Ollendick, Öst et al. (2009). Both trials by Muris and colleagues compared eye movement desensitization and reprocessing (EMDR) to exposure therapy in the treatment of children with diagnosed spider phobias. Both studies found one session, in vivo exposure therapy (i.e., OST) superior to EMDR. Additionally, Öst et al. (2001) examined children diagnosed with specific phobia who were randomly assigned to receive either OST alone, OST with the presence of a parent, or a waitlist control. The children were assessed using behavioral avoidance tasks (BAT) measuring behavior, subjective anxiety, and physiological reactions. Self-report measures were also utilized. Treatment conditions were shown to be equivalent to each other and both were superior to the waitlist condition. Ollendick, Öst, et al. (2009) also found evidence for the efficacy of OST in youth. Children were randomized to receive OST, a psychological placebo, or a waitlist control. Evidence based assessments were given along with BATs and self-report measures with results showing both OST and the psychological placebo significantly reduced phobias as compared with the waitlist condition. Additionally, OST was superior to the education support psychological placebo. As Muris et al. (1998, 1997) have shown OST to be superior to an alternative treatment and Ollendick, Öst, et al. (2009) have

**Table 2**  
Demographics and effect sizes of treatments for childhood anxiety disorders.

Disorder	Study	Demographics (age range in years, % male, % non-white)	Outcome measure	Conditions	Uncontrolled effect sizes (Cohen's <i>d</i> )	Controlled effect sizes (Cohen's <i>d</i> )		
						Group 1	Group 2	Group 3
Specific Phobia	Cornwall et al. (1996)	7–10	BAT performance	SD	1.70	–	–	–
		*		W-L	.58	1.59	–	–
	Muris et al. (1997)	9–14	STAIC-state anxiety (during BAT)	OST	2.33	–	–	–
		0%		EMDR	1.45	1.17	–	–
	Muris et al. (1998)	8–17	SPQ-C	OST	1.50	–	–	–
		0%		EMDR	.67	1.12	–	–
Öst et al. (2001)	7–17	FSSC-R	Psych PBO	.42	1.22	.01	–	
	38%		OST	.45	–	–	–	
Social Phobia	Ollendick, Öst et al. (2009)	7–16	ADIS CSR	OST + Par	.43	.26	–	
		38%(Sweden)/ 55% (USA)		W-L	.32	.40	.08	
	6% (Sweden)/ 12% (USA)	OST	1.78	–	–	–		
	Psych PBO	.85	.82	–	–			
	W-L	.38	1.38	n/a	–			
	Beidel et al. (2000)	8–12	ADIS CSR	I + GBT	2.77	–	–	
Spence et al. (2000)	7–14	ADIS CSR	Psych PBO	.33	2.05	–	–	
	40%		GCBT	1.27	–	–		
	30%		GCBT + Par	1.75	–.35	–		
Gallagher et al. (2004)	8–11	ADIS CSR	W-L	.13	1.06	1.91	–	
	48%		GCBT	1.15	–	–		
	43%		W-L	.13	.31	–		
OCD	de Haan et al. (1998)	8–18	CY-BOCS	ICBT	1.62	–	–	
		50%		Med	.63	.81	–	
	Pediatric OCD treatment study (POTS) team (2004)	7–17	CY-BOCS	ICBT	1.61	–	–	
		50%		Med	.97	.27	–	
		8%		ICBT + Med	1.96	–.31	–.60	
Barrett et al. (2004)	7–17	CY-BOCS	Pill PBO	.83	.97	.67		
	49%		ICBT	2.65	–	–		
PTSD	Deblinger et al. (1996)	7–13	# of symptoms on K-SADS	GCBT	2.01	.01	–	
		17%		W-L	–.22	2.75	2.65	
		28%		ICBT	1.69	–	–	
	King et al. (2000)	5–17	Symptoms on ADIS	ParCBT	1.57	.37	–	
		31%		ICBT + ParCBT	2.18	.04	–.33	
	Stein et al. (2003)	*(mean age: 11)	*	CC	1.09	.91	.55	
44%		ICBT		1.58	–	–		
Cohen et al. (2004)	8–14	Symptoms on K-SADS (reexperiencing/avoiding/hypervigilance)	ICBT + Par	1.81/1.72/1.59	–	–		
	21%		Child Centered	1.12/1.05/1.01	.49/.72/.37	–		
	40%		W-L	*	*	–		
Childhood Anxieties (combined)	Kendall (1994)	9–13	RCMAS	ICBT	1.32	–	–	
		60%		W-L	.08	.86	–	
	Barrett et al. (1996)	7–14	RCMAS	ICBT	.59	–	–	
		57%		ICBT + ParBT	.90	.41	–	
	Kendall et al. (1997)	9–13	RCMAS	W-L	.27	.41	.94	
		62%		ICBT	1.08	–	–	
	Barrett (1998)	7–14	FSSC-R	W-L	.64	.60	–	
		14%		GCBT	1.55	–	–	
	King et al. (1998)	5–15	% of days attending school	GCBT + ParBT	2.37	.55	–	
		53%		W-L	.11	1.59	2.52	
Silverman et al. (1999)	6–16	RCMAS	ICBT + ParBT	1.07	–	–		
	61%		W-L	*	*	–		
Flannery-Schroeder and Kendall (2000)	8–14	RCMAS	GCBT	.65	–	–		
	51%		W-L	.19	.57	–		
	11%		ICBT	1.26	–	–		
			GCBT	.73	–.61	–		
			W-L	.15	.81	1.09		

