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Empirically Supported Individual and Group Psychological Treatments for Adult Mental Disorders

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ABSTRACT

The experimental literature on individual and group psychological treatments for adult disorders is reviewed. For each of the 11 disorders or problems covered, treatments that fall into the following categories, as defined by [D. L. Chambless and S. D. Hollon \(1998\)](#), are identified: efficacious and specific, efficacious, and possibly efficacious. Behavioral and cognitive—behavioral treatments dominate the lists, especially in the anxiety disorders, with notable exceptions. Reasons for the hegemony of the behavioral and cognitive modalities are discussed, and some limitations of the empirically supported treatment concept are addressed. Continued research is recommended on Aptitude \times Treatment interactions, cost—benefit ratios, and generalization of treatments to a variety of patient populations, therapists, and treatment settings.

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The scope of this article is extremely broad, too broad, it might be argued, for a single journal article. Indeed, the examination of research on psychological treatments of adult disorders has been the topic of many books (e.g., [Smith, Glass, & Miller, 1980](#)), the most recent a comprehensive review by [Roth and](#)

[Fonagy \(1996\)](#). Hundreds of therapy outcome studies of adults have been published in the past few decades, placing the field in a far better position to judge the efficacy of a wide range of treatments for a wide range of problems and diagnoses than was true when [Eysenck's \(1952\)](#) famous challenge was first taken up. The scope of this review is narrowed, however, by our goal of delineating the well-specified treatments that have been found to be efficacious for 10 well-specified psychological problems and disorders in adults. Consistent with other articles in this special section, and following the recommendations of [Chambless and Hollon \(1998\)](#), we attempt to provide a comprehensive, annotated list of therapeutic approaches having demonstrated efficacy for adult, nongeriatric patients with the following diagnoses or clinical problems: major depressive disorder, generalized anxiety disorder (GAD), social phobia, obsessive—compulsive disorder (OCD), agoraphobia, panic disorder (with or without agoraphobia), posttraumatic stress disorder (PTSD), schizophrenia, substance abuse and dependence, and alcohol abuse and dependence.

In following [Chambless and Hollon's \(1998\)](#) recommendations, we are aware of the limitations of any such attempt to declare "the truth" about the effectiveness of psychological treatments. Foremost among our concerns is an understanding that, by and large, interventions not included on our lists are missing because they have not been subjected to clinical trials in that population. The reasons for this are sometimes informative, such as when clinical experience with treatment x for disorder y has been discouraging so that rigorous tests of the treatment have not been deemed worthy of the effort and expense of a clinical trial. But there are also less telling reasons for the absence of clinical trial data on a given therapeutic approach, such as when adherents of therapy x do not believe in the value of clinical trial methodology and, therefore, little efficacy research is conducted (even though some clinicians may value that treatment approach), or when funding agencies or grant review committees determine that there is enough known about treatments a , b , and c for disorder y and, therefore, no need to fund a study of treatment x . These relatively uninformative absences are not randomly distributed across schools of therapy. Whereas adherents of behavioral and cognitive—behavioral therapy have traditionally valued—and therefore conducted—"nomothetic" outcome research, their counterparts in the psychodynamic research and practice community have tended to place less value on clinical trial methodology (cf. [Strupp, 1982](#)). Also, many in that community (cf. W. [Jacobson & Cooper, 1993](#)) have not valued the dominant classification schemes—the third (*DSM—III*), revised third (*DSM—III—R*); and fourth (*DSM—IV*) editions of the *Diagnostic and Statistical Manual of Mental Disorders* ([American Psychiatric Association, 1980, 1987, 1994](#))—that serve to organize the present review.

But the field must start somewhere. And although we recognize the shortcomings inherent in any attempt such as the one that follows, we believe that a "list" of "efficacious and specific," "efficacious," and "possibly efficacious" psychological treatments for adult disorders, following the [Chambless and Hollon \(1998\)](#) definitions, is useful as a starting point for dialectics about clinical practice, training, and research. We acknowledge, however, that developing treatment guidelines based on research or clinical wisdom is a complex task. The recent report of the [American Psychological Association \(APA\) Task Force on Psychological Intervention Guidelines \(1995\)](#) provides some guidance on these issues, and we have been influenced by some of their recommendations here.

In addition to listing and describing the studies that support efficacy claims for the disorders we cover, we also describe the magnitude of the observed treatment effects and the stability of those effects over time when possible. We are hindered in our reports of the size or "clinical significance" of treatment effects (see [Jacobson & Truax, 1991](#) ; [Kendall & Grove, 1988](#)) both by the lack of consensus about the most appropriate metric and by the lack of consistency in data reporting procedures across published reports of outcome studies. Therefore, we have, of necessity, used different means of conveying the size or clinical significance of the effects we report. And, in some cases, it was simply not possible to characterize the size or clinical significance of a treatment effect.

Readers who have followed the research conducted in some or all of the domains we cover might be surprised by the relatively small number of studies we cite in support of our decisions. Although literally thousands of empirical studies of psychological treatments for adult problems have been published (cf. [Smith et al., 1980](#)), only a small subset meet the [Chambless and Hollon \(1998\)](#) criteria. By far the most common reason for exclusion is the absence of a difference (or even a comparison) between treatments—or between a treatment and a control group—in the same study. There are far more treatment studies with pretreatment—posttreatment designs than with randomized controlled (or comparative) designs. And many comparative studies find no differences between conditions, a fact discussed widely in the context of the "Dodo bird" hypothesis (see [Luborsky, Singer, & Luborsky, 1975](#) ; [Stiles, Shapiro, & Elliot, 1986](#)). Per the Chambless and Hollon criteria, only if treatment x compares favorably with an empirically supported treatment in a well-conducted study involving a large sample size do we take evidence of no difference between treatment x and the other treatment as supporting an efficacy claim.

Another common reason for excluding a research report is an imprecise description of the population or treatment under investigation. This is true especially of investigations conducted before the publication of the *DSM—III* (1980) and before the popularity of treatment manuals (see [Luborsky & DeRubeis, 1984](#)). We have included some pre- *DSM—III* studies, as well as those without treatment manuals, but we have done so only if the identity of the treatment(s) and the population were clear from the published report.

Many studies have been omitted from this article for a wide variety of other reasons, most of which are spelled out in [Chambless and Hollon \(1998\)](#) . Space limitations (and readers' attentional limits) do not permit us to document why we have done so in each case. Our search procedures included PsycINFO searches, scrutiny of the tables of contents for the last 5 years of the 15 most pertinent journals, and inspection of the reference lists of hundreds of articles, including those we have cited. As a final check, we compared our reviews with those contained in [Roth and Fonagy's \(1996\)](#) aforementioned book, *What Works for Whom?* and with the list of "empirically validated" treatments contained within the APA Division 12 Task Force on Psychological Intervention Guidelines report ([Chambless et al., 1996](#)).

We have specifically not reviewed the important emerging literature on Aptitude \times Treatment interactions ([Beutler, 1991](#)). From the clinician's point of view, it would be useful to go beyond diagnosis to additional patient characteristics that would indicate whether a given treatment is likely to be helpful. Unfortunately, robust patient—treatment matching findings have yet to emerge.

We are encouraged by the growing interest in the cost-effectiveness of treatments (e.g., see [Gould, Otto, & Pollack, 1995](#), pp. 837—840). We believe that any judgment of the clinical significance of treatment effects is best made in the context of treatment costs. The most practical treatments will be those with benefit-to-cost ratios that are higher than those of other available treatments. Unfortunately, cost-benefit analyses have been too sparse and primitive for useful inclusion in this review.

Finally, most of the research we report on comes from clinics associated with university-based researchers. In these studies, therapists tend to be carefully selected for, trained for, and monitored in the specific treatment approach under investigation. Also, the patients in these studies are carefully screened to include those with the disorder of interest, but sometimes also to exclude those with unwanted comorbid diagnoses. Along with the advantages attendant to such pure, well-described studies is a cost: uncertainty about the generalizability of the findings to treatments, therapists, patients, and settings outside the control of the university-based researcher. We support the growing interest in "effectiveness" studies (see [Seligman, 1995](#)), but little of the work we report here falls in this category.

Major Depressive Disorder

Efficacious and Specific Treatments for Depression Cognitive therapy of depression.

