Establishing evidence-based training in cognitive behavioral therapy: A review of current empirical findings and theoretical...

Article in Clinical psychology review · July 2010
DOI: 10.1016/j.cpr.2010.03.004 · Source: PubMed

2 authors, including:

Sarah Rakovshik
University of Oxford

6 PUBLICATIONS 125 CITATIONS

All content following this page was uploaded by Sarah Rakovshik on 11 April 2014.
The user has requested enhancement of the downloaded file. All in-text references underlined in blue are added to the original document and are linked to publications on ResearchGate, letting you access and read them immediately.
Establishing evidence-based training in cognitive behavioral therapy: A review of current empirical findings and theoretical guidance

Sarah G. Rakovshik a,1, Freda McManus b,*

a Oxford University, Department of Psychiatry, Warneford Hospital, Oxford OX3 7JX, United Kingdom
b Oxford Cognitive Therapy Centre & Oxford University, Department of Psychiatry, Warneford Hospital, Oxford, OX3 7JX, United Kingdom

Abstract

Cognitive behavior therapy’s (CBT) demonstrated efficacy has prompted calls for its increased dissemination to routine clinical practice settings. For the widespread dissemination of CBT to be successful in achieving effects similar to the original efficacy trials, there must also be effective dissemination of CBT training practices. However, as yet, CBT training is not evidence-based. This review examines what can be learned from existing research into the efficacy and effectiveness of CBT training. Due to the paucity of research specifically investigating CBT training, CBT effectiveness and dissemination studies are also examined to glean information about potentially effective training practices. In order to draw conclusions about effective training practices, comparisons are drawn between studies according to the clinical outcomes that they achieved. Training approaches are compared according to dose and active training elements, and theoretical models of learning are applied to interpret the findings. The limitations of the existing literature are discussed, as well as recommendations for improving training research to meet the standards evident in treatment trials (e.g., random allocation, control conditions, self-report and blind assessment, and adherence monitoring). Finally, the process of developing efficacious CBT treatment protocols is offered as a template for developing evidence-based CBT training protocols.

© 2010 Elsevier Ltd. All rights reserved.

Contents

1. Background: supply, demand and the distribution bottleneck ......................................................... 497
   1.1. Assumptions regarding dissemination and transferability of CBT .............................................. 497
   1.2. Definition of terms ......................................................................................................................... 497
   1.3. Therapist competence and patient outcome ................................................................................... 498
2. Search strategy and parameters ........................................................................................................ 499
3. In CBT training, what works for whom, when and to what extent? .................................................. 499
   3.1. Findings ...................................................................................................................................... 499
   3.2. Paradigms of interpretation. ........................................................................................................... 500
      3.2.1. Dosage ................................................................................................................................. 500
      3.2.2. Active training elements ...................................................................................................... 511
      3.2.3. Models of learning ................................................................................................................. 512
   3.2.4. General conclusions .................................................................................................................. 512
4. Issues arising and recommendations for future research .................................................................. 512
   4.1. Study design ................................................................................................................................. 513
   4.2. Measurement validity .................................................................................................................... 513
   4.3. Micro versus macro ....................................................................................................................... 513
   4.4. Application of models and learning theory .................................................................................... 513
5. Conclusion ......................................................................................................................................... 514
   References ......................................................................................................................................... 514
Cognitive behavior therapy (CBT) for emotional and psychiatric disorders faces a conspicuous impasse. While there has been a rapid accumulation of evidence supporting the efficacy of CBT (e.g., National Institute for Clinical Excellence, 2004a,b, 2005) this has been matched or exceeded by increasing demand for CBT interventions. In the past, this disparity between supply and demand has been due in large part to constraints on service provision and the limited number of skilled CBT practitioners available (Williams & Martinez, 2008). However, as CBT's 'value' both in terms of efficacy and cost-effectiveness, has been consistently demonstrated, the demand and willingness to invest in CBT service provision has risen.

1. Background: supply, demand and the distribution bottleneck

Recent evaluations of the economic ramifications of untreated mental illness on a nation's economy have provided an incentive for governments to invest in significantly increasing access to such treatments. For example, Layard's (2006) economic analysis of untreated mental illness in the UK concluded that the costs of not treating these disorders outweighed the expense of increasing access to evidence-based psychological treatments such as CBT. These social policy considerations have led to significant increases in the funding available for CBT service provision, beginning with the training of additional therapists (Clark, Layard, Smithies, Richards, Suckling & Wright, 2009). As the United States government considers a sweeping overhaul within the coming year for its own healthcare system, similar economic considerations may now become relevant in the States.

Given these recent initiatives to increase CBT service provision, it follows that there will be increased training of CBT therapists across a range of settings and therapists. This review summarizes the findings of the current literature on CBT training and dissemination, using patient outcome and assessor-rated therapist competence measures to analyze the efficacy of various approaches currently used to train CBT therapists. Terminology and methodology for future research are suggested, as well as possible theoretical frameworks for understanding current results and guiding future research.

1.1. Assumptions regarding dissemination and transferability of CBT

Social policy seeking to increase CBT treatment provision has already allocated substantial resources to increasing the number of CBT service providers. For example, the UK government has pledged an initial 173 million pounds between 2008 and 2011 for the purposes of training an additional 3600 CBT therapists. Layard's (2006) proposal calls for training 10,000 new therapists in the UK over seven years. The argument for this move to increase access to CBT is based on the premise that treatments shown to be efficacious in randomized controlled trials (RCT) will remain effective when disseminated to routine clinical practice (RCP). Given the recent dedication of resources, both social policy makers and CBT advocates would hope that effects of CBT demonstrated in RCTs will generalize to RCP. However, existing research regarding dissemination does not strongly support this assumption.

Many of the CBT protocols shown to be efficacious in RCT have not been evaluated in RCP. When they have, few have been compared to a TAU group (Addis, Hargis, Cardemil, Jacob, Krasnow and Mansfield, 2006), thus making interpretation of the findings difficult. In terms of outcomes, comparisons of CBT protocols in RCP with RCT outcomes have yielded varied results. Some studies have shown a clear transferability of efficacious CBT protocols (a comprehensive review can be found in Hunsley & Lee, 2007; Stewart & Chambless, 2009) while others have shown significant improvement in patients' outcome but have not replicated the effect size of the original RCT (e.g., Grey, Salkovskis, Quigley, Clark, & Ehlers, 2008; Lincoln, Rief, Hahlweg, Frank, von Witzleben, Schroeder et al., 2003). Finally, in some trials CBT in clinical practice has not demonstrated any significant benefit over TAU or placebo (e.g., Davidson, Scott, Schmidt, Tata, Thornton and Tyrer, 2004; King, Davidson, Taylor, Haines, Sharp and Turner, 2002; Tyrer, Murphy,Kingdon, Brothwell, Gregory, Seievright et al., 1988). Thus it seems that the effectiveness of established CBT protocols, as measured by patient outcome, is by no means guaranteed when taken out of the research environment.

While some inherent differences between RCTs and RCP are not related to therapist factors (e.g., greater co-morbidity in the patients), the level of therapist competence has been suggested as a significant factor in the differences in outcome between RCTs and RCP (Davidson et al., 2004; Kingdon, Tyrer, Seievright, Ferguson, & Murphy, 1996; Shaw, Elkin, Yamaguchi, Olmsted, Valls, Dobson et al., 1999). Given that the main aim of CBT training is to improve patient outcomes by enhancing therapists' competence in CBT, the definition of competence and its measurement and relationship with patient outcome is briefly reviewed below, before reviewing the current evidence relating to CBT training.

1.2. Definition of terms

Before examining the relationship between CBT competence and outcome, we must first clarify what is meant by CBT competence and how it is currently measured. Although the concept of competence intuitively lies at both the core of our professional ethical guidelines (American Psychological Association, 2002) and is the inherent goal in training therapists, the term has not been uniformly defined or measured (Sharpless & Barber, 2009). In the existing literature, the term 'therapist competence' has been variably employed, denoting constructs as disparate as therapists' self-reported increases in confidence or knowledge or skills following training, or assessor ratings of structured interviews or demonstrations of clinical skills (e.g., Ekers, Lovell, & Payle, 2006; Mannix, Blackburn, Garland, Gracie, Moorey, Reid et al., 2006; Sholomskas, Syracuse-Siewert, Rounsaville, Ball, Nuro and Carroll, 2005).

Understanding the existing data regarding therapist competence is complicated by the fact that different measures of therapists' competence do not always concur. Increased knowledge following a workshop or self-reported increases in confidence in clinical skills have been shown to have only a tenuous relationship with assessor-rated improvements in clinical skills (Sholomskas et al., 2005). Additionally, therapists' self-assessments of their competence have been shown to be unreliable and overly optimistic, particularly for the less competent therapists (Brosan, Reynolds, & Moore, 2008; Barnfield, Mathiesen and Beaumont, 2007). Such discrepancies mean that on therapist self-report measures a service provider could show a significant increase in 'competence' following training without any significant change in clinical skill.

With the aim of defining the core competencies of CBT, the UK government commissioned a project to define the essential competencies of CBT. Roth and Pilling (2007) utilized an expert panel to compile a framework of CORE competences; the framework outlines five domains of competence and more than fifty specific competences. Among the five domains of competence, the first corresponds to global competence. The next four areas are competences specific to CBT: basic CBT competences, specific behavioral and cognitive therapy competences, problem-specific competences, and meta-competences. Roth and Pilling (2007) Centre for Outcomes, Research & Effectiveness (CORE) competences are summarized in a flow chart that provides a detailed description of abilities deemed essential to competent practice of CBT, with a description of each element. However, as yet neither a general definition of therapist competence, nor a method of measuring it has been specified.