(continued on next page)

Table 2 (continued)

Disorder	Study	Demographics (age range in years, % male, % non-white)	Outcome measure	Conditions	Uncontrolled effect sizes (Cohen's <i>d</i> )	Controlled effect sizes (Cohen's <i>d</i> )		
						Group 1	Group 2	Group 3
Childhood Anxieties (combined)	Shortt et al. (2001)	6–10	RCMAS	GCBT + ParCBT	4.78	–	–	–
		41%*		W-L	–.14	.76	–	–
	Ginsburg and Drake (2002)	14–17	ADIS CSR	GCBT	2.19	–	–	–
		83% 100%		Psych PBO	.54	1.03	–	–
	Muris et al. (2002)	9–12	STAIC-trait anxiety	GCBT	1.00	–	–	–
		35% 10%		Psych PBO	.04	.98	–	–
	Nauta et al. (2003)	7–18	ADIS CSR	ICBT	1.49	–	–	–
		49%*		ICBT + ParCBT	1.50	–.04	–	–
	Spence et al. (2006)	7–14	ADIS CSR	W-L	*	*	*	–
		48%*		GCBT	2.22	–	–	–
	Walkup et al. (2008)	7–17	PARS	GCBT + Internet	2.01	.18	–	–
		50% 21%		W-L	.55	1.32	1.18	–
	Wood et al. (2006)	6–13	ADIS CSR	ICBT	1.62	–	–	–
		* (approx 60%) * (approx 60%)		Med	1.74	–.17	–	–
	Rapee et al. (2006)	6–12	ADIS CSR	ICBT + Med	2.37	–.57	–.39	–
		60%*		Pill PBO	1.34	.29	.45	.85
Lyneham and Rapee (2006)	6–12	RCMAS	Family-Focused	2.02	–	–	–	
	50%*		Child-Focused	1.69	–.89	–	–	
			GCBT	1.57	–	–	–	
			Bib	.82	.76	–	–	
			W-L	.54	1.07	.35	–	
			Bib + Phone	1.03	–	–	–	
			Bib + e-mail	.87	–.35	–	–	
			Bib + Client initiated contact	.51	–.09	.23	–	
			W-L	–.02	.70	1.04	.73	

Note: Post-treatment conditions are included for effect size calculations; however, given the heterogeneity in longer term follow-ups, these are not included. "\*" = insufficient information reported to calculate; CSR = clinician severity rating; W-L = wait-list condition; I = individual; G = group; SD = systematic desensitization; BT = behavior therapy; OST = one session treatment; EMDR = eye movement desensitization reprocessing; Par = parent component; PBO = placebo; TXs = active treatments; Med = medication; CC = community care/treatment as usual; Bib = bibliotherapy CBT; STAIC = State-Trait Anxiety Inventory for Children (Spielberger, 1973); SPQ = Spider Phobia Questionnaire for Children (Kindt et al., 1996); FSSC-R = Revised Fear Survey Schedule for Children (Ollendick, 1983); RCMAS = Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1978); PARS = Pediatric Anxiety Rating Scale (Research Unit on Pediatric Psychopharmacology (RUPP) Anxiety Study Group, 2002).

demonstrated OST's superiority over a psychological placebo, one-session CBT merits well-established status for treating children's specific phobia.