Of the psychological interventions for serious mental disorders, perhaps the treatment most widely studied and most widely regarded by proponents of clinical trial methodologies is cognitive therapy (CT) for depression ([Beck, Rush, Shaw, & Emery, 1979](#)). Until the challenge recently presented by the findings of a large-scale placebo-controlled comparison of CT with antidepressant medication and interpersonal therapy (IPT; [Klerman, Weissman, Rounsaville, & Chevron, 1984](#))—the Treatment of Depression Collaborative Research Program (TDCRP; [Elkin et al., 1989](#))—CT for depression was generally considered to have a very solid empirical basis. Indeed, reviewers of the literature—including meta-analytic reviewers (e.g., [Dobson, 1989](#))—have often concluded that CT is superior to many other forms of therapy for depression, including antidepressant medications. But the findings from the TDCRP study have led to skepticism about CT for depression for several reasons: (a) The TDCRP was a large, well-conducted comparative outcome study with all of the trimmings (e.g., excellent diagnostic procedures); (b) it included a stringent control condition (placebo with clinical management) that CT did not surpass; and (c) it found CT especially wanting among the more severely depressed patients, in whom it performed worse than medications and not demonstrably better than pill placebo with clinical management ([Elkin, Gibbons, Shea, & Sotsky, 1995](#)).

The findings of the TDCRP have created a great deal of controversy (see the recent *Journal of Consulting and Clinical Psychology* special feature that included articles by [Elkin, Gibbons, Shea, & Shaw, 1996](#); [Jacobson & Hollon, 1996a](#), 1996b; and [Klein, 1996](#)). The TDCRP debate has pointed out a weakness in the existing literature: the dearth of studies of diagnosed depressed patients in which CT outperformed a control condition or an alternative treatment. The most compelling evidence for the efficacy of CT had come from studies in which the effects of CT were equal to those of well-conducted pharmacotherapy

(see especially [Hollon et al., 1992](#) ; [Murphy, Simons, Wetzel, & Lustman, 1984](#) ; [Rush, Beck, Kovacs, & Hollon, 1977](#)), but none of these studies included a control condition. We still take the Hollon et al., Murphy et al., and Rush et al. findings to be important, especially because comparisons in those studies between CT and medications in the more severely depressed subsamples continue to suggest—contrary to the TDCRP ([Elkin et al., 1995](#))—that the effects of CT are equivalent to those of antidepressant medications (see [DeRubeis, Gelfand, Tang, & Simons, 1997](#) ; [Hollon et al., 1992](#)). Aside from the TDCRP result, then, CT has shown itself to be on a par with well-established antidepressant medications in the treatment of depression. Moreover, follow-up studies from three of these trials suggest that CT yields a relapse prevention effect (see [Evans et al., 1992](#) ; [Kovacs, Rush, Beck, & Hollon, 1981](#) ; [Simons, Murphy, Levine, & Wetzel, 1986](#)). They indicate an advantage of CT over antidepressant medications when both are withdrawn shortly after remission, typically after 3 or 4 months of acute treatment. In these studies, approximately 26% of the patients previously treated with CT, either alone or with medications, relapsed in the 1st year of follow-up, as opposed to 64% of the patients previously treated with pharmacotherapy. Follow-up findings from the TDCRP ([Shea et al., 1992](#)) also suggest a preventive effect of CT; the effect was not significant, however, and it was smaller in magnitude than that observed in the other studies.

The literature does contain evidence that CT, in group and bibliotherapy formats, can outperform control and alternative treatment conditions for individuals with major depressive disorder. In a small-sample study already cited, [Shaw \(1977\)](#) found that a group version of CT was superior to a "behavior modification" group, a "nondirective" control group, and a wait-list control group (corresponding to effect sizes of 1.2, 1.0, and 2.2, respectively). In a larger investigation of group CT in patients with a diagnosis of depression, [Covi and Lipman \(1987\)](#) reported that CT outperformed a "traditional" (psychodynamic) group therapy. Whereas only 1 of 20 patients (5%) in traditional group therapy achieved remission at the end of therapy (defined as a Beck Depression Inventory [BDI; [Beck, Steer, & Garbin, 1988](#)] score of less than 10), 14 of 27 patients (52%) achieved remission in CT. No follow-up data were reported in either the Shaw or the Covi and Lipman study.

Finally, [Jamison and Scogin \(1995\)](#) found that, in a sample of patients with mild or moderate major depressive disorder, those provided with a "bibliotherapy" version of CT improved more than did those in a wait-list group. The authors used two criteria to determine "clinically significant change": a posttreatment BDI score of less than 12 and a change in BDI score of at least 7 during the 4-week treatment period. In the CT bibliotherapy condition, 59% of the patients met these criteria, whereas only 13% of the control group did. Treatment gains were maintained over the 3-month follow-up period in the CT condition.

Taken collectively, the data indicate that CT for depression is an efficacious treatment with relapse prevention effects, although the inference that it is especially effective relative to other psychological treatments that are targeted for depression (cf. [Dobson, 1989](#)) is premature, especially in light of findings from three recent large-sample investigations in which CT (or cognitive—behavioral therapy) was compared with other depression-targeted psychological treatments. In the TDCRP ([Elkin et al., 1989](#)),

IPT ([Klerman et al., 1984](#)) produced effects that were at least equivalent to those of CT. In the second Sheffield project (D. A. [Shapiro et al., 1994](#)), psychodynamic interpersonal psychotherapy was found to be equally effective or nearly as effective as a cognitive—behavioral therapy (a therapy similar to Beck et al.'s, 1979, although it places greater emphasis on behavioral methods). And, most recently, [Jacobson et al. \(1996\)](#) found that neither of two versions of CT were more effective than behavior therapy.

Efficacious Treatments for Depression Behavior therapy.

Behavior therapies for depression generally follow [Lewinsohn's \(1974\)](#) conceptualization and treatment approach. The main aim of behavior therapy for depression is to engage the patient in potentially pleasant activities. In two studies, this approach has outperformed control conditions. [Shaw \(1977\)](#) found that although patients in his behavior therapy group benefited less than those in his CT group, they fared better than those in a wait-list condition. The effect size for the behavior therapy (vs. wait-list) condition was 1.0 on the BDI ([Beck et al., 1988](#)). Treatment gains were maintained at the 1-month posttreatment follow-up, but, as is true in virtually all studies involving wait-list designs, the wait-list group was not followed, so a comparison cannot be made.

In a large comparative study of behavior therapy ($N = 196$), [McLean and Hakstian \(1979\)](#) observed significantly greater symptom change in their behavior therapy condition than in each of the other three conditions: (a) psychotherapy (based on [Marmor, 1973](#) , and [Wolberg, 1967](#)); (b) relaxation therapy, intended as a control condition; and (c) amitriptyline pharmacotherapy. Results were strongest and most consistent in the comparisons of behavior therapy with psychotherapy; a significant advantage of behavior therapy over amitriptyline was observed only on measures of mood, complaints, and goals. The clinical significance of this difference is supported by the fact that 50% of those in the behavior therapy group had BDI scores in the normal range (less than or equal to 7) at the end of treatment, whereas only 25% of those in the psychotherapy group achieved this criterion. At the 3-month follow-up, as a result of a slightly increased mean BDI score in the behavior therapy group and a slightly decreased mean for the psychotherapy group, the mean difference (11.9 vs. 15.5) was no longer significant.

A recent large-scale study by [Jacobson et al. \(1996\)](#) found that behavior therapy produced as much change as either of two CT conditions in a sample of 150 depressed outpatients. All three treatment groups evidenced improvement rates in the range of 58% to 68%; "recovery" rates (BDI scores of less than 8 and no major depressive disorder) ranged from 46% (for behavior therapy) to 56% (for full CT). Mean changes on the standard indexes of depression severity, the BDI and the Hamilton Rating Scale for Depression ([Hamilton, 1967](#)), were comparable in each group to change observed in other studies of CT and behavior therapy for depressed patients. Even in this relatively large sample, no statistical trends emerged in favor of any of the treatment groups. Treatment gains were maintained in the first 6 months of follow-up for the behavior therapy group, as they were for patients in the two CT conditions.

Interpersonal therapy.

IPT ([Klerman et al., 1984](#)) derives from an interpersonal theory of depression. Depression is seen as an outgrowth of interpersonal conflicts or deficits; treatment is aimed at ameliorating these problems. IPT has equaled or nearly equaled established treatments in two large-scale studies, and it was found to be superior to a minimal contact control in one of those studies. [DiMascio et al. \(1979\)](#) reported that IPT was superior to a minimal-contact control condition, and equivalent to amitriptyline pharmacotherapy, in reducing depressive symptoms, although symptom reduction was 1 to 2 weeks faster in the amitriptyline condition. Reductions in mean Hamilton Depression Rating Scale ([Hamilton, 1960](#)) scores were approximately 7 points in the IPT and medication conditions and just over 1 point in the minimal-contact control condition. This study did not provide information on the long-term effects of IPT.