Several recent reviews have highlighted that we do not yet have a consensus about how CBT competence is conceptualized and defined, let alone how it can be effectively measured. (e.g., Shafran et al., 2009; Sharpless & Barber, 2009). One possible method for defining
competence that has high face validity is to look to patient outcome to define therapist competence — on the basis that if you are getting patients better then you must be competent. This approach may indeed help to identify what it is that CBT therapists do (or don’t do) that impacts helpfully on patient outcomes and could contribute to the ongoing debate about what makes CBT effective (e.g., Longmore & Worrell, 2007). However, the logic of this argument “runs the risk of circularity, as competent therapists are those with better patient outcomes, and better patient outcomes imply competence” (p.52 Sharpless & Barber, 2009). It may also be overly simplistic, particular when applied to more specific treatments such as CBT since it fails to take into consideration treatment specific factors — patients may be getting better because the therapist is practicing competent supportive counseling rather than demonstrating CBT competence. It also doesn’t take account of patient related factors such as severity and complexity that have been shown have an influence on therapeutic outcome (Sanchez-Meca, Rosa-Alazar, Marin-Martinez & Gomez-Conesa, 2010). Barber, Sharpless, Klostermann and McCarthy (2007) point out that an over-focus on narrow measures of therapist competence could lead to reification, prematurely ossifying emerging theories and approaches, and possibly expose service providers to discrimination by third-party use such as insurance companies and governmental health services. In the case of reification, needed exploration of therapist competence could be halted by an assumption that since we have valid measurement scales, we have sufficiently understood the construct. In the second case, therapists choosing to take more complex/less treatment responsive cases could be penalized for poorer outcome, or rated as less competent by measures not designed to capture the skills used in treating less straightforward patients.

As the remit of this review is to consider the evidence relating to what makes CBT training effective in enhancing therapists’ competence and thus their patients’ outcomes, competence will be defined as the ability to appropriately apply CBT interventions that reflect the contemporaneous evidence base for the treatment of that patient’s presenting problem. This definition is similar to Kaslow’s (2004) concept of ‘intervention competence’, one of the eight areas of competence within the core competency framework (Kaslow, 2004). A subset of global competence, intervention competence is more limited in its scope and more easily assessed within the framework of a specific treatment approach; it is “competence expressed within a specific type of intervention” (Sharpless & Barber, 2009, p.50). Accordingly, competence is considered within a CBT conceptualization, since what might be considered competent for one psychotherapeutic paradigm may be perceived as incompetent and even unethical by another (Sharpless & Barber, 2009).

It is recognized that this definition of competence as the ability to demonstrate the CBT protocol also has its limitations at both conceptual and practical levels. At a conceptual level, while there is a good evidence for the efficacy of CBT protocols, these protocols tend to be complex packages involving many components and recent reports suggest that they may contain inert or unnecessary components as well as therapeutic ones (e.g., Longmore & Worrell, 2007). This lack of research into how and why CBT protocols work hampers the effective dissemination of CBT as it means that the more effective components have not been identified thus cannot be prioritized for dissemination. In addition, on a practical level, as yet we lack well-validated assessment tools for measuring competence in the specific CBT protocols and thus can only rely on general measures of CBT competence, the development of which has not kept pace with developments in CBT treatments in recent years.

For the purpose of the current paper, only those studies which use an assessor measure of CBT competence and measure observable changes in therapists’ clinical skills are included; this approach is consistent with the American Psychological Association’s 2005 (APA) “Policy Statement on Evidence-Based Practice in Psychology”, in which ‘competence’ is used interchangeably with ‘clinical expertise’. The most commonly-used measures of CBT competence are Young and Beck’s (1980) Cognitive Therapy Scale (CTS), and Blackburn, James, Milne, Baker, Standart, Garland et al. (2001) Cognitive Therapy Scale-Revised (CTS-R). The original CTS has been shown to have adequate internal and inter-rater reliability (Vallis, Shaw and Dobson, 1986), with strong inter-rater agreement for general competence, but only moderate agreement for specific items of the scale (Williams, Moorey, & Cobb, 1991). The initial CTS-R was found to have satisfactory reliability and validity (Blackburn et al., 2001); however, validity is not well-established since only one study was conducted, and the strength of the results was limited by the small sample size (Kazantzis, 2003).

Traditionally a score of 39 or below on the CTS has been considered a ‘red line violation’ of the pre-determined standard of competence (Shaw, 1984; Shaw et al., 1999). This total score was calculated as one standard deviation below the mean score of a group of certified cognitive therapists as rated on the original eleven-item version of the CTS (Shaw, 1984; Shaw et al., 1999). Thus, the ‘cut-off’ of 39 is somewhat arbitrary and does not indicate an empirically-proven ‘tipping-point’ for therapist competence. It is also worth noting that both the CTS-R and the more recent version of the CTS have thirteen items, making it easier to achieve the score of above 39 required to indicate competence. In addition, neither the CTS nor CTS-R take any quantitative account of patient complexity in assessing therapist competence, and most authors would agree that they give more valid estimates of competence when multiple sessions are sampled across cases (Keen & Freeston, 2008). Despite these limitations, the CTS and similar assessor rating scales remain the most widely utilized method for assessing CBT competence and thus are used in our review as their widespread use facilitates the comparison of therapist competence across studies.

1.3. Therapist competence and patient outcome

Existing CBT dissemination studies provide a varied picture of the relationship between therapist competence and treatment outcome. Huppert, Bufka, Barlow, Gorman, Shear and Woods (2001) compared therapists with the worst and best patient outcomes and found that the therapists with best patient outcomes also had the highest ratings of adherence and competence, suggesting a relationship between therapists’ competence and patient outcome. A recent naturalist study for CBT treatment for depression (Tsivrikos & Kuyken, 2009) suggested that 15% of the variation in outcome can be attributed to therapist competence, as measured by a combined rating from the clinic’s director (a CBT expert) and the patient (as reported their impression after the first session). The director’s overall competence assessment predicted better patient outcome, while for patients, only ratings of the therapist’s CBT skills, not general therapeutic skill, predicted improved patient outcome. In addition, co-morbidity did not have a significant impact on the relationship between therapist competence and outcome.

Four studies have reported post-hoc analyses from clinical trials demonstrating a positive relationship between competence and outcome though it varied in strength and was not evident on all measures (Davidson et al., 2004; Kingdon et al., 1998; Shaw et al., 1999; Trepa, Rees, Shapiro, Hardy, & Barkham, 2004). For example, Trepa et al. (2004) compared competence scores and patient outcome for the first thirty consecutive cases in an effectiveness study for CBT treatment of depression that obtained results similar to the treatment benchmark (Cahill, Barkham, Hardy, Rees, Shapiro, Stiles et al., 2003). Despite the overall positive outcome of the trial, there were still differences for the more competent therapists; they were more likely to achieve reliable and significant clinical change with treatment completers, and their patients had substantially lower symptom levels at the end of treatment. Shaw et al. (1999) reported a relationship between specific clinical skills — the therapist’s ability to structure the session
(as measured by a subscale of the CTS consisting of three items: agenda setting, pacing and homework review) and improved patient outcome. However, they conclude that the relationship between therapist competence and reduction of depressive symptoms was “not as strong or consistent as expected” (p. 837). In Kingdon et al. (1996), although no difference was shown between CBT for depression and other treatments, the post-hoc analyses suggest that outcome for ‘competent’ therapists may have been superior to outcome for other treatment conditions. Firm conclusions cannot be drawn as this question was not part of the original study design; however, improvement in some patient outcome measures was significantly greater for ‘competent’ therapists than for therapists of ‘uncertain competence’. This difference, especially in depressive symptoms, persisted at the 2-year follow-up. Similarly, Davidson et al. (2004) reported that patients treated by more competent therapists showed greater clinical improvement than those treated by less competent therapists. However, this relationship between therapist competence and patient outcome was apparent only at the 12-month follow-up and was not identified on all patient outcome measures. DeRubeis, Hollon, Amsterdam, Shelton, Young and Salomon (2005) suggest that the differences in the outcome from CBT at the different sites in their 2005 RCT of severe depression might in part be attributable to the lower level of the therapists’ CBT training and competence at one of the sites.

Although the use of patient outcome as a measure of therapist competence does pose some ethical and methodological risks, an overall positive relationship between therapist competence and patient outcome has been reported in multiple clinical settings. Consequently, improving therapists’ CBT competence can be seen an important means to improve outcomes for patients suffering from common mental health problems for which CBT has demonstrated efficacy. Hence, the current paper reviews the literature relating to CBT training in order to glean what can be learned about effective CBT training practices. Due to the paucity of research specifically investigating CBT training, effectiveness and dissemination studies of CBT are also examined, where they contain information relating to the training of therapists, in order to glean information about potentially effective training practices.

2. Search strategy and parameters

With the aim of finding articles relevant to the relationship between training and an outcome of either increased therapist competence or improved patient outcome, publications were searched through May 2009 using the following methods: databases were searched (PsycINFO, Scopus, PsyCNET, Medline, PubMed, and Web of Science) using various combinations of keywords for dependent variables of interest, such as “dissemination”, “psychotherapy training”, “training”, “patient outcome”, “cognitive behavioral/behavioral therapy”, “clinical skill”, “therapist competence”, “effective” and “efficacious”, and “generalizability”. Three additional search strategies were then applied: an ancestry search using reference lists of retrieved articles, an author search was completed for articles most directly addressing the issue of training and dissemination and journals with the highest number of relevant articles were searched using keywords and the “related articles” tool for all publications in the last ten years.

All articles identified were reviewed to determine whether they fit the following inclusion criteria: CBT studies of individual treatment on adult populations that included some information on therapists’ training, and either objective measures of therapists’ competence such as assessor ratings on a validated competence scale (descriptions of the psychometric properties of CBT competence scales can be found in Kazantzis, 2003), or measures of patient outcome. Fourteen studies met most criteria, but were excluded because they involved non-adult patient populations (i.e., older adults, children and adolescents), provided group rather than individual therapy, did not use assessor measurements of therapists’ competence based on direct observation of the therapists’ behavior, used experienced CBT therapists with no mention of additional training, or were not using standard CBT treatments (i.e., self-help strategies, motivational interviewing, CBT only used as an adjunct to pharmacological treatment).

In studies including other treatment modalities, only the results from the CBT sub-group are discussed. Additional information on therapists, training and supervision was requested from authors when relevant details were not reported in the original article. Some of the information provided by authors was approximate or based on their best recollection of the trial; information supplied by authors in personal correspondence is followed by a superscripted “pc” in Table 1.

3. In CBT training, what works for whom, when and to what extent?

Increased opportunity for CBT dissemination prompts the same query relevant for matching patients and treatment approaches: which combination of approach and patient leads to effective treatment and better outcome? Given the current focus on expanding CBT training, it is timely to consider:

1. what we can learn from the existing literature about whether, how and under what circumstances CBT training enhances therapists’ competence? And,
2. which areas of future research are priorities for CBT training and dissemination?