Componential analyses of these studies revealed that OST was superior to EMDR (Muris et al., 1998, 1997) and a psychological placebo (Ollendick, Öst et al., 2009) at addressing children's subjective experience of anxiety. OST can therefore be considered a well-established intervention for addressing phobic children's subjective experience of anxiety. Öst et al. (2001) found significant improvements in the behavioral component for the treatment group over the wait-list group, and Muris et al. (1997) found OST to be better than EMDR at alleviating behavioral symptoms. Thus, OST can be considered probably efficacious for addressing the behavioral component of the anxious response. The physiological component was variously assessed by the Physical Symptoms Scale on the Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997) or actual psychophysiological measurement; however, either no data were reported (in the case of studies using the MASC) or findings were not significant (likely given contamination due to performance differences when recording psychophysiology during behavioral tasks). Similarly, no study reported measuring children's anxious cognitions. Therefore, OST must still be considered experimental for addressing the cognitive and physiological components of the anxious response in phobic children.

## 5. Social phobia

Social phobia is characterized by persistent and intense fear of performance or social situations in which evaluation by others is

likely. To date, three trials have investigated treatments for childhood social phobia specifically: one examining a behavior therapy given in a mixed individual and group format (Beidel et al., 2000) and two trials investigating CBT given in group format (GCBT; Gallagher et al., 2004; Spence et al., 2000). The behavior therapy trial incorporated psychoeducation about anxiety, social skills training, modeling, and exposure techniques but did not specifically address cognitive components of anxiety. In this trial, behavior therapy was superior to a psychological placebo at significantly reducing social anxiety symptom severity on the Anxiety Disorders Interview Schedule-Child and Parent Version (ADIS-C/P; Silverman & Albano, 1996). The Beidel et al. (2000) trial meets all standards for a well-established treatment with the exclusion of independent replication. Therefore, behavioral therapy is probably efficacious for the treatment of childhood social phobia. Spence et al. (2000) and Gallagher et al. (2004) incorporated similar techniques as Beidel et al. (2000) with the addition of a cognitive therapy component. In both trials, GCBT was significantly better than wait-list control conditions on clinician severity ratings on the ADIS. However, in both studies, GCBT was not compared to other treatment conditions, thus GCBT for childhood social phobia meets criteria for a probably efficacious treatment.

When examining treatment effects for the various components of anxiety we find that Beidel et al.'s (2000) behavior therapy is superior to psychological placebo at reducing anxious behavior during a behavioral observation. Likewise, the treatment was superior to placebo at reducing children's self-reported subjective emotional experience of anxiety. Therefore, behavior therapy appears to be probably efficacious at addressing the behavioral and subjective emotional experience components of childhood social phobia. Both



**Table 3**

Empirically supported treatments for childhood anxiety disorders and their effects on the components of the anxious response.

Level of empirical support					
Disorder and treatments	Overall status	Cognition	Physiology	Behavior	Subjective
<i>Specific phobia</i>					
SD	Experimental	Exp	Exp	Exp	Exp
OST	Well-established	Exp	Exp	Prob	Well Est
<i>Social phobia</i>					
BT	Probably efficacious	Exp	Exp	Prob	Prob
GCBT	Probably efficacious	Exp	Exp	Exp	Prob
<i>Obsessive–compulsive disorder</i>					
ICBT	Well-established	Exp	Exp	Exp	Exp
GCBT	Experimental	Exp	Exp	Exp	Exp
CBT + Med	Probably efficacious	Exp	Exp	Exp	Exp
<i>Posttraumatic stress disorder</i>					
ICBT	Well-established	Exp	Exp	Prob	Prob
GCBT	Experimental	Exp	Exp	Exp	Exp
<i>Childhood anxieties (combined)</i>					
ICBT	Probably efficacious	Prob	Exp	Prob	Prob
GCBT	Well-established	Exp	Exp	Prob	Well Est
Family-focused	Probably efficacious	Exp	Exp	Exp	Exp
CBT + Med	Probably efficacious	Exp	Exp	Exp	Exp
Bibliotherapy	Probably efficacious	Exp	Exp	Prob	Exp

Note: SD = systematic desensitization; CBT = cognitive-behavioral therapy; OST = ones session CBT; BT = behavior therapy; I = individual; G = group; Med = Medication; Exp = experimental empirical status; Prob = probably efficacious empirical status; Well Est = well-established empirical status.

GCBT trials found the treatment to be superior to wait-list control conditions at addressing children's subjective experience of anxiety on several self-report measures. Thus, GCBT can be considered probably efficacious at addressing children's subjective experience of social anxiety. However, only Gallagher et al. (2004) found GCBT to be superior to the wait-list control condition on behavioral measures. Due to only one study finding a significant difference in behavioral ratings as compared to a wait-list control, GCBT still merits experimental status for addressing the behavioral component of social anxiety in children. No trial included a measure of cognition and only one (Spence et al., 2000) included a measure of physiology (RCMAS; Reynolds & Richmond, 1978) but did not report on those data. Thus, behavioral therapy and GCBT warrant experimental status for addressing cognitive and physiological components of social anxiety.