In the aforementioned primary analysis of the TDCRP ([Elkin et al., 1989](#)), IPT mean posttreatment depression severity scores were nearly identical to those of patients treated with imipramine pharmacotherapy, and they were slightly better (effect size = 0.1) than the mean for CT-treated patients. There were some indications that IPT was superior to placebo—clinical management, especially among the more severely depressed patients. The effect size was 0.6 in favor of IPT relative to placebo—clinical management in the more severe subsample. Follow-up results showed that one third of the IPT patients who had recovered during the acute phase relapsed during the 18-month follow-up period ([Shea et al., 1992](#)). Combined with an acute phase recovery rate of 40%, the authors pointed out that only 26% of the IPT patients recovered and stayed well throughout follow-up. This disappointing figure was very similar to the rates obtained in CT (30%), pharmacotherapy (19%), and placebo (20%).

Psychodynamic interpersonal psychotherapy (D. A. [Shapiro et al., 1994](#)) shares many assumptions and techniques with IPT, although it appears to rely more heavily on interpretations of the therapeutic relationship. As discussed earlier, Shapiro et al. found few differences between psychodynamic interpersonal psychotherapy and cognitive—behavioral therapy in a large sample. The only measure on which psychodynamic interpersonal psychotherapy was inferior to cognitive—behavioral therapy was the BDI, and all differences between the two therapies were small in size. For example, the effect size for the superiority of cognitive—behavioral therapy relative to psychodynamic interpersonal psychotherapy was approximately 0.5 on the BDI.

Possibly Efficacious Treatments for Depression Problem-solving therapy for depression.

[Nezu \(1986\)](#) described a problem-solving therapy for depressed patients that has fared well in two controlled comparisons. In both [Nezu \(1986\)](#) and [Nezu and Perri \(1989\)](#) , depressed patients assigned to the problem-solving treatment experienced greater symptoms reduction than those assigned to a wait-list control group. The effect sizes, relative to wait-list controls, were 1.8 and 2.3, respectively, for the two studies, in comparisons of posttreatment BDI scores. Each study also contained a condition that had some, but not all, of the features of problem-solving therapy. In each case, the full treatment outperformed the incomplete version. At the end of the 6-month follow-up period, the full version was still outperforming the partial versions. Effect sizes of 1.6 and 0.9 were obtained, in favor of problem-solving therapy, in the two studies.

Generalized Anxiety Disorder

Efficacious and Specific Treatments for Generalized Anxiety Disorder Cognitive therapy.

The most widely studied treatment for GAD has been [Beck and Emery's \(1985\)](#) CT model. [Chambless and Gillis \(1993\)](#) reviewed studies evaluating the efficacy of Beck and Emery's model in the treatment of diagnosed GAD patients. Nine clinical trials were reviewed, with one ([Butler, Cullington, Hibbert, Klimes, & Gelder, 1987](#)) investigating a similar cognitive—behavioral package rather than Beck and Emery's model per se. Most of the other eight studies ([Barlow et al., 1984](#) ; [Blowers, Cobb, & Mathews, 1987](#) ; [Borkovec & Costello, 1993](#) ; [Borkovec & Mathews, 1988](#) ; [Borkovec, Mathews, Chambers, & Ebrahimi, 1987](#) ; [Butler, Fennell, Robson, & Gelder, 1991](#) ; [Power, Jerrom, Simpson, Mitchell, & Swanson, 1989](#) ; [Power et al., 1990](#)) combined cognitive techniques described by Beck and Emery with other behavioral techniques, although the Beck and Emery approach was the primary treatment. Comparisons with control groups (wait list, nondirective therapy, or pill placebo) yielded an average effect size of 1.5. In two studies ([Power et al., 1989](#) , [1990](#)), cognitive—behavioral therapy was found to be better than pill placebo; in four studies ([Barlow et al., 1984](#) ; [Blowers et al., 1987](#) ; [Butler et al., 1987](#) , [1991](#)), it was superior to wait-list conditions; and, in one study, ([Borkovec & Costello, 1993](#)), it led to greater symptom improvement than did nondirective therapy. In one study (Blowers et al.), cognitive—behavioral therapy did not outperform nondirective therapy with *DSM—III* GAD. As [Chambless and Gillis \(1993\)](#) pointed out, however, this study may not have involved adequate exposure (8 sessions) to cognitive—behavioral therapy; Borkovec and Costello used 12 sessions in their CT condition.

Two other studies of [Beck and Emery's \(1985\)](#) CT, not reviewed by [Chambless and Gillis \(1993\)](#) , have been performed on diagnosed GAD samples. [Barlow, Rapee, and Brown \(1992\)](#) compared relaxation, CT, combined relaxation and CT, and a wait-list control condition. All active treatments were better than wait list at termination, and gains were maintained during follow-up; however, no differences among the active treatments emerged. [Durham et al. \(1994\)](#) found that CT led to significantly greater improvement than nonmanual guided analytic psychotherapy, particularly at the 6-month follow-up, and that it was somewhat better than anxiety management training, especially in terms of the proportion of patients achieving clinically significant change by follow-up.

Efficacious Treatments for Generalized Anxiety Disorder Applied relaxation.

Two studies are relevant to the evaluation of applied relaxation as an efficacious treatment. As mentioned earlier, [Barlow et al. \(1992\)](#) found applied relaxation to be significantly better than a wait-list control. [Borkovec and Costello \(1993\)](#) found applied relaxation to be significantly better than nondirective therapy at posttreatment.

Clinical Significance of Cognitive Therapy and Applied Relaxation for Generalized Anxiety

Disorder

[Durham and Allan \(1993\)](#) specifically reviewed the clinical significance of psychosocial treatments for GAD. Three of the studies reviewed by these authors ([Butler et al., 1987](#) , 1991; [Power et al., 1990](#)) involved CT for diagnosed GAD patients and used normative comparisons (see [Kendall & Grove, 1988](#)) to ascertain the percentage of patients who experienced clinically significant change. On average, across these three studies, 56% of patients were in the normative range at the end of CT. These results were maintained 3 to 6 months after treatment termination, with 59% of patients in the normative range.

In the GAD treatment study conducted by [Borkovec and Costello \(1993\)](#) , clinical significance was defined as the percentage of patients falling within one standard deviation of normative samples. The cognitive—behavioral package (including Beck & Emery's CT) led to clinically significant change on at least three of the eight outcome measures at posttreatment for 79% of the patients. Applied relaxation produced such clinically significant change for 83% of patients, whereas the comparable figure for nondirective therapy was 33%. However, only 26% of CT patients and 44% of the applied relaxation patients demonstrated clinically significant change on at least six of the eight outcome measures. With these same criteria at the 12-month follow-up, 38% of applied relaxation and 58% of CT patients evidenced clinically significant change. Using [Jacobson, Follette, and Revenstorff's \(1984\)](#) definition of clinically significant change—the percentage of patients who achieve a cutoff score set so that patients are equally likely to be a member of either nonfunctional or functional distributions— [Durham et al. \(1994\)](#) reported that, in their study, 37% of patients in CT, 31% of patients who received anxiety management training, and only 10% of patients who received analytic psychotherapy achieved clinically significant change.

In summary, adequate evidence exists for concluding that cognitive—behavioral therapy and applied relaxation are efficacious treatments for GAD and that cognitive—behavioral therapy is a "specific" treatment. However, the clinical significance of change produced by this treatment is somewhat limited, leaving room for further treatment development and testing within this population. In comparisons of CT and applied relaxation, the overall weight of evidence is stronger for CT (i.e., more studies showing an effect), and there is adequate evidence (i.e., more than one study) to demonstrate a specific effect for cognitive—behavioral therapy but not for applied relaxation (i.e., only one study showing superiority to another treatment). Of the two studies that directly compared these treatments, one ([Barlow et al., 1992](#)) reported no differences but had low statistical power; the second study ([Borkovec & Costello, 1993](#)) demonstrated no difference at posttreatment but produced suggestions of superiority of cognitive—behavioral therapy at the 12-month follow-up (58% of cognitive—behavioral therapy patients had clinically significant change on six to eight outcome measures, whereas only 38% of the applied relaxation patients showed such change).

Social Phobia

As is true with all of the anxiety disorders, psychological therapy and pharmacotherapy researchers have

conducted careful assessments of a variety of treatments for social phobia, especially in the last decade. Once again, within the psychological treatments most of the controlled studies have been conducted on behavioral or cognitive approaches.

Efficacious Treatments for Social Phobia Exposure therapy alone.

The first controlled study of exposure therapy for social phobia also aimed to test whether the addition of "anxiety management" procedures to standard exposure procedures enhanced the exposure effect. [Butler, Cullington, Munby, Amies, and Gelder \(1984\)](#) assigned 45 patients with social phobia to the following individual treatments: (a) exposure alone (plus a control procedure), (b) exposure plus anxiety management, or (c) a wait-list control. Anxiety management techniques included cognitive (learning rational self-talk) and behavioral (relaxation and distraction) procedures. Patients in the exposure condition improved more than those in the wait-list condition but less than those who received exposure and anxiety management. Gains made in the exposure group were maintained during a 6-month follow-up.