3.1. Findings

Searching with the criteria outlined above yielded a total of forty-one articles reporting on thirty-five clinical trials. For trials in which post-hoc analyses of therapists’ effects/competence were conducted, Table 1 includes the citation for the analyses in parentheses following the original study. In order to make inference about training effects, studies have been categorized into three categories according to therapist or patient outcome. In category I, studies (n = 19) achieved therapist competence criteria (above the ‘red line violation’) or patient outcome comparable to treatment benchmark or efficacy trials. Category II studies (n = 13) demonstrated significant positive impact on therapist competence or patient outcome, but either did not reach the patient outcome benchmark, or used therapies or outcome measures that were trial specific and could not be compared with similar studies. Studies in category III (n = 5) did not show significant effects for therapist competence or patient outcome as compared either to the pre-intervention baseline, treatment as usual (TAU), or a control group. Due to the design and results of the study, Sholomskas et al. (2005) is included in all three categories.

For the nineteen studies in which available information and study design allowed, the total duration of instruction was calculated with the following assumptions: a day of workshop training included 6 h of actual instruction, and supervision lasted 1 h per session, unless otherwise specified. In studies with slight differences in training duration or supervision hours due to site differences, a mean was used. For studies in which different training conditions provided different amounts of training, both results were included separately. The studies were then rank-ordered according to the total amount of instructional time and were divided into three groups. With this result, a classification of ‘extensive training’ was given to studies with more than 137 h of training for therapists, ‘intermediate training’ to studies ranging from 61 to 137 h, and ‘brief training’ to studies with 60 or fewer hours of training. Sholomskas et al. (2005) was excluded from the final analyses of duration because the assessment of therapist competence was more limited than is typical (therapists were required to demonstrate three substance-misuse specific skills (e.g., functional analysis of drug use) in role plays, rather than demonstrating the full range of CBT skills with clinical cases).
Some studies provided more training to therapists who were initially less experienced, or those who did not achieve competence within the initial training provision, thus allowing less competent therapists more access to monitoring and feedback. In our discussion, this responsive approach is labeled ‘graded training’.

Supervision is categorized by frequency and overall duration. In some studies, adherence was monitored interactively (e.g., feedback given to therapists if a session was considered below the adherence criteria); in these cases, additional interactions between instructors and therapists were considered as part of an ongoing supervision.

In line with the current expansion of CBT services, it is likely that the range of individuals training in CBT will expand to include greater proportions of those with little or no prior CBT or clinical experience (Department of Health, 2008). Consequently, studies including such therapists are noted with ‘included inexperienced’ in the description of therapist participants.

Due to the lack of relationship between increased CBT knowledge and improved clinical skill (Walters, Matson, Baeer, & Ziedonis, 2005), prior CBT instruction (i.e., a didactic workshop) was not taken into consideration in assessing therapists’ baseline experience. Total years’ of therapeutic experience was also not considered as it is highly variable within most studies thus its effects cannot be separated out for analysis. In addition, the current literature suggests a varied picture of the effect of therapist experience on patient outcome. While Crits-Christoph, Baranackie, Kurcias, Beck, Carroll, Perry et al. (1991) found a significant relationship between general experience and patient outcome, no discrimination was made between overall therapeutic experience and CBT-specific practice. Sholomskas et al. (2005) found no effect for therapists’ previous clinical experience in adherence-skill ratings, and Brosan, Reynolds, and Moore (2006) found no relationship between overall clinical experience and CBT competence.

As some measures of therapist competence have not been standardized or widely validated they are cited in the table notes. Patient outcome, a more standardized measure, has not been re-analyzed, but has been included as it appears in the original article, or in Hunsley and Lee’s (2007) benchmarking review of effectiveness trials.

### 3.2. Paradigms of interpretation

Several frameworks of interpretation can be used to interpret what these studies tell us about efficacious training practices: duration of training (dosage), active training elements, patterns of learning and theoretical models of learning.

#### 3.2.1. Dosage

The amount of instructional hours seems significant across the results, especially for the category most likely to be the current focus of training: therapists with minimal previous training or experience in conducting CBT treatments. For the purpose of learning through comparison our discussion addresses only the extremes of training duration (‘extensive’ with more than 137 h vs. ‘brief’ with 60 h or fewer), as well as the responsive approach we have labeled as ‘graded’.

Fig. 1 summarizes the differences in the total duration of training for categories I, II and III: while the range of studies overlaps, the latter (categories II and III) included studies with brief training. For categories I, II and III: 4 out of 13 studies employed graded training, allowing instruction to be responsive as therapists obtained competence. These studies included inexperienced therapists and allocated more extensive training as needed through additional practice cases, closer monitoring of clinical sessions or increased specialist supervision. Gradual inclusion in treatment also provided graded training; stages of therapist involvement progressed as competence developed: observation of treatment sessions with more than one patient, limited participation as a cotherapist, full participation as primary therapist with ongoing monitoring and feedback from expert practitioners.
<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment and setting</th>
<th>Study type: relevant data (measures)</th>
<th>Summary of findings</th>
<th>Therapists</th>
<th>Patients</th>
<th>Initial training</th>
<th>Supervision and other post-training contact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Category I</strong></td>
<td>Studies achieving therapist competence criteria or patient outcome comparable to treatment benchmark or efficacy trials (n = 19)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Keen &amp; Freeston, 2008</td>
<td>n/a; post-graduate CBT course</td>
<td>Training study: training, therapist competence (CTS-R)</td>
<td>Therapist competence: significant improvement from first tape to second. First: M = 37.3 (4.96); second: 40.1 (5.65). Competence criteria reached by end of training.</td>
<td>52</td>
<td>Included inexperienced: “relative novices”</td>
<td>5-day induction and thirty-five days of training on a day-release basis over a ten month period.</td>
</tr>
<tr>
<td>2</td>
<td>Barnfield, Mathieson, &amp; Beaumont, 2007</td>
<td>n/a; post-graduate CBT course</td>
<td>Training study: training, therapist competence (CTS-R)</td>
<td>Therapist competence: significant improvement from first tape (2 months into training) to second (6 months into training. First: M = 38.94 (4.64); second: 47.54 (5.17). Competence criteria reached by second tape</td>
<td>13</td>
<td>Included inexperienced: no prior formal CBT training, range of academic degrees (one postgraduate, one master’s, others bachelor’s or less). Previous clinical experience varied from less than 3 years to more than 6.</td>
<td>Lectures included role plays, practical exercises, videos of experts demonstrating specific skills and small group discussions.</td>
</tr>
<tr>
<td>3</td>
<td>*Marchand et al., 2007</td>
<td>CBT for panic disorder in three variations: standard, brief, and brief with self-help focus and involvement of partner</td>
<td>Treatment trial: training, patient outcome</td>
<td>Patient outcome: not significantly different than RCT, brief versions of treatment for panic as effective as standard CBT for Panic</td>
<td>3</td>
<td>Providers experienced in CBT for Panic: 3 psychologists, one psychology graduate student and one psychiatric resident</td>
<td>2-day workshop with session-by-session treatment protocol; instruction included role plays, reading relevant literature and group work. One supervised practice case following training.</td>
</tr>
<tr>
<td>4</td>
<td>Foa, Hembree, Cahill, Rauch, Riggs &amp; Feeny, 2005</td>
<td>PE for PTSD (post-traumatic stress disorder) (9–12 sessions of 90–120 min); 2 sites: academic treatment center and community clinic</td>
<td>Treatment trial: training, patient outcome, comparison of experienced and inexperienced therapists</td>
<td>Patient Outcome: as effective as treatment trial. Treatment gains maintained at follow-up (some received additional treatment). No difference found between PE and PE/CR groups. Social functioning improved in completers sample. Therapist competence: no differences in patient outcome between academic and community setting.</td>
<td>11</td>
<td>Included inexperienced: community setting: training</td>
<td>5-day workshop of 7–8 h per day. Trained to use manuals describing each session in detail. Teaching included: role plays in pairs, and in vivo exposure assignments. An additional 5-day workshop given for CR therapists. Same adherence-focused approach.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Hardy, Stiles, Cahill, Ispan, Macaskill, &amp; Barkham, 2005</td>
<td>CT for depression (8–20 sessions); community outpatient clinic</td>
<td>Treatment trial: training, patient outcome</td>
<td>Patient outcome: post-patient treatment outcome not significantly different from benchmark</td>
<td>10</td>
<td>Included inexperienced: clinical psychologists 1 to 6 years post-qualification. Some had prior CBT training and often used CBT</td>
<td>Approximately 3 h a week for 10 weeks. Training included role plays and group work.</td>
</tr>
</tbody>
</table>

(continued on next page)
<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment and setting</th>
<th>Study type: relevant data (measures)</th>
<th>Summary of findings</th>
<th>Therapists</th>
<th>Patients</th>
<th>Initial training</th>
<th>Supervision and other post-training contact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n</td>
<td>Experience, current position, previous CBT training</td>
<td>n</td>
<td>Available details (duration, sequence, training elements)</td>
</tr>
<tr>
<td>6</td>
<td>Sholomskas, Syracuse-Siewert, Roussville, Ball, Nuro &amp; Carroll, 2005</td>
<td>CT for substance abuse (manual + training and supervision condition)</td>
<td>Training study: training, therapist competence (YACS, 7-point Likert scale)</td>
<td>Therapist competence: reached criterion level typical in clinical efficacy trials for adherence after seminar, for skill only after supervision.</td>
<td>27</td>
<td>in their practice. Included inexperienced: community-based clinicians with varied or little experience with CBT</td>
<td>3-day didactic seminar including a review of each manual section, reviews of videotaped treatment sessions, role plays of each skill. Clinicians asked to practice new skills with clients over next 3 months.</td>
</tr>
<tr>
<td>7</td>
<td>Wattar, Sorensen, Buernan, Birker-Smith, Salkovskis, Albertsen et al., 2005</td>
<td>CBT for health anxiety. Private outpatient CBT clinic treating mainly anxiety disorders</td>
<td>Treatment trial: training, patient outcome</td>
<td>Patient outcome: not significantly different than RCT, gains maintained at follow-up</td>
<td>3</td>
<td>Psychologists ( ^{27} ) trained as CBT therapists; (although not specifically for work with health anxiety). General experience 2–25 years.</td>
<td>2-day workshop including a demonstration of live therapy by the instructor. ( ^{28} )</td>
</tr>
<tr>
<td>8</td>
<td>Addis, Hatgis, Krasnow, Jacob, Bourne &amp; Mansfield, 2004</td>
<td>CBT for panic disorder (12–13 sessions), HMO</td>
<td>Treatment trial: training, patient outcome</td>
<td>Patient outcome: post-treatment outcome not significantly different from benchmark. Decrease in panic severity comparable to RCT.</td>
<td>24</td>
<td>Included inexperienced: none self-identified as primarily CBT</td>
<td>2-day workshop by experienced trainer</td>
</tr>
<tr>
<td>9</td>
<td>Arntz, 2003</td>
<td>CT for generalize anxiety disorder (12 weekly sessions)</td>
<td>Treatment trial: training, patient outcome</td>
<td>Patient outcome: not significantly different than benchmark</td>
<td>12(^{27}) conducted both treatments</td>
<td>Included inexperienced: all were psychologists ( ^{29} ): three had minimal CBT training and almost no supervised CBT practice, three had moderate training and experience, three were expert CBT therapists. ( ^{30} )</td>
<td>2-day workshop including role plays. ( ^{30} )</td>
</tr>
<tr>
<td>10</td>
<td>Cahill, Barkham, Hardy, Rees, Shapiro, Stiles et al., 2003 (Trepka, Rees, Shapiro, Hardy &amp; Barkham, 2004)</td>
<td>CT for depression (12–20 sessions); outpatient clinic</td>
<td>Treatment trial: training, patient outcome, therapist competence (CTF)</td>
<td>Patient outcome: post-patient treatment outcome not significantly different from benchmark Therapist competence: patients completing treatment with therapists above the competence criteria were more likely to show reliable</td>
<td>6</td>
<td>Included inexperienced: 1 to 6 years post-qualification</td>
<td>“All took part in CT training program”</td>
</tr>
</tbody>
</table>