## 6. Obsessive–compulsive disorder

Obsessive–compulsive disorder (OCD) includes experiencing recurrent and distressing or interfering obsessions (thoughts, images, or impulses) or compulsions (repetitive compensatory behaviors) for at least one hour per day. In some regards, OCD is qualitatively different than most childhood anxiety disorders (see Barlow, 2002 for more detail); however, given the current *DSM-IV-TR* diagnostic scheme this disorder has been included in the review of child anxiety disorders. Three trials have specifically examined group or individual CBT for childhood or adolescent OCD (Barrett et al., 2004; de Haan et al., 1998; POTS, 2004). Each trial used a manualized treatment that included psychoeducation about OCD, cognitive therapy, and exposure and response prevention techniques. Overall, outcomes from these trials on the Children's Yale-Brown Obsessive Compulsive Scale (CY-BOCS; Goodman et al., 1989; Scahill et al., 1997) indicate that individual CBT for pediatric OCD is equivalent to sertraline treatment and is more effective than pill placebo (Pediatric OCD treatment study (POTS) team, 2004), wait-list control (Barrett et al., 2004), and clomipramine treatment (de Haan et al., 1998). Barrett et al. (2004) found group CBT to be superior to a wait-list control condition and equivalent to individual CBT. Taken together, these trials demonstrate that individual

CBT for pediatric OCD meets criteria for well-established treatments. However, due to site differences in CBT treatment effects in the Pediatric OCD treatment study (POTS) team (2004) trial, these results should be interpreted with caution when considering treatment generalization across locations of administration. Group format CBT is experimental, as replication of results has yet to be demonstrated in the literature.

Componential analyses of these trials illustrate that replication remains necessary as only one trial reported treatment effects for the behavioral component and one other reported effects for the subjective experience of anxiety. No trial reported upon the cognitive or physiological components. Despite the inclusion of outcome measures with cognitive (i.e. Obsessions Subscale-CY-BOCS) or physiological (i.e., Physical Symptoms Scale-MASC) subscales only total scores were analyzed to the exclusion of examining these individual components. Barrett et al. (2004) did include a measure of children's subjective experience of anxiety; however, no differences were found between group CBT, individual CBT, and wait-list control conditions. Thus, individual and group CBT can only be considered experimental for addressing each experiential component including the subjective experience of anxiety. While individual CBT for childhood OCD meets Task Force criteria for a well-established treatment, replication is needed to illuminate specific treatment effects for each component of the emotional response.

## 7. Posttraumatic stress disorder

Posttraumatic stress disorder (PTSD) occurs when a child is exposed to or experiences a terrifying event that involves the threat or occurrence of injury or death. CBT has been shown to be the superior treatment for children diagnosed with PTSD in studies by Cohen et al. (2004), Deblinger et al. (1996), King et al. (2000), and Stein et al. (2003). Cohen et al. (2004) found that individual CBT is significantly better than child-centered therapy when comparing the number of symptoms endorsed on the Schedule for Affective Disorders and Schizophrenia for School-Aged (K-SADS; Kaufman, J., Birmaher, B., Brent, D., Rao, U., & Ryan, 1996). Deblinger et al. (1996) found that individual CBT with the child alone and individual CBT with child and

parent are both significantly better than individual CBT with just the parent and normal community care on the K-SADS. King et al. (2000) found individual CBT significantly better than waitlist control on the number of PTSD symptoms endorsed on the ADIS, and Stein et al. (2003) found group CBT superior to wait-list control groups using self-report measures. These trials have demonstrated that individual CBT is superior over other treatments as well as placebo conditions in at least two independently conducted trials thus meeting criteria for a well-established treatment. Group CBT, however, remains experimental as only one trial has investigated its effectiveness.

King et al. (2000) found significantly improved behavior after individual CBT as compared to a waitlist, and Cohen et al. (2004) found significant differences in behavior after individual CBT as compared to another treatment. Likewise, King et al. (2000) found significant differences in perceived anxiety after individual CBT as compared to a waitlist group. Likewise, Stein et al. (2003) found group CBT superior to a wait-list condition for improving children's subjective experience of anxiety. Thus, individual CBT is probably efficacious for addressing the behavioral response and the subjective experience of childhood PTSD. While these studies show evidence for the efficacy of individual cognitive-behavioral therapy in the treatment of PTSD, additional investigations are needed to examine the cognitive and physiological responses to treatment. Additionally, group CBT must still be considered experimental for addressing the four components, as replication is needed.