[Hope, Heimberg, and Bruch \(1995\)](#); [Mattick, Peters, and Clarke \(1989\)](#); and [Turner, Beidel, and Jacob \(1994\)](#) have also reported that exposure (or flooding) is superior to a control group. In each study, treatment was conducted in a group format. In Turner et al., the control was a pill-placebo condition; in Hope et al. and Mattick et al., the control was a wait-list group. In both Hope et al. and Mattick et al., comparisons of the posttreatment means of the exposure group with the means of the respective wait-list control groups yielded an effect size of 2.2 on the primary measures of social phobia. In Hope et al., 7 of 10 (70%) exposure patients were classified as "responders"; none of the 10 (0%) wait-list patients met the "responder" criteria. In Turner et al., 56% of the exposure group showed significant improvement, as compared with 6% of the placebo group. On raters' judgments of social phobia, 30% of the patients treated with exposure were judged to have "high end-state functioning," as opposed to only 6% in the placebo group. In Turner et al., gains made during exposure treatment were maintained over a 6-month follow-up period. However, in both [Butler et al. \(1984\)](#) and [Hope et al. \(1995\)](#), treatment gains had eroded substantially by the 6th month of follow-up, and, in [Mattick et al. \(1989\)](#), more than one third of the advantage of exposure treatment over wait-list control disappeared over a 3-month follow-up. In summary, exposure therapy for social phobia appears to be a potent treatment, and there are indications that its effects persist to at least a moderate degree after cessation of treatment.

Exposure plus cognitive restructuring (or cognitive—behavioral therapy).

In addition to the [Butler et al. \(1984\)](#) study described in the previous section, there have been three other tests of exposure treatment with cognitive procedures added ([Heimberg et al., 1990](#); [Hope et al., 1995](#); [Mattick et al., 1989](#)). These cognitive—behavioral treatments were all delivered in a group format. In each of the cited studies, the exposure plus cognitive restructuring treatment was found to exceed control conditions in terms of benefit to social phobic patients. Heimberg et al. reported that 65% of the cognitive—behavioral patients experienced a stringent level of "clinically significant" improvement at the end of treatment, and 69% achieved this standard by the 6-month follow-up. This is in contrast to results

obtained in the "educational supportive psychotherapy" group, an elaborate, credible control treatment in which only 40% of patients evidenced clinically significant change. By the 6-month follow-up, that figure had shrunk to 35%. Mattick et al. obtained an effect size of 2.5 in their cognitive—behavioral treatment relative to a wait-list control on a behavioral avoidance test. Impressively, patients continued to improve in this condition through the 3-month follow-up period. In Hope et al., the effect was rather weak; only 4 of 11 patients were classified as responders, but the modest gains made by patients in the cognitive—behavioral group therapy condition were maintained through the 6-month follow-up.

An additional comparison in several of these studies was made between exposure alone and exposure plus cognitive restructuring. [Feske and Chambless \(1995\)](#) reviewed this literature using meta-analytic methods and concluded that the available evidence does not indicate superiority of the "combined" cognitive—behavioral treatment. However, they chose not to include the study ([Butler et al., 1984](#)) most often cited as evidence that a cognitive—behavioral treatment outperforms exposure alone. The reasons given by Feske and Chambless were that behavioral (relaxation and distraction) as well as cognitive procedures were added to exposure alone and that the "cognitive" treatment component was too brief to be likely to account for the advantage of the combined treatment. It is most reasonable to conclude that any benefit that might derive from the addition of cognitive restructuring procedures to exposure is small or not robust across practitioners.

Obsessive—Compulsive Disorder

Although the body of work on the psychological treatment of OCD has been impressive over the last two decades, few of the studies have used control groups of any kind. This no doubt is due in part to the chronic, unremitting nature of the disorder and the fact that OCD patients are notoriously resistant to the treatments attempted earlier in this century. Therefore, most outcome researchers, as well as reviewers of the literature (cf. van Balkom et al.'s, 1994, meta-analytic review), have focused on change from pretreatment to posttreatment within single treatments rather than on comparisons between an active treatment and a control condition. Indeed, two modern treatments—exposure and response prevention ([Foa, Steketee, Grayson, Turner, & Latimer, 1984](#)) and CT ([Beck, 1976](#); [Salkovskis, 1985](#))—have demonstrated impressive response rates (or pretreatment to posttreatment effect sizes). Given the criteria for inclusion in this review, however, relatively few studies are cited in support of the efficacy of these treatments.

Efficacious and Specific Treatments for Obsessive—Compulsive Disorder Exposure and response prevention for OCD.

Exposure and response prevention therapy (ERP; see [Foa et al., 1984](#)) is designed to extinguish obsessive fears (by exposing the patient to fear-provoking stimuli such as dirt on the hands) and avoidance behaviors (by preventing the compulsive response to the obsession). In a particularly stringent test of the potency of ERP, [Foa et al. \(1984\)](#) assigned 32 OCD patients to ERP, exposure alone, or response prevention alone. In this context, the single treatments could be considered control treatments. ERP patients improved significantly more than did the patients in either of the control treatments. The

effect was substantial at the end of treatment; effect sizes were 3.5 and 1.7, respectively, in comparisons of ERP with exposure and response prevention, on the main measure of anxiety during exposure. By the end of follow-up, which varied in length but averaged about 12 months, the treatment effect had diminished so that the effect size of ERP relative to the two single treatments pooled was 1.0; 80% of the ERP patients remained improved at follow-up, whereas only 27% of those in the single-component groups remained "improved."

[Fals-Stewart, Marks, and Schafer \(1993\)](#) found that both a group and an individual version of ERP outperformed a relaxation training control. Although the manner in which their results were reported precludes a formal assessment of the clinical significance of the advantage of the ERP groups over the control group, an inspection of the mean scores on the main outcome measure at pretreatment, posttreatment, and the 6-month follow-up suggests that change was minimal in the control group and substantial and sustained in both the group and individual ERP conditions.

Relaxation training also served as the control condition in [Rachman et al.'s \(1979\)](#) test of ERP for OCD. In combination with either clomipramine or a placebo, ERP reduced OCD symptoms more than did the relaxation condition (also in combination with either clomipramine or placebo). After only 3 weeks of behavioral treatment, patients on placebo plus ERP had improved substantially more than those on placebo plus relaxation training. The effect size that corresponded to this difference was 2.2 on a measure of discomfort during a behavioral avoidance test. The design of the study precluded any comparisons between ERP and relaxation at follow-up.

Possibly Efficacious Treatments for Obsessive—Compulsive Disorder Cognitive therapy for OCD.

Whereas in ERP the focus is on breaking the avoidance cycle that characterizes OCD, in CT the focus is on challenging the beliefs (e.g., "If I left the oven on, my house will blow up") that are a part of the disorder. In two separate studies with small sample sizes (ranging from 9—11 per group), [Emmelkamp and colleagues \(Emmelkamp & Beens, 1991 ; Emmelkamp, Visser, & Hoekstra, 1988\)](#) found no advantage of ERP relative to a CT based on [Ellis's \(1962\)](#) rational emotive therapy.

In [Emmelkamp et al. \(1988\)](#), treatment gains were maintained during the 6-month follow-up period. At the 6-month follow-up, 8 of the 9 CT patients were judged improved or much improved, and all 9 ERP patients were so judged. The design and analyses of the [Emmelkamp and Beens \(1991\)](#) trial precluded an assessment of the relative long-term effects of the two treatments.

In a larger study ($N = 57$), [Van Oppen et al. \(1995\)](#) also found CT (in this case based on [Beck & Emery, 1985](#), and [Salkovskis, 1985](#)) to have effects "equivalent" to those of ERP. Moreover, there were some indications of superiority of CT over ERP. For example, whereas 39% of the CT patients were judged to be recovered on all three main outcome measures, only 17% in the ERP condition were so judged. No follow-up data were reported.

Agoraphobia

Efficacious and Specific Treatments for Agoraphobia Exposure therapy for agoraphobia.

Agoraphobia per se was a focus of several outcome investigations in the pre- *DSM—III* 1970s. Of interest in these studies was the potency of exposure therapy for agoraphobic avoidance (for a review, see [Jansson & Öst, 1982](#)). Several independent investigators found that exposure was superior to attention control procedures in reducing agoraphobic avoidance ([Chambless, Foa, Groves, & Goldstein, 1979](#) ; [Gelder et al., 1973](#) ; [Jannoun, Munby, Catalan, & Gelder, 1980](#) ; [McDonald et al., 1979](#)).