\( ^{27} \) Brief |

\( ^{28} \) Monthly: three 1-h sessions provided by phone. |

\( ^{29} \) Weekly: regular supervision within the clinic. This supervision developed into peer supervision by about the middle of the trial. \( ^{30} \) Additional consultations were given informally as needed. \( ^{30} \) Twice during the trial: specialist supervision for 1 day in a format combining instruction and supervision. |

\( ^{30} \) Weekly: 1-h group optional therapist-directed consultations. |

\( ^{30} \) Weekly: 1-hour meetings with monitoring of treatment adherence. |
<table>
<thead>
<tr>
<th>ID</th>
<th>Authors</th>
<th>Treatment</th>
<th>Setting</th>
<th>Participants</th>
<th>Therapist Competence</th>
<th>Patient Outcome</th>
<th>Study Design/Methodology</th>
<th>Follow-Up</th>
<th>Grading</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Merrill, Tolbert &amp; Wade, 2003</td>
<td>CT for depression (M = 8 sessions), Beck manualized; community mental health center</td>
<td>Treatment trial: training, patient outcome</td>
<td>Patient outcome: post-patient treatment outcome not significantly different from benchmark. Therapist competence: no differential effects for CT were found for individual therapists or therapist educational level.</td>
<td>Included inexperienced: 3 doctoral-level and 5 master’s level therapists, including psychologists, social workers and counselors. Some had minimal CBT training and almost no supervised CBT practice; others had prior CBT training and supervision and frequently used CBT.</td>
<td>8</td>
<td>3-day workshop given by two presenters who were trained in intensive course at Beck Institute. Training included role plays and supervised practice cases (amount UA).</td>
<td>n/a: Graded</td>
<td>&quot;Graded: weekly individual for newly-trained therapists using “preceptor model” with feedback given from taped sessions. Weekly 1-hour meeting with case review.</td>
</tr>
<tr>
<td>12</td>
<td>Gillespie, Duffy, Hackmann &amp; Clark, 2002</td>
<td>CBT for PTSD (M = 8 sessions); community setting</td>
<td>Treatment trial: training, patient outcome</td>
<td>Patient outcome: degree of improvement comparable to research trials</td>
<td>Included inexperienced: 91 NHS staff (one psychiatrist, one social worker, three nurses). Varied CBT experience ranging from attending CBT workshops to an experienced CBT therapist and trainer; none had prior specialist training in CBT for PTSD.</td>
<td>5</td>
<td>Two modules of workshops: an initial 1-day workshop on PTSD and cognitive models followed by a 2-day training workshop covering the treatment in more detail, with clinical examples, questions from therapists about application to specific cases, and group work and phone conversations identifying key procedures.</td>
<td>Intermediate</td>
<td>Weekly: “local supervision”, &quot;Monthly and later every 6 weeks: case supervision by video-conferencing with experts with role plays and occasional review of videotaped sessions.</td>
</tr>
<tr>
<td>13</td>
<td>Morgenstern, Blanchard, Morgan, Labouvie, &amp; Hayaki, 2001a; Morgenstern, Morgan, McCrady, Keller, &amp; Carroll, 2001b</td>
<td>Cognitive Behavioral Coping Skills Training (CBCTST) (1-h sessions for 12 weeks); outpatient clinic</td>
<td>Treatment trial: training, therapist competence (MVTS; ITTS), patient outcomes</td>
<td>Patient outcome: comparable to prior efficacy studies; however, no significant difference in outcome between low-standardization CBT, high-standardization CBT and TAU (12 step program). Therapist competence: 90% of counselors (n = 18) rated &quot;at least adequate&quot; at the end of training.</td>
<td>Included inexperienced: counselors from substance abuse clinics with at least 1 year experience in counseling for substance abuse</td>
<td>29</td>
<td>One hundred hours of didactic and clinical training over 5 months. Didactic teaching (35 h): theoretical and experiential elements, discussions of similarities and differences between CBT and 12-step models, therapeutic alliance in protocol-driven treatments, role play. At least three practice cases were videotaped, session-by-session feedback given to therapists.</td>
<td>Intermediate</td>
<td>Weekly: 2 h (1 h individual and 1-hour group supervision)</td>
</tr>
<tr>
<td>14</td>
<td>*Hahlweg et al., 2001</td>
<td>CBT for panic disorder (M = 36 sessions, SD = 15); multisite outpatient clinics</td>
<td>Treatment trial: training, patient outcome</td>
<td>Patient outcome: better than benchmark. Changes remained at follow-up. Therapist competence: No significant differences in patient outcome between experienced and inexperienced therapists at post-assessment and follow-up. Also no differences between treatment sites, despite differences in setting.</td>
<td>Included inexperienced: diploma psychologists with previous behavioral training. Prior CBT training: 15 (28%) had none, 11 (22%) had some training, but almost no supervised practice, 26 (50%) had CBT training, supervision and often used it in their practice. Previous patients ranged from 1 to 24.</td>
<td>52</td>
<td>No workshop reported, for novice therapists: reading relevant literature, viewing video of treatment sessions. Practice cases: sessions as co-therapist with clinic director with at least 2 patients. General training “similar to Wade et al., 1998”.</td>
<td>n/a: Graded</td>
<td>*Graded: weekly supervision given in groups (2 h) and individually (45 min) by accredited CBT specialists. Extra supervision provided as needed. Total number of sessions not available due to non-standardized treatment with highly variable number of sessions.</td>
</tr>
</tbody>
</table>

(continued on next page)
<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment and setting</th>
<th>Study type: relevant data (measures)</th>
<th>Summary of findings</th>
<th>Therapists</th>
<th>Patients</th>
<th>Initial training</th>
<th>Supervision and other post-training contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 Franklin, Abramowitz, Kozak, Levitt &amp; Fox, 2000; Franklin, Abramowitz, Furr, Kalsy &amp; Abramowitz, 2000</td>
<td>CBT for obsessive compulsive disorder (OCD) (18 2-h sessions); anxiety disorders clinic</td>
<td>Treatment trial: training, patient outcome</td>
<td>Therapists and supervision Patient outcome: post-treatment outcome significantly better than benchmark. Cases were assigned non-randomly according to complexity, patient preference and pragmatic considerations. Most experienced therapists had patients with greatest change at post-treatment; however, these therapists also had more severe cases. No significant post-treatment differences between less, moderately and highly experienced therapist groups when controlling for pre-treatment patient symptom severity. n/a Manual given for review. 3-day workshop with review of treatment protocol and detailed case descriptions. No workshop reported, &quot;preceptor model&quot; for training, reading theoretical articles, treatment outcome research, learning therapist and client treatment manuals, video and audio tapes of actual treatment sessions for panic, direct observation of the director. Practice cases: therapists observed one treatment group from start to finish before treating. Graded: Varied according to therapist experience level: non-licensed therapists received 1 to 2 h weekly per case from expert supervisors. Least experienced therapists had daily individual contact for approx. 45 min with senior clinical psychologists. Twice weekly for more experienced. All cases discussed in weekly group meetings.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 Wade, Treat &amp; Stuart, 1998; Stuart, Treat &amp; Wade, 2000</td>
<td>CBT for panic disorder (15 1.5-h sessions); community mental health center</td>
<td>Treatment trial (RCT): training, patient outcome</td>
<td>Patient outcome: better than benchmark at treatment end. Panic-free outcome sustained at 1 year follow-up. Therapist competence: most were able to learn to adhere to treatment, but not all. &quot;Small number&quot; Included inexperienced: psychologists, social workers, graduate students and master’s level clinicians self-selected from CBHC staff. Some had no prior CBT training, while other had minimal or some prior CBT training.</td>
<td>Graded: all individual sessions by junior therapists reviewed and supervised by clinical director &quot;Weekly: seminar-like discussions about diagnosis, treatment and theoretical issues. Structured outline given for next therapy session. Supervision “focused on maximizing adherence to treatment protocol”. Observed practice with corrective feedback from senior therapist, case reviews, feedback on audiotapes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 Crits-Christoph, Siqueland, Chittams, Barber, Beck, Frank et al., 1998</td>
<td>CBT for cocaine-dependence: case supervision stage of training for trial of Crits-Christoph, Siqueland, Blaine, Frank, Luborsky, Onken et al., 1999</td>
<td>Treatment trial: training, therapist competence (CTS by blind rater), patient outcome</td>
<td>Therapist competence: training by suitable background in CT as assessed by education, recommendations and two audiotape samples (25% of CBT therapists were rejected based on audio samples). Therapists chosen for training by suitable background in CT as assessed by education, recommendations and two audiotape samples (25% of CBT therapists were rejected based on audio samples).</td>
<td>Graded: Case supervision of at least 4 cases of average of 3.45 cases. More cases were assigned if supervisor deemed necessary. Phone supervision as necessary with feedback on adherence and skill from audiotaped sessions.</td>
<td>20</td>
<td>Thera...</td>
<td>n/a Manual given for review. Four 2-day workshops: first mainly didactic, 2–4th: techniques, role plays, formulations, review of videotaped sessions with successful and problematic cases. Two taped practice cases. Feedback from random review given during four 30-minutephone consultations</td>
</tr>
<tr>
<td>Category II:</td>
<td>Studies demonstrating significant positive impact on therapist competence or patient outcome ( (n = 13) )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Sanderson, Raue &amp; Wetzler, 1998</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBT for panic disorder ( (12 \text{ sessions}; \text{University medical center}) )</td>
<td>Treatment trial: training, patient outcome</td>
<td>Patient outcome: not significantly different than benchmark. Pre-treatment symptom severity in patients higher than efficacy trials, but post-treatment and response rates similar.</td>
<td>UA</td>
<td>Included inexperienced: clinical psychologists interns with 4 years of graduate school experience</td>
<td>30</td>
<td>Equivalent of 1-day’s instruction on CBT treatment for panic disorder.(^{25}) No experiential components or practice cases.(^{26})</td>
<td>UA: supervisory information not available</td>
</tr>
</tbody>
</table>