## 8. Childhood anxieties (combined)

The vast majority of trials exploring treatments for childhood anxiety do so by grouping several anxiety diagnoses together rather than studying them individually. While this is prudent for reasons of power, generalizability, and external validity, it makes the evaluation of treatment efficacy more ambiguous for specific disorders. Further complicating the evaluation is that these trials commonly compare two variants of CBT to each other and to a wait-list control (i.e. group vs. individual or child only vs. parent and child). While these comparisons are important in determining variables that may improve response rates, it makes establishing the efficacy of these treatments more difficult as there are few comparisons to other established treatments or placebo conditions. Due to these factors, the efficacy analysis of these trials should be interpreted conservatively.

Sixteen randomized trials were identified and examined (Table 1). Additional trials comparing two variants of CBT in which the outcome results were equivalent were excluded (e.g., Manassis et al., 2002). These sixteen trials included youth with GAD, social phobia, specific phobia, overanxious disorder, separation anxiety, avoidant disorder, school refusal, and/or panic disorder with or without agoraphobia. Walkup et al. (2008) found individual CBT equivalent to sertraline pharmacotherapy and superior to pill placebo, though combination therapy produced superior outcomes to either active treatment. In addition, Wood et al. (2006) found family-focused CBT superior to child-focused CBT (Wood et al., 2006). Two of the 16 trials found group CBT superior to a psychological placebo condition (Ginsburg & Drake, 2002; Muris et al., 2002), and one found group CBT superior to bibliotherapy and a wait-list (Rapee et al., 2006). The other 11 trials found group and/or individual CBT superior to wait-list control conditions of varying lengths (Barrett, 1998; Barrett et al., 1996; Flannery-Schroeder & Kendall, 2000; Kendall, 1994; Kendall et al., 1997; King et al., 1998; Lyneham & Rapee, 2006; Nauta et al., 2003; Shortt et al., 2001; Silverman et al., 1999; Spence et al., 2006). Taken together, these trials indicate that group CBT for childhood anxiety broadly merits well-established status, while individual CBT merits probably efficacious status as only one study has shown individual CBT superior to a pill placebo (though numerous studies have indicated superiority to wait-list conditions), and family-focused CBT also merits probably efficacious status.

Componential analyses of these trials indicate that despite ten of the trials including a measure that could have evaluated the physiological response, only one did — Lyneham and Rapee (2006) found cognitive-behavioral bibliotherapy was superior to a wait-list condition on this component. Thus, group and individual CBT in these trials must still be considered experimental for addressing the physiological component of anxiety. Five of the 16 trials reported on a measure of cognition and in all five trials, group and/or individual CBTs were found superior to wait-list control conditions. As there were no comparisons to alternative treatments or placebo conditions, individual CBT in these trials merit probably efficacious status for addressing children's anxious cognitions. Only one trial found group CBT superior to a wait-list condition for addressing children's anxious cognitions (i.e., Flannery-Schroeder & Kendall, 2000). Thus, group CBT only warrants experimental status for addressing the cognitive component of child anxiety. Twelve trials found individual or group CBT superior to wait-list conditions at reducing anxious behavior, thus supporting probably efficacious status for behavioral response to treatment. Lastly, two trials found group CBT superior to psychological placebo and 9 found individual or group CBT superior to wait-list control conditions at addressing children's subjective experience of anxiety. Taken together, these trials indicate that group CBT is a well-established treatment and individual CBT is a probably efficacious treatment for reducing children's subjective experience of anxiety.

While included above, a more in depth examination of bibliotherapy is also warranted. In an effort to extend the benefits of CBT to more rural areas where families often do not have access to trained psychologists, researchers are starting to examine bibliotherapy. Two trials examining bibliotherapy for childhood anxiety were identified (see Table 1). Therapy in these studies included the use of a written guide for parents in helping their children utilize CBT method. This therapy is conducted at home, by parents, typically without the aid of a therapist. Rapee et al. (2006) used *Helping Your Anxious Child: A Step-by-Step Guide* (Rapee, Spence, Cobham, & Wignall, 2000) in a randomized control trial comparing group CBT to bibliotherapy and to a wait-list condition. Based on post-treatment diagnostic status, bibliotherapy was superior to wait-list; however, group CBT treatment was superior to bibliotherapy. Children receiving group CBT showed significant improvements compared to children in the wait-list condition on the behavior component. Bibliotherapy also showed significant improvement in behavior compared to the waitlist. There was no significant difference on behavior between bibliotherapy and group CBT. There were no significant differences for addressing the subjective experience of anxiety or cognitions across all three conditions. Physiological components were not measured.