[Gelder et al. \(1973\)](#) conducted the first controlled trial of exposure treatment for agoraphobia, although it was embedded in a larger study of phobia treatment. Twelve patients were assigned to each of three conditions: (a) exposure (flooding) therapy, (b) systematic desensitization therapy, and (c) a control condition termed associative psychotherapy, in which patients were encouraged to free associate to phobic images provided by the therapist. Of the 12 patients in each condition, 6 were diagnosed as agoraphobic (the others were suffering from other phobic conditions). Both the systematic desensitization condition and the flooding condition yielded effects approximately twice as large as what occurred in the control condition. There were no differences between flooding and desensitization, and, at the 6-month follow-up, the advantage of the active treatments was no longer significant. The authors did not report the results for the agoraphobic subsample in detail, but they did note that the effects tended to be stronger in this group.

[Chambless et al. \(1979\)](#) assigned 27 agoraphobic patients to imaginal flooding (with or without an adjunctive pharmacological treatment) or an attention control condition. The control group was a rather elaborate one; patients were given eight sessions of relaxation training, along with eight sessions of "supportive" psychotherapy. Patients who received flooding without adjunctive medication surpassed the control group on all of the fear and avoidance measures at posttreatment. The effect sizes for changes following the flooding condition, relative to the control condition, ranged from 1.4 to 4.4 for client and therapist ratings of fear and avoidance. No follow-up results were reported.

[McDonald et al. \(1979\)](#) compared a discussion control condition with a condition in which patients were given explicit exposure homework assignments to enact between sessions. Nineteen agoraphobic patients participated in the study. A significant advantage for the exposure condition was obtained on the target problem at posttreatment and on a global phobia measure at the 1-month follow-up. Trends were reported for the difference between the two conditions on the target problem at follow-up and the global phobia measure at posttreatment. Significant differences were not obtained on a fear questionnaire, although the results were in the same direction as the other measures. The effect sizes associated with the advantage of the exposure group over the discussion group were in the 0.5 to 1.0 range at posttreatment and follow-up on the target problem and global phobia measures.

[Jannoun et al. \(1980\)](#) also used an active control condition—a group that focused on solving "stressful"

problems that might lead to agoraphobic anxiety—in a comparison with an exposure condition termed programmed practice. Programmed practice resulted in significant reductions in agoraphobic symptoms, and it produced a significant advantage relative to the problem-solving condition at the 3-month follow-up assessment but not at the posttreatment or 6-month follow-up assessment. The size of the advantage in effect size terms was 1.0.

Panic Disorder

With the advent of the *DSM—III*, as well as developments in biological theories and treatments of panic attacks, the research focus shifted to panic disorder, often with no or mild agoraphobic avoidance. [Beck's \(1988\)](#) and [Clark's \(1986\)](#) CT of panic disorder has generated a great deal of enthusiasm among clinical psychologists because of the potent effects often found in research on CT for panic. Its procedures overlap sufficiently with [Barlow and Cerny's \(1988\)](#) panic control therapy (PCT) that we decided to categorize them together for this review. Two distinct behavior therapy approaches—exposure-based treatments and [Öst's \(1988\)](#) applied relaxation—have also fared well in outcome research.

Efficacious and Specific Treatments for Panic Disorder Cognitive (or panic control) therapy for panic disorder.

We review 11 investigations of CT ([Beck, 1988](#) ; [Clark, 1986](#)) or PCT ([Barlow & Cerny, 1988](#)). A key assumption in these treatment approaches is that catastrophic misinterpretations of bodily sensations—such as rapid respiration or heart rate—are necessary for the experience of panic. Patients are exposed to experiences and taught methods aimed at changing their interpretations of such bodily sensations to benign ones so as to preclude the possibility of a panic attack. In four investigations ([Arntz & van den Hout, 1996](#) ; [Barlow, Craske, Cerny, & Klosko, 1989](#) ; [Beck, Sokol, Clark, Berchick, & Wright, 1992](#) ; [Clark et al., 1994](#)), CT (or PCT) surpassed an active comparison condition at posttreatment or during follow-up. In three studies (J. G. [Beck, Stanley, Baldwin, Deagle, & Averill, 1994](#) ; [Klosko, Barlow, Tassinari, & Cerny, 1990](#) ; [Williams & Falbo, 1996](#)), CT (or PCT) was found to be significantly more effective than a wait-list or minimal contact control condition. No differences were observed between CT and other empirically supported treatments in two studies ([Bouchard et al., 1996](#) ; [Öst & Westling, 1995](#)). Finally, two groups of investigators ([Black, Wesner, Bowers, & Gabel, 1993](#) ; [Shear, Pilkonis, Cloitre, & Leon, 1994](#)) obtained null effects between CT and nonspecific control conditions. We review each group of studies in turn.

This literature is heterogeneous in regard to a potentially important aspect of sample composition. Whereas some investigators have included panic patients with varying degrees of agoraphobic avoidance, others have excluded those with moderate or severe agoraphobic avoidance. In one study ([Bouchard et al., 1996](#)), only patients with at least some agoraphobic avoidance were included. Given the evidence that the more severely avoidant patients may be more resistant to treatment ([Williams & Falbo, 1996](#)), it would behoove future investigators to pay special attention to this dimension.

In a study that compared three of the most widely regarded antipanic treatments against each other and a wait-list control condition, [Clark et al. \(1994\)](#) found CT to be superior at posttreatment to applied relaxation and to imipramine pharmacotherapy, as well as to the control condition. Eighty percent of the CT patients achieved high end-state functioning at posttreatment (panic free, coupled with an assessor's rating of "slight" or less on a scale of panic distress—disability), as compared with 25% for applied relaxation and 40% for imipramine. Although end-state figures were not reported for the control group, very little change occurred in terms of mean panic—anxiety score. The pretreatment to posttreatment effect size was only 0.5 in the control group, as compared with effect sizes of 4.4 for CT, 1.6 for applied relaxation, and 2.2 for imipramine pharmacotherapy. Treatment gains were largely maintained by the CT patients at the 6- and 15-month follow-up assessments, at which times 65% and 70% of the patients, respectively, were classified as evidencing high end-state functioning. Patients with severe agoraphobic avoidance were not included in this study.

[Arntz and van den Hout \(1996\)](#) obtained larger changes in panic frequency with CT (pretreatment to posttreatment effect size = 1.3) than with an applied relaxation (effect size = 0.5) or a wait-list (effect size = 0.0) condition. Similar effects were observed on a composite questionnaire score. Although these changes were largely maintained in the CT condition through the 6-month follow-up assessment, the advantage relative to applied relaxation disappeared as a result of continued improvement during follow-up in the applied relaxation group. Only patients with mild or no agoraphobic avoidance were included.

[Beck et al. \(1992\)](#) compared CT with a brief supportive psychotherapy control condition in patients with varying levels of agoraphobic avoidance. After 8 weeks, 71% of the patients in the CT condition were panic free, in comparison with 25% in the supportive psychotherapy condition. At the end of the 8-week comparison period, 94% of the patients in the brief supportive psychotherapy condition elected to cross over to a 12-week course of CT. These patients exhibited substantial improvement at the end of their 12-week trial. At the 1-year follow-up, 83% of all patients—those originally assigned to CT and those who crossed over to CT from the control condition—were panic free.

[Barlow and Cerny's \(1988\)](#) "behavioral" approach to the treatment of panic disorder—PCT—is in many ways similar to [Clark's \(1986\)](#) and [Beck's \(1988\)](#) approach. It uses several cognitive procedures ([Beck & Emery, 1979](#)), including methods to encourage patients to reappraise panic-inducing internal physiological cues. In [Barlow et al. \(1989\)](#) , PCT outperformed a wait-list condition and produced effects at posttreatment similar to those produced by a relaxation condition modeled after [Öst \(1988\)](#) . None of the wait-list patients achieved high endstate functioning at posttreatment, whereas approximately half of the patients in PCT and in the relaxation condition did so. During a 2-year follow-up ([Craske, Brown, & Barlow, 1991](#)), the percentage of PCT patients judged to have high end-state functioning increased. At 6 months, 71% of those who had completed PCT were so judged, a figure that was significantly greater than that observed in the relaxation condition (22%). At 24 months, the figure for PCT was 87%, as compared with 56% in the relaxation condition. Patients with moderate or severe agoraphobic avoidance were excluded from the trial.

[Klosko et al. \(1990\)](#) reported a significant advantage of PCT over each of two control conditions in a sample that was heterogeneous in regard to agoraphobic avoidance. Eighty-seven percent of patients in the PCT condition were panic free at the end of treatment, as compared with 36% for a pill placebo condition and 33% for a wait-list condition. No follow-up results were reported.