| 19 | Hollon, DeRubeis, Evans, Wiemer, Carvey, Grove et al., 1992 |
| CBT for depression \( (\text{max of 20 50-minute sessions over 12 weeks}) \) | Treatment trial: training, patient outcome, therapist competence \( (\text{CTS}) \) | Patient outcome: \( 44\% \) of the CBT group were asymptomatic by treatment end. Pharmacotherapy and CBT did not significantly differ in reduction of symptoms. Therapist competence: competence criteria achieved, \( M = 40.8 \) \( (\text{CTS}) \) as assessed from four audiotaped sessions rated for each treatment complete. | 4 ❤ | Included inexperienced: experienced psychotherapists \( (1 \text{ PhD clinical psychologist, 3 clinical social workers}) \) with 8–20 years therapeutic experience, but with "little previous familiarity with cognitive therapy". | **50 ❤** | 14 months of weekly training sessions. This included 2-days of didactic instruction with role plays and personal application of CBT homework.\(^{29}\) Number of practice cases varied according to how quickly the therapists were judged to be competent.\(^{30}\) Approximately 30–50 h of supervision were provided during this training period.\(^{31}\) | Extensive | *A twice weekly: 90 min. Group supervision during 1st 2/3; 3rd of trial. Weekly: during last 1/3 of the study. Extra attention was given to less competent therapists at weekly meetings.*\(^{32}\) |

| 20 | Grey, Salkovskis, Quigley, Clark & Ehlers, 2008 |
| Studies for chronic fatigue; primary care setting | Treatment trial: training, patient outcome | Patient outcome: results better than pre-training TAU with same therapists; Panic-free \( (54\%) \) less than original trial, but comparable reduction in panic severity and agoraphobic avoidance | 7 | Included inexperienced: NHS staff; 4–14 years experience \( (M = 8.4) \); volunteered for trial; had attended CBT workshops, but had not trained in CBT for Panic | 31 | 3-day workshop including role plays, group work, personal behavioral experiments and two practice cases per therapist | Brief | *Biweekly: in groups for one site and individual for second site, included case discussion, review of session tapes and role play; 1-day follow-up workshop after training phase* |

| 21 | Scheeres, Wensing, Knopp & Bleijenberg, 2008 |
| CBT for chronic fatigue; primary care setting | Treatment trial: training, patient outcome | Patient outcome: within range of benchmark studies. however 32% patients dropped out before or early after training. | 9 | Mental health center therapists with 2–13 years experience; had previous CBT experience, but not with CBT for CF | 112 | Two 2-day workshops. Four therapists dropped out within the 1st year and additional training was given to replacement therapists. | n/a: due to therapist-replacement during the trial | Biweekly: for the 2 years of the trial. |