In a study by Lyneham and Rapee (2006) children with diagnosed anxiety disorders were randomly assigned to either receive bibliotherapy with telephone therapist support, bibliotherapy with client-initiated therapist support, bibliotherapy with email therapist support, and waitlist. The same book was used for the bibliotherapy as the previous study. Based on the percentage of children diagnosis free at post-treatment, all bibliotherapy conditions were superior to waitlist and bibliotherapy with telephone therapist support was superior to bibliotherapy with email and client-initiated therapist support. All bibliotherapy conditions were superior to waitlist on the behavioral component; however, there were no significant differences between bibliotherapy conditions. All bibliotherapy conditions were also superior to waitlist on subjective, cognitive, and physiological experiences of anxiety, and again there were no significant differences between bibliotherapy conditions. In sum, bibliotherapy for child anxiety meets criteria for probably efficacious status as two studies have shown this treatment to be superior to waitlist. Bibliotherapy can also be considered probably efficacious for addressing the behavior component of anxiety; however, this treatment must still be considered experimental for address the cognitive and physiological components as well as children's subjective experience of anxiety.

## 9. Combination treatments

A recent direction of investigation is the combination of psychotherapy with pharmacotherapy for the treatment of childhood anxiety. While many treatments previously discussed can be considered probably efficacious or well-established, there are many cases for which these treatments do not provide the greatest possible benefit. Such cases are typically more severe or there exist other barriers to treatment preventing the child from fully benefiting from or engaging in therapy. A combined approach may be optimal for such difficult to treat cases. To date, two randomized controlled trials have been conducted comparing CBT to pharmacotherapy and each of those to CBT plus medication (*Pediatric OCD treatment study (POTS) team, 2004; Walkup et al., 2008*). The Pediatric OCD Treatment Study (*Pediatric OCD treatment study (POTS) team, 2004*) employed individual CBT alone, sertraline alone, combination CBT plus sertraline, and pill placebo conditions to examine treatment response among children and adolescents with a primary OCD diagnosis. Overall, results demonstrated that combination treatment was superior to pill placebo as well as each unimodal treatment. Combination treatment for childhood OCD has not been tested in other trials and thus, it warrants probably efficacious status.

The Child-Adolescent Anxiety Multimodal Study is the second trial to examine combination treatment (*CAMS; Walkup et al., 2008*). Where POTS chose to focus on a single diagnosis, CAMS included children and adolescents with separation anxiety, GAD, and social phobia. Children were randomly assigned to one of four conditions: individual CBT only, sertraline only, combination CBT with sertraline, or pill placebo. CBT in this trial was based on the Coping Cat manual (*Kendall & Hedtke, 2006*) and employed psychoeducation, anxiety management training, and exposure techniques. General findings indicate that sertraline only, CBT only, and combination treatment were superior to pill placebo. Additionally, combination treatment was superior to both unimodal treatments, which were equivalent. Like the POTS study, the CAMS trial has not been replicated and thus, combination treatment for childhood GAD, separation anxiety, and social phobia merits probably efficacious status.

The need for replication of these combination treatments is also illustrated by the componential analyses of these trials. The POTS study did not assess the physiological or subjective experience of anxiety components and did not report on a measure of behavior and cognition. While the trial included the CY-BOCS, only total scores were reported thus eliminating the ability to explore potential differential cognitive and behavioral responses to the various treatments. Therefore, combination CBT for pediatric OCD only merits experimental status for addressing each component of the emotional response. Like POTS, the CAMS trial did not report on a direct measure of children's subjective experience of anxiety, physiology, behavior, or cognitions. At the time of this review, all planned analyses from the CAMS trial have not been published and thus it stands to reason that data relating to the components of the anxious response may yet become available. However, without replication, any such data would still warrant experimental status for combination treatment effects for each experiential component of childhood anxiety.

## 10. Future directions and less than ideal treatment response

As nearly all clinicians have experienced, children do not respond to treatment equally. Several issues may contribute to relapse, incomplete, or nonresponse to treatment, a few of which are briefly discussed below. For a more complete review of CBT for treatment refractory childhood anxiety see *McKay and Storch (2009)*. A non-exhaustive review of the literature suggests likely factors contributing to incomplete response to treatment fall into two categories, 1) familial factors, including parental psychopathology and family dysfunction, and 2) individual factors, including severity of children's

symptomatology, comorbidity, and older childhood age (*Berman, Weems, Silverman, & Kutines, 2000; Crawford & Manassis, 2001; Ginsburg, Kingery, Drake, & Grados, 2008; Southam-Gerow, Kendall, & Weersing, 2001; Storch et al., 2008*). While such risk factors exist, the question raised is which treatments or modifications to treatments should be employed to maximized response potential. Youth at risk for poor response due to familial factors may benefit more from the previously described variants of CBT that include parent or family involvement, though further study is necessary to parse out such differential treatment effects. Likewise, children presenting with individual risk factors for nonresponse or relapse, particularly those with more severe psychopathology and/or comorbidity, may show greater improvement from combination therapies such as those described in the CAMS or POTS trials.