[J. G. Beck et al. \(1994\)](#) reported that 14 of 16 patients (82%) responded to CT, in comparison with a 36% response rate for those who had completed a minimal contact control condition. By the 6-month follow-up, all 16 CT patients were classified as responders. Patients with severe agoraphobic avoidance were excluded from this trial.

[Williams and Falbo \(1996\)](#) also found CT (as well as an exposure-based treatment and a treatment that combined CT with exposure; see later discussion) superior to a wait-list control, with an effect size of 0.8 for panic attack frequency at posttreatment. Fifty-seven percent of CT patients were judged panic free at posttreatment, as opposed to 11% of the control patients. Gains were maintained at the follow-up assessments, with 69% of patients panic free at 6 weeks posttreatment and 50% still panic free at a long-term assessment conducted 1 to 2 years posttreatment. Patients with a wide range of agoraphobic avoidance were included in the trial. The treatments (CT patients were combined with the exposure-alone group and the combined group for these analyses) were extremely effective in reducing panic attacks in those patients who began treatment with relatively low levels of agoraphobic avoidance. Of the 18 patients in this category, 17 (94%) were panic free at posttreatment. However, only 11 of 21 (52%) patients who were high on agoraphobic avoidance at pretreatment finished treatment panic free. These findings sound a cautionary note about the generalizability of these treatments to panic patients with higher levels of agoraphobic avoidance.

[Öst and Westling \(1995\)](#) obtained a similar effect on panic frequency from CT and applied relaxation; they did not find CT to be superior to applied relaxation, especially at follow-up. At posttreatment, 74% of CT patients, as opposed to 47% of applied relaxation patients, achieved high end-state functioning. By the 1-year follow-up, rates of high end-state functioning were nearly identical: 79% in CT and 82% in applied relaxation. Only patients with mild or no agoraphobic avoidance were included.

In a sample of patients with at least some agoraphobic avoidance, [Bouchard et al. \(1996\)](#) found no advantage of a group version of CT in comparison with a group-based exposure treatment. They reported rates of high end-state functioning lower than those observed in the previously cited studies of CT for panic disorder and (nonsignificantly) lower than those produced by the exposure condition. At posttreatment, 64% of CT patients and 86% of exposure patients were judged to have achieved high end-state functioning. Six weeks later, 57% and 64% of patients were rated as achieving high end-state functioning in CT and exposure, respectively.

[Black et al. \(1993\)](#) compared CT, fluvoxamine pharmacotherapy, and placebo in a sample that varied in agoraphobic avoidance from "none" to "severe." CT was significantly inferior to fluvoxamine on some of the main outcome measures, and it was not demonstrably superior to placebo on most of the main measures. CT patients fared poorly in this study relative to other investigations. Thirty-six percent of the

CT patients failed to complete treatment, an unusually high rate for CT in a panic disorder sample. Moreover, the panic-free rate among completers was only 53%, which is quite low. Two notable design irregularities may have been responsible for these aberrant results. Only one therapist provided the CT to all 25 patients, and raters were not blind to the treatment condition of the patient. The external and internal validity of the findings is compromised by these deficiencies.

In a sample that included patients with all levels of agoraphobic avoidance, [Shear et al. \(1994\)](#) compared a cognitive—behavioral treatment for panic disorder with a "nonprescriptive" treatment. Response to treatment was good in both groups, with approximately three quarters of the patients panic free at posttreatment and 6-month follow-up assessments, irrespective of treatment condition. Although the nonprescriptive treatment was meant as a nonspecific therapy control, an interpretive problem arises from the fact that each patient (including those in the nonprescriptive condition) was given three sessions of instruction (before "treatment") on the role of physiological reactions in a panic attack. As a consequence, it is possible that some of the critical elements of CT were provided to all patients in these preliminary sessions.

It should be noted that two groups ([Otto et al., 1993](#) ; [Spiegel, Bruce, Gregg, & Nuzzarello, 1994](#)) have found CT to be superior to no psychological treatment during discontinuation of alprazolam, an anti-anxiety medicine often used in the treatment of anxiety disorders. Spiegel et al.'s sample included only those with at least mild agoraphobic avoidance before treatment; Otto et al. included patients irrespective of the presence or severity of avoidance.

Efficacious Treatments for Panic Disorder Exposure therapy.

The superiority of an individual exposure-based treatment for panic disorder with agoraphobia, relative to a wait-list control condition, was reported by [Williams and Falbo \(1996\)](#) . Their sample ranged in agoraphobic avoidance from mild to severe at pretreatment. The exposure effect size, relative to the control group, was 1.2 for panic attack frequency at posttreatment. Fifty-eight percent of the exposure patients were judged panic free at posttreatment, as opposed to 11% of the control patients. Gains were maintained at the follow-up assessments, with 67% of exposure patients panic free at 6 weeks posttreatment and 80% panic free at a long-term assessment conducted 1 to 2 years posttreatment.

Extensions of exposure-based treatments for panic disorder to group ([Lidren et al., 1994](#)), bibliotherapy (Lidren et al.), and telephone contact ([Swinson, Fergus, Cox, & Wickwire, 1995](#)) formats have each been found to be superior to wait-list conditions. In both studies, patients were included irrespective of the presence or severity of agoraphobic avoidance.

In [Lidren et al. \(1994\)](#) , 83% of patients in both the group and bibliotherapy-based exposure conditions were panic free at the posttreatment assessment, as compared with 25% in the wait-list condition. Several stringent criteria for clinical significance were applied to the posttreatment data; the average rates of "clinically significant improvement" across four such indexes were 52% in the group exposure condition, 42% in the bibliotherapy condition, and 4% in the control condition. Panic-free rates were maintained at

92% and 75%, respectively, in the group and bibliotherapy conditions across the 6-month follow-up period. On the more stringent criteria for clinical significance, the rates noted at posttreatment were maintained throughout the follow-up.

[Swinson et al. \(1995\)](#) extended programmed exposure to eight sessions of phone contact only and found this procedure to be superior to a wait-list condition. Effect sizes of 1.0 and 0.8 were obtained in the posttreatment comparisons of patients' avoidance and fear ratings, respectively, and gains were maintained throughout the 6-month follow-up period.

Applied relaxation.

[Öst's \(1988\)](#) applied relaxation therapy meets criteria for an efficacious treatment, but there has been considerable variability in the indications of the potency of this treatment vis-à-vis other treatments. Moreover, applied relaxation has been little studied with patients who evidence moderate or severe agoraphobic avoidance.

[Barlow et al. \(1989\)](#) found that, at posttreatment, applied relaxation was superior to a wait-list condition and generally comparable to PCT. Half of the applied relaxation patients in Barlow et al.'s study achieved high end-state functioning (vs. none in the wait-list group). However, applied relaxation patients deteriorated during the 2-year follow-up period, especially in the period immediately after treatment. By the 6th month, only 22% of the applied relaxation patients who completed treatment were judged to have high end-state functioning, a significantly lower figure than that achieved by CT completers (71%). However, by the 24th month, 56% of the applied relaxation completers had achieved this status, a figure that was not significantly lower than the 87% observed among CT completers.

In both [Clark et al. \(1994\)](#) and [Arntz and van den Hout \(1996\)](#), applied relaxation was superior to wait-list conditions but inferior to CT at the posttreatment assessment. In Clark et al., only 25% of the applied relaxation patients achieved high end-state functioning at posttreatment, as compared with 80% in the CT condition. Gains were maintained throughout the 15-month follow-up period, but the applied relaxation group continued to evidence significantly more symptoms than the CT group during that time.

Similarly, [Arntz and van den Hout \(1996\)](#) found applied relaxation to be less potent than CT but more effective than the wait-list condition at posttreatment. The effect sizes for changes in the CT, applied relaxation, and wait-list conditions were 1.3, 0.5, and 0.0, respectively. However, the effects of applied relaxation and CT converged during the follow-up, with the applied relaxation group continuing to improve while the CT group maintained its gains; by the 6-month follow-up, both groups were doing comparably well.

[J. G. Beck et al. \(1994\)](#) reported a significant effect of relaxation training over a minimal contact control condition. Rates of improvement approximated those obtained with CT; 13 of 19 panic disorder patients (68%) responded to relaxation training, as compared with 82% in CT, and 36% in the control group. Gains evident by posttreatment were maintained during the 6-month follow-up.

[Öst and Westling \(1995\)](#) also reported equivalent effects of applied relaxation and CT in a two-group comparison encompassing 38 patients with no or mild agoraphobic avoidance. Panic-free rates were 65% for applied relaxation and 74% for CT at posttreatment; at the 1-year follow-up, rates were 82% for applied relaxation and 89% for CT.