| CBT for anxiety and depression; primary care setting | Training study: training, therapist competence \( (\text{CTS}) \), patient outcome | Patient outcome: significantly better than pre-training \( (\text{CORE scores}) \) Therapist competence: showed significant improvement from baseline to end \( (\text{baseline CTS as much as 4 weeks into training for some therapists}) \). | 24 | Included inexperienced: local mental health workers \( (\text{OT, GMHW, nurses, day care officer; no formal CBT training, GMHW had some previous training and supervision in low-intensity CBT}) \) | 2 cases each | 10 weekly 1-day sessions: introduction to course, goal-setting, and basic CBT theory \( (1 \text{ day}) \); assessment and formulation \( (2 \text{ days}) \); basic CBT therapeutic skills \( (3 \text{ days}) \); applying CBT skills to depression \( (2 \text{ days}) \); applying CBT skills to anxiety \( (1.5 \text{ days}) \); review of goals and planning for future \( (0.5 \text{ days}) \). Experiential included role play. | Brief | *Weekly: Ten sessions of 1 1/2-hour supervision in groups \( (4 \text{ trainees}) \) with focus on acquisition of clinical skill, formulation-based case conceptualization* | *(continued on next page)*
<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment and setting</th>
<th>Study type: relevant data (measures)</th>
<th>Summary of findings</th>
<th>Therapists</th>
<th>Patients</th>
<th>Initial training</th>
<th>Approach: total instructional hours</th>
<th>Supervision and other post-training contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 Duffy, Gillespie &amp; Clark, 2007</td>
<td>CBT for PTSD (M = 5.9 treatment sessions over 12 weeks with M = 2 additional sessions thereafter); community treatment center</td>
<td>Treatment trial: training, patient outcome</td>
<td>Patient outcome: significant positive change on a variety of outcome measures as compared to the waiting-list control group. Large treatment effect size for post-treatment patient outcome as compared to pre-treatment baseline.</td>
<td>Included inexperienced: one psychiatrist, one social worker and three nurse therapists. Three therapists had diploma level training in CBT, two had completed CBT training for nurses. Three had 4–5 years prior experience with CBT for PTSD, two of these with this specific treatment protocol.</td>
<td>58</td>
<td>2-day workshop: video footage of cases were shown with demonstrations of specific applications of CT for PTSD. * * Three practice cases completed by therapists during training phase.</td>
<td>Intermediate</td>
<td>“Weekly” *: increased feedback to therapists with cases in which weekly outcome measures did not indicate therapeutic progress, or where drop-outs may have been due to non-adherence to treatment protocol.</td>
</tr>
<tr>
<td>24 Lappalainen, Lehtonen, Skarp, Taubert, Ojanen &amp; Hayes, 2007</td>
<td>CBT for a variety of disorders. Clients recruited for “psychotherapy” by newspaper advert. No exclusion/inclusion criteria. Most presented with depression, interpersonal problems and anxiety.</td>
<td>Treatment trial: training, patient outcome</td>
<td>Patient outcome: significant positive change on a variety of outcome measures.</td>
<td>Included inexperienced: master’s level psychology students. Half had no previous experience with psychotherapy treatment and the rest had very limited experience (eg: volunteer work.)</td>
<td>**14</td>
<td>Training given within clinical teaching program. Training included 2 h on general behavioral principles and issues related to psychotherapy. CBT lectures emphasized self-monitoring, exposure, problem solving, behavioral activation, social skills training and progressive relaxation. Case examples and training manuals were used.</td>
<td>Brief</td>
<td>Weekly: 3-hour sessions in groups of 4 to 6 students. Attention was given to formulations and functional analyses for each client. Therapists filled out checklists after each session with the methods they used during session.</td>
</tr>
<tr>
<td>25 Dimidjian, Holian, Dobson, Schmaling, Kohlenberg, Addis et al., 2006</td>
<td>CBT for low and high severity depression. Patients were recruited from media advertisements, local agencies and word of mouth; academic settings.</td>
<td>Treatment trial: training, therapist competence (CTS), patient outcome</td>
<td>Patient outcome: CT produced significant improvement, but was inferior to behavioral activation and pharmacological treatment for high severity patients. Differential effects were not found for low severity patients. Therapist competence: independent blind raters assessed 12 sessions for each therapist (M = 40.33, SD = 4.17) CT trial supervisors rated the therapists significantly higher, reaching the competence criteria (M = 46.86, SD = 4.05)</td>
<td>Three clinical psychologist (M = 14 years clinical experience). Two had received extensive CBT training at the Beck Institute and had been trial therapists in a depression study. The third had received specialized training in CT for anxiety. All were certified by the Academy of Cognitive Therapy during the course of the study</td>
<td>241</td>
<td>No workshop given. * Practice cases: one or two during training with more attention given to less experienced therapists.</td>
<td>Extensive</td>
<td>“Weekly” *: Given by phone by off-site experts. * As needed: on site case reviews of several hours held on 4–6 occasions.</td>
</tr>
<tr>
<td>26 Mannix, Blackburn, Garland, Gracie, Mooney, Reid et al., 2006</td>
<td>Brief CBT; palliative care setting</td>
<td>Training study: training, supervision, therapist competence (CFARS, structured</td>
<td>Therapist competence: Clinicians showed significant gains in CBT competence. Skill was lost for those not continuing supervision after initial</td>
<td>Included inexperienced: palliative care practitioners with at least 5 years experience and receiving no other ongoing supervision or training;</td>
<td>20</td>
<td>10 weekly half-day sessions, an equivalent of 9 days of taught sessions: basic theory, models for depression, anxiety, panic, specific adjustment</td>
<td>64</td>
<td>Biweekly: 2-hour session for 3 months (4 trainees per group): structured to build skills and model guided discovery, trainees encouraged to bring tapes.</td>
</tr>
<tr>
<td>Study</td>
<td>Design</td>
<td>Sample</td>
<td>Training</td>
<td>Patient</td>
<td>Outcome</td>
<td>Notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>--------</td>
<td>--------</td>
<td>----------</td>
<td>---------</td>
<td>---------</td>
<td>-------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DeRubeis, Hollon, Amsterdam, Shelton, Young, Salomon et al., 2005</td>
<td>CBT for more severe depression (16 weeks); two sites at research clinics</td>
<td>Treatment trial: training, patient outcome</td>
<td>Patient outcome: post-treatment measures showed a 58% response rate for both CT and medication. CT outcome was significantly less than medication at one site where therapists had more limited previous training and practice with CT.</td>
<td>Included inexperienced: Five doctorate level psychologists and one psychiatric nurse practitioner. At one site, all three had 7–21 years of experience conducting CBT. At the second site, only one of three had this level of experience.</td>
<td>Intermediate</td>
<td>One group did not continue supervision for the next 6 months. One group did with a similar supervision arrangement.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sholomskas et al. 2005</td>
<td>CT for substance abuse (manual + website condition)</td>
<td>Training study: training, therapist competence (YACS, 7-point Likert scale)</td>
<td>Therapist competence: Some positive change, but did not reach criterion level typical in clinical efficacy trials for adherence or skill.</td>
<td>Included inexperienced: Community-based clinicians; varied/little experience with CBT</td>
<td>20 h working with interactive site with links to theoretical materials, FAQs, knowledge test with links for incorrect answers and 12 virtual role plays. Website was accessible for review throughout the trial.</td>
<td>Brief</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Lincoln, Rief, Hahlweg, Frank, von Witzleben, Schroeder et al., 2003</td>
<td>CBT for social phobia (variable number of sessions); 4 outpatient clinics</td>
<td>Treatment trial: training, patient outcome</td>
<td>Patient outcome: 56% reliable change. Results did not differ between sites.</td>
<td>Included inexperienced: Diploma psychologists with behavioral therapy training and current doctoral students/22% had no prior CBT training, 43% had minimal experience, and 35% had prior CBT training, supervision and often used CBT in their practice.</td>
<td>No workshop reported. Only novice therapists (22% with previous patients 0–10) received training specifically for the research study: reading relevant literature, viewing videotaped treatment sessions, attending supervision sessions. Practice cases: participating as co-therapist in treatment of at least 2 patients</td>
<td>n/a: Graded</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(continued on next page)
<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment and setting</th>
<th>Study type: relevant data (measures)</th>
<th>Summary of findings</th>
<th>Therapists</th>
<th>Patients</th>
<th>Initial training</th>
<th>Supervision and other post-training contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Turkington, Kingdom &amp; Turner, 2002</td>
<td>Brief CBT for schizophrenia (3–6 h-long sessions over a period of 2–3 months); six sites of psychiatric secondary care services</td>
<td>Treatment trial: training, patient outcome</td>
<td>Patient Outcome: Overall patient improvement compatible with expert therapist results, but psychotic symptoms not significantly improved. CBT-receiving patients improved more in overall symptomology, insight, depression than TAU. Therapist competence: CTS-Psy scores above competence criteria of 30 (M = 38.85, 95% CI 35.78–41.9)</td>
<td>6</td>
<td>Included inexperienced: community psychiatric nurses. Five had no prior CBT training; one had prior CBT training and supervision and often used CBT in regular practice.</td>
<td>257</td>
<td>10 days of training according to manual. Teaching included role plays, group work and DVDs of expert therapy. Therapists were tested on their skills through demonstrations, role plays and written examinations.</td>
</tr>
<tr>
<td>31 Huppert, Bufoa, Barlow, Gorman, Shear &amp; Woods, 2001</td>
<td>CBT for panic disorders. Multi site: 4 anxiety clinics, 5 groups-panic-control treatment CBT only, panic-control treatment + placebo, panic-control treatment plus imipramine alone, placebo alone</td>
<td>Treatment trial: training, therapist competence (trial-specific measure: MCSTPD-GCI), patient outcome</td>
<td>Patient outcome: overall positive outcome with significant difference in magnitude of patient change. Therapist competence: effect sizes for therapist impact on outcome measures varied from 0% to 18% depending on measure of patient outcome. Sessions for therapists with above- and below-average outcomes were rated measures of adherence and competency: therapist contribution to outcome was found even with uniform patients, structured treatment and positive outcome. Previous CBT experience not significant. Only data for therapists with more than four cases was analyzed.</td>
<td>14</td>
<td>Included inexperienced: 9 self-described as primarily CBT practitioners with experience of 1–18 years (M = 5.9, SD = 5.1). Highly trained doctoral-level therapists (13 psychologists, 1 psychiatrist) with 2–20 years experience (M = 8.9, SD = 5.6)</td>
<td>**183</td>
<td>Didactic seminar including role plays, viewing videotaped session of a case. Therapists trained to competency and certified in conducting panic-control treatment. Practice cases: included during training, more training was given to less competent therapists.</td>
</tr>
<tr>
<td>32 Milne, Baker, Blackburn, James &amp; Reichelt, 1999</td>
<td>CT</td>
<td>Training study: training, patient outcome, competence (CTS-R for one tape per term), patient outcome</td>
<td>Therapist competence: significant improvement between tapes: M = 30.3 (8.2), second:33.1 (7.2), third: 37.0 (8.1). Patient Outcome: significant improvement in coping on 4 of 8 subscales.</td>
<td>20</td>
<td>Included inexperienced: chosen by general competition: clinical psychologists (n = 6), psychiatrists (n = 6) and mental health nurses (n = 8)</td>
<td>20</td>
<td>An induction week + 35 training sessions (3 h each) over a 9 month period</td>
</tr>
<tr>
<td>Category III</td>
<td>Studies not showing significant effect for therapist competence or patient outcome (n = 5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33 Sholomskas et al. 2005</td>
<td>CT for substance abuse (manual only condition)</td>
<td>Training study: training, therapist competence (YACS, 7-point Likert scale)</td>
<td>Therapist competence: did not reach criterion level typical in clinical efficacy trials for adherence or skills. Skills</td>
<td>25</td>
<td>Included inexperienced: community-based clinicians; varied/little experience with CBT</td>
<td>n/a</td>
<td>20 h reading manual and practicing CBT</td>
</tr>
<tr>
<td>Study</td>
<td>Treatment</td>
<td>Training</td>
<td>Outcome</td>
<td>Intervention Details</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
<td>----------</td>
<td>---------</td>
<td>----------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 Davidson, Scott, Schmidt, Tata, Thornton &amp; Tyrer, 2004 (Tyrer, Thompson, Schmidt, Jones, Knapp, Davidson et al., 2003)</td>
<td>MACT (Manual-assisted cognitive therapy) for self-harm. 5 sessions over 3 months plus a possibility of one booster session.</td>
<td>Treatment trial: training, patient outcome, therapist competence (trait-specific measures: MACT-RS, 1–7 Likert scale)</td>
<td>Patient outcome: Original study showed no difference between MACT and TAU. Therapist competence: Post-hoc analyses of 49 recorded sessions showed six therapists had an average score suggesting a lower level of competence; seven met criteria for the mid-level of competence; eight therapists demonstrated a high degree of competence. When treated by therapists rated as more competent, patients with recurrent self-harm show significant clinical improvements. However, this benefit is not identified across all outcome measures and is not fully apparent until 12-month follow-up.</td>
<td>26 (11 later recruited to replace therapist who left the study) Included inexperienced: nurses (n = 20), clinical psychologists (n = 6), social workers (n = 4), psychiatrists (n = 4) and occupational therapists (n = 3). Less than half had previous CBT training and supervision. <strong>239 2-day workshop with small group work, videos and role play. Therapists used treatment booklet for personal homework.</strong> UA: total supervisory hours not available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35 King, Davidson, Taylor, Haines, Sharp &amp; Turner, 2002</td>
<td>Brief CBT for depression; primary care setting</td>
<td>Training study: training, patient outcome</td>
<td>Patient outcome: training had no discernible effect on patient outcome or on practitioners’ knowledge of and attitude toward depression</td>
<td>84 Included inexperienced: GPs 272 4 half-day workshops Brief None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 Elkin, Shea, Watkins, Imber, Sotsky, Collins et al., 1989 (Shaw, Elkin, Yamaguchi, Olmsted, Valls, Dobson et al., 1999)</td>
<td>CBT for depression (20 sessions in 16 weeks); 3 sites</td>
<td>Treatment trial: training, patient outcome, therapist competence (CTS; CSPRS)</td>
<td>Therapist competence: some correlation between therapist competence and reduction in depressive symptomology was found. Therapist factor most highly related to patient outcome was therapist ability to structure treatment.</td>
<td>8 Included inexperienced and relatively experienced: 6 psychologists and 2 psychiatrists practicing at three research sites; 5 were behavioral therapists (2 of the 5 had specific CBT training) 36 cmp Initial workshop of 5 days including role plays, group work and simulated clients. Training lasted 13 to 18 months. External expert raters certified the therapists as being ready to represent the CBT modality in a research outcome. Practice cases: weekly individual supervision (1 h by phone weekly) of at least four cases, with detailed feedback following review, and evaluation of the videotaped sessions. Video tapes were reviewed and rated on CTS. If session was below 39 on CTS, therapist was contacted for discussion and advice. Intermediate Weekly during training phase and monthly during treatment phase</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Treatment and setting</td>
<td>Study type: relevant data (measures)</td>
<td>Summary of findings</td>
<td>Therapists</td>
<td>Patients</td>
<td>Initial training</td>
<td>Supervision and other post-training contact</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------</td>
<td>-------------------------------------</td>
<td>---------------------</td>
<td>------------</td>
<td>-----------</td>
<td>-----------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n</td>
<td>n</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Tyrer, Murphy, Kingdon, Brothwell, Gregory, Seivewright et al., 1988 (Kingdon, Tyrer, Seivewright, Ferguson &amp; Murphy, 1996)</td>
<td>CBT for depression and anxiety (weekly 1-h sessions over 10 weeks)</td>
<td>Treatment trial: training, patient outcome, therapist competence (CTS prepublication)</td>
<td>Patient outcome: no difference between placebo treatment and CBT. Therapist competence: significant difference in patient outcome between “competent” and “uncertain competence” therapists. Competence rated by independent blind assessor. Differences persisted at 2-year follow-up.</td>
<td>11 (4 competent, 7 of uncertain competence)</td>
<td>Included inexperienced: community nurses. Ten had little or no prior training in CBT. One had some prior CBT training and had used CBT in clinical practice.*</td>
<td>2-day workshop including role plays and group work. **Only data from the CBT arm of the trial is included. “cmp” = follows results in which only completers’ data was available. Treatments: PE = prolonged exposure; PE/CR = prolonged exposure plus cognitive restructuring. CT = cognitive therapy. Therapist measures: CFARS = Cognitive First Aid Rating Scale: trial-specific measure with high internal reliability and inter-rater consistency (Scheeres et al., 2008). CSPRS = Collaborative Study Psychotherapy Rating Scale (Hollon, DeRubeis, Evans, Wiemer, Garvey, Grove et al., 1992). CTS = Cognitive Therapy Scale (Young &amp; Beck, 1980). CTS-Psy-Cognitive Therapy Scale for Psychosis (Haddock et al., 2001). CTS-R = Cognitive Therapy Scale-Revised (Blackburn et al., 2007). ITRS = Project IMPACT Tape Rating Scale (Morgenstern, Morgan, McCrady, Keller and Carroll, 2001). MACT-RS = Manual-Assisted Cognitive Behavior Therapy Rating Scale (trial specific). Mannix’s structured interview: trial-specific baseline and study end assessment of self-report frequency of 23 different CBT skills (Mannix et al., 2006). MCSTPD-GCI = Multicenter Collaborative Study for the Treatment of Panic Disorder Global Competence Item: trial-specific measure (Huppert et al., 2001). MVRS = MATCH Videotape Rating Scale (Carroll et al., 1998). YACS — Yale Adherence Competence Scale (Carroll et al., 2000).</td>
</tr>
</tbody>
</table>
Three studies\textsuperscript{11,14,16} with graded training cite the ‘preceptor’s model’ as the basis for their training approach (reviews can be found in Billay, 2008 and Blum, 2009). This model, often used in medical and nurse training (Blum, 2009), describes a framework in which the student has opportunity to act, is prompted to reflect on the rationale, is instructed in theory and practice, and is given a chance to correct errors. These interactions begin in limited learning situations and then progresses toward more complex ones (Hallin & Danielson, 2009). The graded approach to training may allow more instruction for less competent therapists. Graded training, a more economical alternative to extensive training for all, uses training resources responsively and may be effective in training inexperienced or a varied group of therapists. Notably, the four studies\textsuperscript{11,14,15,16} achieving patient outcome results better than the benchmark included inexperienced therapists and used a graded approach to training. One study\textsuperscript{11} (Merrill, Tolbert, & Wade, 2003), which used the preceptor’s model in training, reached the benchmark for patient outcome and showed no differential effects for individual therapists or therapist educational level despite a varied range of pre-training experience, suggesting this more efficient approach can be as effective.