Overall, however, a four-stage treatment protocol is recommended for treating anxious children as described by *Ollendick, Davis, and Sirbu (2009)* as it pertains to specific phobias. After a thorough initial assessment, an evidence-based treatment should be implemented by a clinician familiar with the techniques of the chosen therapy. If an adequate trial is given but only a partial response is observed, a second stage would involve supplementing the treatment with one or more of the following: increasing the intensity or frequency of the chosen therapy, switching treatment focus to an interfering comorbid condition, re-evaluating the initial diagnosis and/or case conceptualization, and/or treating or eliminating other specific obstacles to treatment response. If, after modifying or supplementing the initial treatment, the child's anxiety remains significant, stage three should be implemented in which another evidence-based treatment should be tried including other therapies, medications, or combination therapy such as those used in CAMS or POTS. Upon treatment response to any of these three stages, maintenance and generalization of treatment gains should begin in the final stage of treatment (*Ollendick, Davis, & Sirbu, 2009*).

The treatments reviewed here often include components that may not be applicable or appropriate for all populations such as children with intellectual disabilities, autism spectrum disorders, and other cognitive or developmental deficits. In such cases, modification to these standard treatments may be necessary. For a review of treatment modifications for atypical populations please see *Moree and Davis (2010)* and *White, Oswald, Ollendick, and Scahill (2009)*.

## 11. Conclusions

A review of empirically supported treatments shows that the field has come a long way since the first reviews in the 1990s. Use of more stringent guidelines in the examination of evidence supporting treatments shows room, however, for growth and improvement. Much of the research with efficacious results must be replicated and tested against not only wait-lists but also against other treatments, especially other behavioral or cognitive-behavioral treatments. It is also important to have empirical evidence for treatments that are done with children that have diagnosed anxiety disorders. This is not to say that results are not valid when children with anxiety are used, however, there might be a difference in treatment for fear or anxiety in normal or subclinical children versus those who have clinical levels of a disorder. More research is needed to see if such differences exist.

There also needs to be a separation of the anxiety disorders when testing treatments in addition to combined, heterogeneous anxiety disordered groups. What works for one disorder might not be best for another disorder. By lumping disorders together we might be canceling out results thereby diminishing the results for one disorder or inflating the results for another. The underlying mechanisms might be different for each disorder thus possibly requiring different therapeutic techniques. Research is not yet clear on why treatments work or what aspects of the treatments are causing the most change. By examining the mechanisms of change, the field could focus on



creating treatments better tailored to each individual problem and provide more cost-effective, and possibly shorter, treatments. Behavioral, cognitive, and physiological responses also need to be assessed as outcome measures to better ascertain treatment results and to help determine what aspect(s) of the anxious response a treatment is targeting.

Five years ago, albeit using different inclusion and exclusion criteria, Davis and Ollendick's (2005) initial componential review found that researchers were largely failing to either include or report on measures of cognition and physiology in their studies of fear and phobia, preferring diagnostic, behavioral, and subjective anxiety measures. The current review has largely replicated those findings. Research included in this review included measures of behavior and subjective anxiety 87% of the time (27 out of 31 studies for both; see Table 1). Research, however, included measures of physiology only 55% of the time (17/31 studies) and did not report physiological results when they could have 82% of the time – leading to the conclusion that physiological aspects of anxiety were only included and reported on in 10% of the studies included in this review. Similarly, and particularly problematic for cognitive-behavioral therapy, measures of the cognitive component of anxiety were only included in 32% of studies with 30% not reporting cognitive results when possible – leading to the conclusion that cognitive aspects of anxiety were only included and reported on in 23% of studies in this review.