Posttraumatic Stress Disorder

As is true of several of the anxiety disorders, there has been an increased interest in treatments for PTSD in the last decade or so. Research has focused primarily on two populations: rape victims and combat veterans. Although there has been a substantial amount of psychotherapy research on these populations, along with a wide range of treatment approaches (from psychodynamic therapy [see [Brom, Kleber, & Defares, 1989](#)] to eye movement desensitization and reprocessing [EMDR; see [F. Shapiro, 1989](#)]), only one of the treatments meets our criteria for efficacious, whereas two others meet criteria for possibly efficacious. Hindering the advance of research on PTSD treatments is the lack of consensus concerning the target symptoms—and primary measures—for assessing treatment response. In some reports, a host of results is presented, with little or no indication concerning the priority of the various outcome measures.

Efficacious Treatments for PTSD Exposure (behavior therapy) for PTSD.

Three different research teams have provided evidence that systematic exposure to traumatic stimuli, either alone or when added to treatment as usual, is superior to wait-list or other control conditions. The first controlled study of exposure therapy for PTSD was reported in 1989 by Cooper and Clum. They used a quasi-random assignment procedure in which all patients received treatment as usual but only half were assigned additionally to "imaginal flooding." The mean pretreatment to posttreatment improvement was greater for the imaginal flooding group than for the treatment-as-usual group on all 11 measures, and, despite a small sample size (7 per group), significant differences between the two groups were reported on 4 of the 11 measures. Effect sizes for the flooding versus control comparison ranged from 0.5 to 5.4, depending on the outcome measure. The small number of patients and the lack of a focus on one or a small set of measures yields a rather uncertain assessment of the size or clinical significance of the flooding advantage. Comparisons between the flooding and control groups become even more difficult during follow-up, although there was a tendency for the posttreatment differences to erode by the 6-month follow-up assessment.

[Keane, Fairbank, Caddell, and Zimering \(1989\)](#) compared implosive (flooding) therapy and a wait-list condition in a sample of 24 Vietnam war veterans. Flooding led to significantly greater decline in several PTSD symptoms, including depression (as measured by the BDI), trait anxiety (as measured by the State-Trait Anxiety Inventory; [Spielberger, Gorsuch, & Lushene, 1997](#)), and overall total (therapist) rating of PTSD symptoms. It is not possible to glean the size of the effects, or their clinical significance, from the data presented. However, a robust finding across measures was that treatment gains were maintained through the 6-month follow-up period.

Boudewyns and colleagues ([Boudewyns & Hyer, 1990](#) ; [Boudewyns, Hyer, Woods, Harrison, & McCranie, 1990](#)) assigned Vietnam veterans randomly to "direct therapeutic exposure" or "conventional therapy." Each treatment was conducted in the context of "active unit milieu treatment." Although no measures of PTSD symptom status were taken immediately posttreatment, three quarters of the patients filled out veterans adjustment scales at a 3-month posttreatment follow-up point. Analyses of these data indicated that the direct therapeutic exposure group exhibited better adjustment and fewer PTSD symptoms than did the patients who had been in the conventional therapy control group. An effect size estimate of 0.8 was obtained when change from pretreatment to follow-up was compared between the two groups.

[Foa, Rothbaum, Riggs, and Murdock \(1991\)](#) used an intensive behavioral treatment termed prolonged exposure in a randomized controlled study of the treatment of rape victims with PTSD. Patients assigned to the supportive counseling and wait-list control groups improved very little and significantly less so than those assigned to an anxiety management ("stress inoculation training") condition. Although the prolonged exposure condition did not produce a significantly better posttreatment response than that produced in the control conditions, its effects exceeded those of the supportive counseling group by the 3-month follow-up, primarily because of continued improvement of the prolonged exposure patients between the end of treatment and the follow-up. At follow-up, the effect size of prolonged exposure, relative to the supportive counseling condition, was 0.6. At that time, 56% of the prolonged exposure patients evidenced clinically significant improvement, as compared with 33% of the supportive counseling group.

Possibly Efficacious Treatments for PTSD Stress inoculation therapy.

This therapy, adapted from [Meichenbaum \(1974\)](#) specifically for rape victims by [Veronen and Kilpatrick \(1983\)](#) , was one of the active treatment conditions in the [Foa et al. \(1991\)](#) study just summarized. The treatment includes behavioral anxiety management and coping techniques such as deep muscle relaxation and controlled breathing. It also includes cognitive restructuring. At the end of the 5-week acute treatment phase, the effect of stress inoculation therapy exceeded not only the wait-list control group (effect size = 1.2) but also the supportive counseling control group (effect size = 1.0). Seventy-one percent of the stress inoculation therapy patients met criteria for clinically significant change at posttreatment, as compared with 19% in the two control groups. By the 3-month follow-up assessment, the effect size had shrunk to 0.4 relative to supportive counseling; the percentage of patients who exhibited clinically significant improvement was 67%, as compared with 33% in the supportive counseling condition. We are aware of no published attempts to replicate this finding.

Eye movement desensitization and reprocessing.

A great deal of interest in a new treatment, EMDR (see F. [Shapiro, 1989](#)), has been accompanied by early-stage treatment research. EMDR might be considered a special application of imaginal exposure, because at its core is the repeated guided visual imagery of the traumatic event. But it has been considered a unique treatment by many because it involves the elicitation of rapid, saccadic eye

movements during the imaginal exposure session, and these eye movements are considered to be essential by its practitioners. [Wilson, Becker, and Tinker \(1995\)](#) compared EMDR with a wait-list control condition in a sample of 80 patients who reported a trauma that was interfering with their life. (Forty-six percent of the patients met criteria for PTSD.) EMDR, administered in three 90-min individual sessions, resulted in greater change than the wait-list condition across a wide variety of indexes. Although the authors did not report the data separately for those patients who did and did not meet PTSD criteria, the sample was large enough, and the effect size substantial enough in the whole sample (1.8 for the composite of trauma-specific measures and 0.7 for the general measures), that the data would presumably yield a significant advantage of EMDR over the wait-list control condition among those who met PTSD diagnostic criteria. Similar gains were observed in the wait-list patients after they had been given a trial of EMDR. Ninety days after treatment, gains were maintained. These findings have not been replicated in a controlled trial.

A dismantling study conducted by [Renfrey and Spates \(1994\)](#) gives substance to the view that EMDR may simply be one of many ways of conducting guided exposure treatment. PTSD patients were randomly assigned to EMDR or an imaginal exposure condition in which they were asked to focus on a fixed stimulus. (A third condition in the study is not relevant to the present discussion.) No added advantage was found for the full EMDR condition. The sample was quite small, limiting confidence in this null result, but it remains the case that EMDR has not been shown to be more beneficial than standard imaginal exposure treatment for PTSD. Indeed, there is as yet no published evidence that EMDR is even as effective as standard exposure treatments for PTSD.

Schizophrenia

The psychological treatment of schizophrenia continues to occupy the attention of schizophrenia researchers, as it has since the 1970s. Family psychoeducational training and social skills training have drawn most of the effort. The status of family psychoeducation in the treatment of schizophrenia is reviewed by [Baucom, Shoham, Mueser, Daiuto, and Stickle \(1998\)](#), elsewhere in this special section. Here, we summarize findings from studies of social skills training for schizophrenia.

Possibly Efficacious Treatments for Schizophrenia Social skills training for schizophrenia.

The tradition in the schizophrenia literature is to examine the effects of a psychological intervention that is added to antipsychotic medications. In most studies, the experimental treatment (plus drugs) is compared with an alternative treatment (plus drugs) or with treatment as usual (plus drugs), and most investigations focus on the possible relapse prevention effects of treatment. In a study by [Hogarty, Anderson, and Reiss \(1986\)](#), patients given social skills training exhibited a 20% relapse rate, as compared with a rate of 41% in patients randomly assigned to a control group in which pharmacotherapy was given in the context of a "supportive, didactic relationship." In [Wallace and Liberman \(1985\)](#), the control group was termed *holistic health*, involving 200 hr of yoga, exercise, and stress management. Measures of social skills revealed a significant advantage for the social skills training condition. During the 2-year follow-up period, the social skills training group experienced fewer rehospitalizations (16, as

opposed to 30 in the holistic health group), but the relapse prevention advantage did not reach statistical significance.

Other groups have not found a significant relapse prevention advantage for social skills training groups in comparison with control conditions (see [Bellack, Turner, Hersen, & Luber, 1984](#) ; [Brown & Munford, 1983](#) ; [Spencer, Gillespie, & Ekisa, 1983](#)). [Benton and Schroeder's \(1990\)](#) meta-analysis of social skills training yielded a significant effect size estimate on relapse prevention of 0.5, even when they included the null results just noted. They also observed that it would take but four more null results to render the effect nonsignificant. Since the Benton and Schroeder meta-analytic review, [Hayes, Halford, and Varghese \(1995\)](#) have reported a failure to find an advantage of social skills training over a discussion group condition in the alleviation of schizophrenic symptoms or in improvement in community functioning. Thus, although social skills training meets the criteria for a possibly efficacious treatment, the effects have not been strong and robust across investigations.