3.2.2. Active training elements

Another way of determining what makes training more or less effective is to consider the process’ active ingredients. This dismantling approach is currently used to find salient elements of broad therapeutic protocols, e.g., CBT treatments are analyzed for their discrete components (exposure, behavioral experiments, and challenging of automatic thoughts). The common elements of category I and category II studies include theoretical instruction, and experiential and interactive learning (e.g., supervision).

3.2.2.1. Theoretical instruction. It is difficult to draw conclusions regarding the importance of theoretical instruction since all but one\textsuperscript{25} study in our review included this component of training. This one exception, Dimidjian et al.’s (2006) comparison of behavioral activation and CBT for depression is also an exception in the CBT literature in terms of its outcome; CBT was less effective in the comparison treatment. Although the total hours of instruction are considerable, training consisted of supervision/case review, with no initial workshop. This may be because many of the therapists had considerable previous experience or training. However, it also raises the question of whether some initial didactic input (on underlying theory, and formulation of the disorder and protocol specific aspects to the treatment) may be helpful, even with experienced therapists, in ensuring the best practice, adaptation and generalization of CBT treatments in a clinical setting.

Most reviewed studies provide theoretical instruction through primarily didactic workshops. Results from didactic instruction only would seem to support the conclusion often voiced in training reviews: traditional and primarily didactic forms of dissemination are necessary, but insufficient in producing sustained change in therapist behavior and patient outcome (e.g., King et al., 2002; Sholomskas et al., 2005). Perhaps surprisingly, two studies in category I\textsuperscript{14,16} and one study in category II\textsuperscript{29} report providing theoretical instruction through individual reading. To achieve such outcome without a didactic workshop would cast some doubt on the assumption that workshops are even the preferred method of theoretical instruction. Sholomskas et al. (2005) show an increase in knowledge following web-instruction, but since the study did not include a web-instruction plus supervision group, we do not have data on whether this combination would produce results comparable to the workshop-plus-supervision group. Comparisons of the differential effects of didactic instructions, workshop, reading and web-based learning are an obvious area for future study.

3.2.2.2. Experiential and interactive learning. Experiential and interactive learning occurs throughout the training process. A training workshop may have role plays, case conceptualization with feedback or group discussion. The bulk of this kind of experiential learning, however, tends to occur after the initial theoretical instruction and occurs within the context of practice cases and either supervision or adherence monitoring with feedback.

Supervision was provided in all 19 category I studies, and in twelve of the thirteen category II studies. Again, Sholomskas et al. (2005) is the exception, but might not be considered as such due to the limited definition of competence. Three of the five category III studies\textsuperscript{29,34,36,37} provided supervision. It is possible that the supervision was not close or frequent enough to compensate for the experience level of the therapists in these studies. In one study\textsuperscript{37}, the frequency of supervision dropped from weekly to monthly during the trial’s treatment stage. Lack of positive outcome may, in this case, be explained by the dynamic observed in another study: in Mannix et al. (2006), supervision was discontinued for half of the therapists after initial training and 6 months of weekly supervision. The results indicated that there may be no homeostasis for competence at this point in training. Therapists without ongoing supervision displayed a slight loss of skill, knowledge and confidence at the six-month follow-up. In contrast, those who continued to receive supervision showed a continued increase of skill.

If close monitoring with feedback on actual clinical performance is crucial during the stage of training in which therapist competence is consolidated (Crits-Christoph, Siqueland, Chittams, Barber, Beck, Frank et al., 1998), then practice cases would seem to serve the same function as supervision. Although the construct of adherence is not identical to competence, clearly it is related and it may be an early building block for clinical competence. Crits-Christoph et al. (1991) found that use of a treatment manual was associated with smaller differences between therapists’ patient outcome, possibly indicating that strict adherence to a treatment protocol might lessen therapists’ effects on patient outcome. In Sholomskas et al. (2005) adherence was reached following the initial training, but the necessary skill level was achieved only at the follow-up assessment following implementation and supervision. This dynamic might suggest that adherence is a precursor to competent clinical skill.

Ostensibly, adherence monitoring merely checks that the treatment being carried out is the intended protocol. However, when adherence monitoring is followed by feedback and instruction to therapists, this process may have a training function as well. Some of the trials that achieved results comparable to the efficacy benchmark used weekly meetings, assessor ratings and considerable monitoring.

Fig. 1. Boxplot showing the median, interquartile range and range of total instructional hours for relevant studies in outcome categories I, II and III.
of sessions to ensure adherence to the treatment protocol (e.g.: Arntz, 2003; Merrill et al., 2003; Wade, Treat and Stuart, 1998; Foa, Hembree, Cahill, Rauch, Riggs, Feeny et al., 2005). In trials including regular session-assessment and feedback for therapists, the process of adherence monitoring is likely to have served a function similar to supervision.

### 3.2.3. Models of learning

In addition to considering what amount of training or active elements of training might be effective for different populations of service providers, we may also ask how learning occurs; that is: what are the patterns we observe (Bennett-Levy, McManus, Westling, & Fennell, 2009). While it is beyond the scope of this review to provide a comprehensive review of models of learning some of the theories that have dominated the literature are briefly outlined below for the purpose of considering how we may understand the differential effects of CBT training.

#### 3.2.3.1. Order and timing.

If the order of instructional modalities is salient, then sequence in training might be as important as dosage. Cucciare, Weingardt, and Villafraanca (2008) offer a ‘blended learning’ paradigm, defined as “the systematic integration of several complementary informational delivery mechanisms in an effort to optimize learning and skill acquisition” (p. 299), as another way to understand outcome differences between training groups in Sholomskas et al. (2005). In this view, the sequence of learning experiences must be considered as much as training modality or duration.

Chu (2008) suggests a similar consideration in the pattern of learning: spacing. By providing training in multiple events with breaks in between, practitioners are able to absorb, experiment and then ask questions relevant to result. Chu suggests spacing “may help clinicians absorb information and allow them to experiment with the new skills in their home practice. Practitioners may then be able to use the delayed training to ask more relevant questions based on their personal experiences” (p. 309). These patterns in training may indeed be crucial in providing optimal learning experiences. There may be a base of theoretical knowledge that is fundamental, and then a combination of adherence-training, guided practice through trial cases and supervision and continued support in order for a therapist to develop, generalize and consolidate clinical competence. Indeed, it may be that these training elements can be sequenced and combined to meet the needs of different therapist populations.

The continued study of learning patterns may lead us to varied training protocols suited to different therapist populations. Examining patterns of learning, however, raises the questions of whether there might be theoretical conceptualizations of learning relevant for training, models that can guide our development and understanding of dissemination research. These models could help answer not the how of training, but rather the why. Two models already inherent in CBT theory might also apply to disseminating CBT: scaffolding (Wood, Bruner, & Ross, 1976) and Lewin (1946) and Kolb’s (1984) adult learning theory.

#### 3.2.3.2. Scaffolding.

The term ‘scaffolding’ was first used by Wood, Bruner, and Ross (1976) to describe Vygotsky’s (1978) model of individual learning within a social-cultural context. Vygotsky described a process of individual learning that is initiated, supported and generalized through interactions between mentor and student. The instructor’s involvement gradually decreases as the individual increasingly maintains the new skill independently, thus fostering the acquisition and consolidation of new skills (Vygotsky & Cole, 1978). This process of idiosyncratic instruction is echoed both in the preceptor model, and in the process of Socratic questioning and guided discovery.

This model, cited by Milne, Leck and Choudhri (2006) in discussing supervisors’ support during therapists’ experiential learning, might explain the apparent need for prolonged supervision for the consolidation of competence. Competent responses to clinical variations must be learned, repeated, corrected and generalized until there is a repertoire of responses to clinical variations that can be implemented independently by the therapist.

#### 3.2.3.3. Adult learning theory.

The constructs of spacing, sequence and scaffolding suggest a theoretical model of knowledge acquisition, application and generalization described by the Lewin (1946)–Kolb (1984) Adult Learning Theory, a formulation of adult learning which involves both intellectual and experiential learning. The model encompasses a process in which an individual maximizes the learning opportunities of an experience by taking time to consider it and integrate it with previous knowledge so that new conclusions are drawn (the processes of observation and reflection). Then plans are made to apply conclusions to a new situation. Consequently new experience becomes the initial stage of a new cycle and the process of learning continues (Kolb, 1984; Lewin, 1946).

#### 3.2.4. General conclusions

The existing literature suggests that more extensive training variably leads to increased therapist competence, which is positively related to better patient outcome. More traditional dissemination approaches (workshops and manuals) seem insufficient in producing significant change in therapists’ skills or patients’ outcomes. Extensive training is associated with improvement in both therapists’ competence and patient outcome; however, as prolonged training is costly and often impractical, widespread dissemination may demand a graded approach similar to the preceptor model currently used in medical and nurse training (Blum, 2009). Graded training, a responsive approach providing greater instruction for therapists who are slower to develop competence, can allow for efficient allocation of resources in training a heterogeneous group of trainees. However, in order to be able to most effectively target the training, more research is needed to quantify the link between therapist competence and clinical outcome (i.e., at what point on the CTS is competence sufficient to yield the maximum benefit for patients?).