There are potentially many reasons, however, for the lack of inclusion of physiological and cognitive measures in the literature. First, it should be noted that research trials similar to those included in this review require considerable time and effort to organize, obtain funding, conduct, analyze, and publish. That being the case, in the five years since Davis and Ollendick (2005) there would be limited time for new research to have an impact – especially given that new research would be placed in with older studies lacking those measures, representing an initial obstacle to overcome. Even so, it continues to be the case that of the five studies published since 2005, fewer than half either included or reported on these symptoms and only one included and reported on all four components (i.e., Lyneham & Rapee, 2006). Second, there are practical statistical and methodological questions which need to be addressed. How many analyses are too many for a study? How many different measures of anxiety and its symptoms are too many and represent undue participant burden? Which scales or scores should be chosen for analysis and inclusion in a publication? It would be unreasonable to analyze and include multiple scales and subscales from each instrument used in every trial. In fact the trend in this review was to typically use well-known evidenced-based assessments and then report on total scores from those instruments. However, given the gaps identified in the literature as to physiological and cognitive outcomes – even for cognitive-behavioral therapy – one or two additional analyses to examine instruments tackling these components would seem worthwhile. This is especially true given the influence of physiology, behavior, and cognition in descriptions of anxiety and phobia symptomatology for over 30 years (Lang, 1979). Finally, this leads to the question of at what point we begin to summarize not only what works, but also what does not. At what point is the missing data on cognitive and physiological outcomes actually representative of a file drawer effect or indicative of a need to further improve intervention in these areas? Although considerations of what treatments are effective are controversial, considering what treatments or portions of treatments are ineffective or even harmful can be more controversial (cf. Liliensfeld, 2007). At some time, however, the field will need to systematically examine at what point *n.s.* results are no longer an issue of power, methodology, or design.

Though undoubtedly controversial, at some point the field also needs to move past reviews and summations to suggest best practices. Unfortunately, at this time conclusions of this sort are extremely

tentative (i.e., usually based on the results of only one, two, or only a handful of studies), but possible. If such a broad swipe were to be made at this point (see Table 2) to address “best practices” for child anxiety disorders the following might be the conclusions to date, especially lacking any of the fine-tuning research on moderators of treatment outcome. However, a word of caution – at this stage the evidence for certain treatments does not indicate or imply other treatments are in some way inferior, only that the evidence for or against them has not been conducted at the level necessary for this review.

For specific phobia, the best overall treatment option would seem to be OST. As a well-established intervention and one that has been found to affect two of the four components of the emotional response, this would seem to be the intervention of choice for a child with a phobia. Moreover, the studies conducted to date would also seem to indicate OST would be preferred to EMDR. For social phobia, overall it would seem either behavior therapy or group CBT would be optimal, with behavior therapy also addressing the behavioral component in addition to the subjective experience. With OCD, the tentative conclusion is that individual CBT, with a well-established status, is the treatment of choice; however, this conclusion must be hedged against the finding that combination therapy has been found to be more efficacious than CBT by itself (Pediatric OCD treatment study (POTS) team, 2004). It may be that with more research a combined approach may be the treatment of choice. For children with PTSD, individual CBT seems the most efficacious choice, addressing both behavioral and subjective aspects of anxiety at a probably efficacious level. In addition, it has tentatively been found more efficacious than child centered therapy. Finally, in the combined anxieties group, group CBT merits well-established status while combination therapy again was found more efficacious than CBT or medication alone but only merited probably efficacious status itself. Conclusions in these groups are even more difficult given the heterogeneous makeup of their participants, but there is strong evidence overall across formats (i.e., individual, group, combination, and bibliotherapy). In this category, the best conclusion may be an idiosyncratic approach of revisiting the outcomes from the previous diagnoses reviewed depending on what is determined to be primary for a particular client and then supplementing those findings with this category based on issues of client severity, risk/immediacy, and comorbidity. Finally, it should be noted that bibliotherapy, while meriting probably efficacious status, has been found less effective than group CBT – though it is encouraging as a choice for those who would otherwise not have access to adequate services locally or who may be delayed in otherwise receiving services.

In sum, there is very good evidence for the use of behavior therapy and CBT in various formats (e.g., individual and group) for alleviation of the behavioral and subjective symptoms of anxiety and for addressing the diagnoses themselves. Unfortunately, evidence for the cognitive and physiological components is still growing. Even so, it is important as a field of researchers and practitioners that a focus on the trees does not obscure the view of the forest – while there is more work to be done examining the effects of treatment on the components of the emotional response, this should not occlude the impressive diagnostic improvements achieved with behavior and cognitive-behavioral therapy. While there is always more research to be done, a strong foundation for the use of behavior and cognitive-behavioral therapy for childhood anxiety disorders has been established thanks to decades of hard, programmatic work. Future research further investigating these treatments (e.g., mediators, individual vs. group formats), adapting these treatment to special populations (see Moree & Davis, 2010 for a review), and branching off into other interesting areas and downward extensions from the adult literature (e.g., d-cycloserine) should prove interesting in the years to come.

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