Alcohol Abuse—Dependence

There is a rather large literature on psychosocial treatment of problematic alcohol use. [Holder, Longabaugh, Miller, and Rubonis \(1991\)](#) reviewed controlled trials involving 33 different treatment modalities and concluded that there was good evidence for the efficacy of the following treatments: social skills training, self-control training, brief motivational counseling, stress management, behavioral marital therapy, and community reinforcement. (Evidence concerning behavioral marital therapy and community reinforcement is covered in the article by Baucom et al. [1998].) Holder et al. also reported that there is "fair" evidence for the efficacy of covert sensitization and behavior contracting approaches. The vast majority of studies performed in this domain of research, however, have not targeted the diagnosis of alcohol abuse or dependence. In addition, most studies predate the arrival of treatment manuals for therapy research. When our more restrictive criteria of diagnosed samples and use of treatment manuals or clearly defined treatment are applied, only a few studies provide adequate evidence to meet criteria for "possibly efficacious."

Possibly Efficacious Treatments for Alcohol Dependence Social skills training for alcohol dependence.

Evidence for the efficacy of social skills training as part of inpatient treatment for patients with a *DSM—III* diagnosis of alcohol dependence was provided by [Eriksen, Bjornstad, and Gotestam \(1986\)](#) . Social skills training delivered in a group format produced better outcomes than a traditional discussion group. Over the 1-year period after discharge, patients who had received social skills training were abstinent 77% of days, whereas control patients were abstinent 32% of days.

Cue exposure and "urge coping skills" training for alcohol dependence.

[Drummond and Glautier \(1994\)](#) reported on the efficacy of cue exposure treatment versus a relaxation

control for *DSM—III—R* -diagnosed inpatient alcohol-dependent patients. Over the 6 months after discharge, patients who received cue exposure therapy had a significantly longer time until relapse of heavy drinking and consumed less total alcohol than patients who received relaxation. Time until relatively heavy drinking among the cue exposure participants averaged 110 days, as opposed to 64 days for participants in the relaxation condition.

The combination of cue exposure and "urge coping skills" training also appears promising. [Monti et al. \(1993\)](#) found that *DSM—III—R* -diagnosed alcohol-dependent inpatients who had received cue exposure treatment integrated with coping skills training had more abstinent days and reported fewer drinks per day over a 6-month post-discharge period than patients who received the standard inpatient treatment program.

In summary, adequate evidence exists for designating cue exposure therapy, cue exposure therapy plus coping skills training, and social skills training as possibly efficacious treatments for alcohol dependence. For cue exposure therapy and social skills training, a specific effect was demonstrated (i.e., better than a comparison condition that controlled for nonspecific elements).

Substance Abuse—Dependence

Although there have been many studies of psychological therapy for opiate dependence (see reviews by [Crits-Christoph & Siqueland, 1996](#) ; [Woody, Luborsky, McLellan, & O'Brien, 1989](#)), only a few of these studies have used treatment manuals. No manual-guided treatments meet our criteria for "efficacious."

Possibly Efficacious Treatments for Substance Abuse—Dependence Supportive—expressive therapy for opiate dependence and cognitive therapy for opiate dependence.

The most promising psychosocial treatments for opiate dependence have been supportive—expressive psychodynamic therapy (SE) and CT. Each has been examined in combination with standard drug counseling (DC). [Woody et al. \(1983\)](#) ; see also [Woody, Luborsky, McLellan, & O'Brien, 1990](#)) compared DC, SE + DC, and CT + DC. Both SE and CT yielded greater benefits than DC alone on measures of employment, legal problems, psychiatric symptoms, and opiate-positive urine samples. A partial replication of this study was reported by [Woody, McLellan, Luborsky, and O'Brien \(1995\)](#) , who compared SE + DC and DC alone with psychiatrically symptomatic opiate-dependent patients in community-based methadone treatment programs. This study further controlled for amount of contact with a helping professional by including a comparison condition (DC + DC) in which two drug counselors were seen regularly by each patient. The SE + DC condition yielded greater benefits than the DC + DC condition. In DC + DC, there was an increase in opiate-positive urine samples over the last 12 weeks of the treatment period, but SE + DC demonstrated a decrease over this same period. In addition, patients in SE + DC had fewer cocaine-positive urines and required lower doses of methadone. Patients in the DC + DC condition had lost some of their gains by the 6-month follow-up, whereas the SE + DC patients maintained or continued their improvement, yielding many statistically significant differences including large effect sizes for drug use and employment outcomes and moderate effect sizes for

psychiatric outcomes. Thus, both SE + DC and CT + DC meet criteria for "possibly efficacious" treatments.

Relapse prevention therapy for cocaine dependence.

In regard to cocaine dependence, several studies have examined the efficacy of some form of relapse prevention therapy. [Carroll, Rounsaville, and Gawin \(1991\)](#) compared a cognitive—behavioral-based relapse prevention treatment (RPT) with IPT. The results showed that 57% of the RPT patients achieved greater than 3 weeks of abstinence during the 12 weeks of treatment, whereas only 33% of the IPT patients met this criterion. However, this difference was not statistically significant. Among patients with greater levels of psychiatric problems, RPT achieved significantly higher rates of abstinence than IPT. [Carroll et al. \(1994\)](#) compared RPT plus desipramine, clinical management plus desipramine, RPT plus placebo, and clinical management plus placebo in the treatment of outpatients with cocaine dependence. During the acute phase of treatment, all groups showed improvement, but there were no main effects for medication or psychotherapy, and there was no interaction effect. One-year follow-up data, however, revealed a delayed effect whereby patients who received RPT (either with desipramine or placebo) had significantly better outcomes than those who received supportive clinical management (either with desipramine or placebo).

Behavior therapy (reinforcement) for opiate dependence. Another promising treatment is the use of reinforcement for drug abstinence. [Higgins et al. \(1993\)](#) tested a system in which patients receive vouchers exchangeable for goods and services contingent on providing cocaine-free urine samples. This method was combined with DC involving spouses or significant others, relapse prevention skills, establishment of alternative recreational activities, and employment, housing, financial, and legal counseling. The package was compared with standard DC. Sixty-eight percent of patients in the reinforcement condition achieved 8 weeks of abstinence, as compared with only 11% of the standard DC patients. In another study, [Higgins et al. \(1994\)](#) randomly assigned patients to behavioral treatment with or without an added voucher incentive program. Retention was better in the voucher condition, with 75% of patients completing 24 weeks of treatment (vs. 40% in the behavioral treatment alone condition). [Silverman et al. \(1996\)](#) extended the voucher-based reinforcement therapy to opiate-dependent patients who also abuse cocaine. These investigators found that voucher-based reinforcement contingent on clean urine sample results yielded better outcomes than a treatment in which vouchers were given in a noncontingent manner. In the contingent condition, 47% of patients achieved at least 7 weeks of continuous cocaine abstinence, whereas only 6% of the noncontingent reinforcement patients achieved more than 2 weeks of abstinence.

In summary, both RPT and treatment based on reinforcement for abstinence meet criteria for possibly efficacious treatments of cocaine dependence. Neither opiate nor cocaine treatment studies have used traditional definitions of clinically significant change, probably because the focus is on abstinence initiation rather than on achieving a score that is within a normative sample distribution. However, abstinence rates even in the best of studies have not been high, particularly when the large dropout rates are considered.

Conclusions and Recommendations

There are promising psychological treatments for every adult disorder covered in this review. Most of the treatments—but not all—are behavioral or cognitive—behavioral in nature. However, there has been increased interest in the use of clinical trial methodologies to test other treatment approaches (e.g., psychodynamic), and we encourage further efforts to test them.

We take seriously the inclusion of a treatment approach as efficacious for a given disorder. We place far less weight on the absence of a treatment from our lists, because there are so many possible reasons an intervention has not met criteria for inclusion. But there is only one reason why an approach has been termed efficacious in this article: Research has shown that it (a) leads to a reduction or remission of the disorder or problem at a rate higher than that occurring with the passage of time (efficacious) or (b) outperforms an alternative active treatment (efficacious and specific). We believe that the knowledge that a treatment has been shown to be efficacious should affect decisions about how one trains therapists as well as how one practices psychological therapy.

It is our hope not only that future reviews of this kind will have more high-quality studies to report on, but also that more differentiated and refined judgments about treatment will become possible. In particular, we look for research evidence to grow and mature in the following directions: (a) Aptitude \times Treatment interactions, (b) cost-benefit analyses, and (c) generalizations to broader samples of patients, settings, and therapists.

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