Our review suggests that some mode of theoretical instruction seems integral in initial training; however, this may be provided through workshops, reading or web-based instruction as long as it is followed by experiential and interactive training through practice cases, co-therapy or supervision. Treatment-adherence monitoring with feedback and instruction may be a productive and necessary initial focus in training. Sustained supervision over a prolonged period may be necessary to maintain competency gains. In addition, Franklin, Abramowitz, Furr, Kalsy, & Riggs (2003) suggest that expert supervision by CBT specialists may be crucial during the time that a therapist is attaining and solidifying competence. Peer or non-CBT specialist supervision may not suffice during this initial stage of therapist development.

Broader constructs such as dosage, spacing, sequence and scaffolding indicate the pertinence of theoretical models of learning. In particular, two models already incorporated in CBT’s theoretical foundation appear relevant: Vygotsky (1978) model of social learning and Lewin (1946)–Kolb’s (1984) model of adult learning. For example, Vygotsky’s concept of scaffolding suggests that before skills can be retrieved and applied independently there must be a significant consolidation phase with ongoing support; this suggestion has some support in the CBT training literature. For example, Mannix et al.’s (2006) reported that novice CBT therapists’ skills deteriorate if supervision is withdrawn before skills have consolidated, whilst continued supervision led to improved skills.

### 4. Issues arising and recommendations for future research

Since the relationship between training and therapist competence remains difficult to thoroughly assess due to multiple inconsistencies...
in terminology, measures and methodology, the following recommendations are made for future research:

4.1. Study design

Only seven of the thirty-four trials are primarily training studies; the rest are treatment trials in which collecting data about therapist competence was not the primary focus, and often was the by-product of adherence monitoring. Post-hoc analyses of effectiveness trials yield valuable information for understanding the differential effectiveness of dissemination studies; however, as the analysis was not part of the original study design, conclusions can only be tenuous. Given that efficacious training practices are a current focus for CBT, research design that provides controlled data for training effects on therapist competence is crucial.

Much thought has gone into developing quality standards and criteria to assess the design of research studies evaluating the effects of different treatments (e.g., random allocation, no-treatment control conditions, blind assessment, patient and assessor measures, inter-rater reliability of assessors, pre-treatment baseline assessments, and treatment-adherence monitoring) and the same criteria could be applied to studies aiming to evaluate the effects of training or training components (random allocation to training modality, no-training control conditions, blind assessment of CBT competence, self and assessor measures of CBT competence, inter-rater reliability of assessments of competence, pre-training baseline assessments, protocol adherence monitoring).

A related point is that the primary focus of research into CBT has been on evaluating the efficacy of CBT protocols in RCTs. These protocols are usually complex and contain a mixture of different therapeutic interventions and techniques. Some recent dismantling studies of CBT suggest that such protocols developed for use in efficacy research may contain inert elements (e.g., cognitive restructuring, see Longmore & Worrell, 2007 for a review). There is a danger, therefore, that without more emphasis on dismantling studies and process research into efficacious CBT protocols, we could be training people to competence in inert components just as much as in the active components. Hence, there is a need to evaluate specific components of CBT protocols (e.g., McManus, Clark, et al., 2009) and for process studies that attempt to identify the most active elements of CBT protocols (e.g., McManus, Peerhbey, Larkin & Clark, 2010).

4.2. Measurement validity

While standardized validated measures for therapist competence do exist, e.g., Carroll, Nich, Sifry, Nuro, Frankforter, Ball et al. (2000) Yale Adherence Competence Scale (YACS), Young and Beck's (1980) CTS, and Blackburn et al.'s (2001) CTS-R, they are not always used in evaluations of therapist competence. While trial-specific measures might more accurately reflect the nuances of a specific CBT protocol, the lack of external validity make comparison of training methods difficult. Although the CTS and CTS-R are validated (Blackburn et al., 2001; Vallis et al., 1986) and have a commonly-used cut-off score, minimal validation and multiple versions of these measures may undermine their validity. Hence, we recommend that a mean item score rather than a total score be used in determining 'competence' cut-off scores on the CTS and CTS-R. Further studies are warranted both to further validate the existing measures of CBT competence (e.g., empirically devised 'cut-off's'), and to keep pace with developments in CBT protocols (e.g., well-validated disorder or protocol specific measures of CBT competence). As with study design, it is important that assessment of therapist competence follow the same procedures used for patient outcome in treatment trials (e.g., comprehensive assessment by raters blind to stage of training). Keen and Freeston (2008) raise the issue of whether CTS-R ratings for a small number of sessions reliably measure a therapist's CBT skill concluding that a much larger sampler of clinical work (ratings of 19 sessions) would be needed to make reliable judgments about therapist competence. This is in keeping with suggestions that a single measure of competence might be influenced by a patient's suitability for CBT (James, 2001), and is therefore better construed as a 'state', rather than a 'trait', competence measure (Shaw & Dobson, 1988). However, other data suggest that it is possible to differentiate more and less competent CBT therapists on the basis of patient outcome thus there may also be a 'trait' element to CBT competence (Huppert et al., 2001).

4.3. Micro versus macro

As evident from Table 1, published reports of effectiveness trials typically do not include detailed descriptions of training processes. While we were (variably) able to obtain additional details required for this review through personal correspondence with the authors, the benefit of this supplementary information in understanding the impact of training would not normally be available to readers.

When information is provided, lack of agreement and specificity in training terminology renders comparison of training methods imprecise and approximate. The term 'training' is used to describe a vast range of experiences intended to promote learning. 'Supervision' is similarly broad and non-descriptive in its uses. Even when supervision specifies the use of a specific approach (e.g., 'skill-focused'), a lack of clarity remains regarding the specific interaction of instructor and learner: were skills demonstrated or practiced? Was there feedback, or a chance to practice through role plays? Reporting the supervisor's level of expertise and relevant credentials is important in establishing the importance of expert supervision during consolidation of therapists' skills.

Many descriptions of training employ broad temporal descriptions such as '1-day workshop', or 'biweekly supervision'. The frequency of contact can be examined, but the content of the interaction is not presented for either quantitative or qualitative analysis. Since the more general descriptions of training and teaching methods cloud the variability in distinct components, we recommend that trials be described both in units of time dedicated to a certain modality of dissemination (e.g., a 2-day workshop) and with a listing of their specific components (e.g., 1-hour presentation of theory, 2 h of skill practice in groups of three with role plays conducted in pairs and feedback provided by an expert observer.) Given that relevant theory suggests that the temporal and sequential process of training may impact its efficacy (Chu, 2008; Cucciare et al., 2008), descriptions of the training process may illuminate whether these factors are significant in developing therapists' competence. There is also a need for measures of training and supervision adherence and competence so that these practices can also begin to be subject to quality control.

4.4. Application of models and learning theory

Recent dissemination reviews employ terms such as “therapist behavioral change” (e.g., Chu, 2008, p.310), which allude to familiar and well-validated psychological theories. In thinking about training, we are asking ourselves how learning occurs, what impedes it, how behavioral change is sustained. These same questions have underpinned the development of CBT and it may that there is learning from this that can be brought to bear on the question of how to best train CBT skills in developing therapists. A main endeavor of CBT is to teach patients to use CBT techniques and skills, with increasing independence, in a variety of contexts of increasing difficulty. Padesky (1996) has highlighted the obvious parallels between teaching patients to use CBT skills and teaching therapists to teach patients CBT skills: a process of formulating new cognitive frameworks, developing adaptive skills and learning to overcome inevitable obstacles to apply these across a range of situations.

Consideration of the process by which the evidence-based CBT protocols have developed may be useful in facilitating the development
of evidence-based training practices. Clark (2004) reviews the process of establishing evidence-based treatments and suggests a common sequential framework: using clinical observations to formulate a theory of the processes hypothesized to maintain the disorder, conducting experimental studies to test the specified theory, developing and evaluating interventions (CBT protocols) to reverse the hypothesized maintaining processes, and disseminating the resulting intervention (see Fig. 2). This same framework could be helpful in developing efficacious training practices. When theoretical frameworks are applied to existing clinical data on CBT training and dissemination, we are able to make explicit predictions about what the most efficacious training practices would be, and then devise carefully controlled experimental studies to test those theories and identify the critical interventions, active ingredients and essential learning processes. These critical interventions would then be incorporated into training protocols that could subject to further evaluation and refinement before being more broadly disseminated.

While increased dissemination of the CBT protocols shown to be efficacious in RCTs is a logical and pragmatic solution for the current bottleneck between supply and demand of CBT treatments, such policy initiatives can be accelerated by economic, political and socioeconomic concerns, while ignoring the relative paucity of research available regarding both the effective components of those protocols and efficacious training practices for CBT treatments. The risk is both to proponents of CBT and to our patients: by hastily disseminating CBT protocols without robust data concerning how therapist competence is best conceptualized, measured, and enhanced, we risk finding that efficacious treatments are rendered inert in routine practice. Such an outcome, not implausible if policy runs ahead of science, could have deleterious effects for the external validity of CBT, and most importantly, for the well-being of patients we seek to serve.

Training studies comparing training approaches or active ingredients of training can provide valuable information into what provides greatest learning for therapists of varying backgrounds and abilities. In addition, much as qualitative assessments of patients’ experiences of treatment can foster valuable insight into the treatment process (e.g., Hodggets & Wright, 2007), post-training interviews with therapists both attaining competence and failing to do so might also illuminate the strengths and deficits of existing training programs.

5. Conclusion

This review identifies the priorities for future research aiming to increase the availability of CBT by maximizing training effort in the current window of opportunity afforded by social policy. Lack of clear definitions and a lack of specificity regarding methods continue to cloud our ability to process the data we have. Consequently, this article recommends establishing standard terminology and measures for research addressing training, supervision, dissemination and therapist competence. We advocate a shift towards describing dissemination trials by their discreet and specific training interventions and propose implementation of research methodologies that allow more accurate analysis and comparison of training interventions. In addition, we recommend that a more scientific approach to the study of CBT training practices, as has been done in the development and evaluation of CBT treatments, is taken rather than relying on information generated as a by-product of dissemination studies and treatment trials.

Finally, although it is true that we still know little about efficacious training and effective dissemination practices, we have considerable data concerning learning and behavioral change methods. Decades of developing efficacious CBT treatments have provided insight into mechanisms of change and learning; it would be efficient to use this experience in developing CBT treatments to inform the dissemination of those treatments.

References


References marked with an asterisk indicate studies included in Table 1.


