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The Role of Therapist Training in the Implementation of Psychosocial Treatments: A Review and Critique with Recommendations

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Abstract

Evidence-based treatments (EBT) are underutilized in community settings, where consumers are often seen for treatment. Underutilization of EBTs may be related to a lack of empirically informed and supported training strategies. The goals of this review are to understand the state of the literature for training therapists in psychotherapy skills and to offer recommendations to improve research in this area. Results of this review of 55 studies evaluating six training methods indicate that multi-component trainings have been studied most often and have most consistently demonstrated positive training outcomes relative to other training methods. Studies evaluating utility of reading, self-directed trainings, and workshops have documented that these methods do not routinely produce positive outcomes. Workshop follow-ups help to sustain outcomes. Little is known about the impact of train-the-trainer methods. Methodological flaws and factors that may influence training outcome and future directions are also reviewed.

Keywords

therapist training; implementation; dissemination; psychosocial treatments

The hope that mental health problems can be successfully ameliorated is supported by the availability of an increasing number of psychosocial treatment approaches with established efficacy (e.g., Silverman & Hinshaw, 2008). For example, efficacious treatment programs have been reported to address developmental disorders, behavioral and emotional disorders, substance abuse, eating disorders, personality disorders, and psychotic disorders, among others (e.g., Eyberg, Nelson, & Boggs, 2008; Scogin, Welsh, Hanson, Stump, & Coates, 2005). However, these approaches continue to be underutilized in community settings (Street, Niederehe, & Lebowitz, 2000) where millions of consumers receive mental health services

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each year (National Advisory Mental Health Council, 2001[NAMHC]; Ringel & Sturm, 2001).

Recognition of underutilization has led expert groups and professional organizations to advocate for the dissemination, implementation, and testing of evidence-based treatments (EBT) in community settings (e.g., NAMHC, 2001). Several clinical initiatives have been launched and substantial federal funding has been invested to disseminate EBTs (e.g., National Registry of Evidence-Based Programs and Practices, <http://www.nrepp.samhsa.gov/>, National Child Traumatic Stress Network, www.NCTSN.org). Some have even encouraged or mandated the use of EBTs within state Medicaid programs (Reed & Eisman, 2006). Advances in technology have made training protocols easily available online (e.g., <http://www.behavioraltech.com/ol/>; <http://tfcbt.musc.edu/>). States also have invested funding and resources to disseminate EBTs to community therapists. For example, the state of California established a clearinghouse of EBTs (<http://www.cachildwelfareclearinghouse.org/>) and the New York State Office of Mental Health has launched an initiative to train therapists in cognitive behavioral therapy (<http://www.omh.state.ny.us/omhweb/ebp/>). Within these implementation efforts training has been extensively conducted across various treatment modalities, settings, and therapist¹ groups (McHugh & Barlow, 2010).

The field's current focus on EBT dissemination has highlighted both the need for effective implementation strategies, and the lack of data on knowledge transfer and implementation topics (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; Gotham, 2004). In general, significant implementation difficulties and a lack of demonstrated clinical success have been reported in transitioning treatments from university to community settings (National Institute of Mental Health, 1998; President's New Freedom Commission on Mental Health, 2003). Ironically, the field lacks comprehensive empirical guidelines to support the transfer of EBTs to community therapists. Little empirical attention has been paid to those who provide community care and how to most effectively train them to implement psychosocial interventions, including EBTs (Carroll, 2001; Luborsky, McLellan, Diguier, Woody, & Seligman, 1997).

Scope and Definitions of Evidence-Based Treatment

More than 10 years ago, the American Psychological Association's Division 12's (Clinical Psychology) Task Force on Promotion and Dissemination of Psychological Procedures (1995) offered recommendations to promote efforts to define, study and evaluate, teach, and disseminate EBTs (then labeled empirically validated treatments and renamed empirically supported treatments; Chambless et al., 1998; Chambless et al., 1996). These recommendations included increasing the availability of empirically supported interventions, enforcing guidelines for their documentation, and distributing information about effective services to professionals, the public, and the media. The Division 12 Task Force spurred a movement toward EBT, which has included enthusiasm, controversy and concern. Notable were concerns related to a possible over-focus on manualized treatments and under-appreciation of common factors and patient diversity. More recently, and perhaps in response, the American Psychological Association's Presidential Task Force on Evidence-based Practice (American Psychological Association Presidential Task Force on Evidence-based Practice, 2006) broadened the conceptualization of this topic and offered the following definition: "Evidence-based practice in psychology (EBPP) is the integration of best available research with clinical expertise in the context of patient characteristics, culture, and preferences." (p. 273). Even

¹The term "therapist" is used broadly and is meant to include professionals who provide psychological services to populations with clinically-significant mental or behavioral health difficulties. It is meant to include counselors, clinical social workers, psychologists, psychiatrists, and all other mental or behavior health clinicians.

more recently Kazdin (2008) defined EBTs as interventions or techniques that have “produced therapeutic change in controlled trials” (p. 147), and evidence-based practice (EBP) as a broader term referring to “clinical practice that is informed by evidence about interventions, clinical expertise, and patient needs, values, and preferences, and their integration in decision-making about individual care” (p. 147). These definitions extend prior descriptions that emphasize related concepts, but also incorporate alternative approaches and guidelines (Spring, 2007). The breadth of definitions reported is apparent in several recent studies and reviews (Luongo, 2007; Schoenwald, Kelleher, & Weisz, 2008) and just what constitutes an EBT is still a matter of debate.

A common thread to the debate is that regardless of exactly what constitutes an EBPP, EPT, or EBP, there is a continuing need to transfer science into practice, which will require effective and efficient methods for transferring to therapists the skills and knowledge needed to conduct empirically informed psychotherapies (Fixsen et al., 2005; Gotham, 2004). Similarly, all psychotherapies are “soft technologies” (Hemmellgarn, Glisson, & James, 2006), meaning that they are malleable and rely extensively on people (therapists), which further complicates their implementation.

Models for Dissemination of EBT

In conjunction with refinements in these definitions, models or conceptual frameworks for the dissemination and implementation of EBTs have been proposed to guide efforts to change existing service systems and enhance overall outcomes for consumers of mental health services. The National Institute of Mental Health (2002) has defined dissemination as “the targeted distribution of information to a specific audience,” and has defined implementation as “the use of strategies to introduce or adapt evidence-based mental health interventions within specific settings” (PA-02-131; p. 1). These concepts have been examined and incorporated in models designed to guide the communication of new technologies using various methods or strategies (e.g., Berwick, 2003; Gotham, 2004; Greenhalgh, Robert, MacFarlane, Bate, & Kyriakidou, 2004). All of these models acknowledge the importance of understanding and enhancing the methods by which new knowledge can be conveyed and incorporated for routine application.

Researchers within industrial organizational psychology have offered conceptual frameworks for transferring knowledge, which vary in their complexity (for an overview see Machin, 2002), though many summarize the transfer process into three time frames: what happens before, during, and after training. Ford and colleagues maintain that three factors impact learning, retention, generalization, and maintenance of skills: trainee characteristics (before), training design (during), and work environment or organizational setting (after; Baldwin & Ford, 1988; J. K. Ford & Weissbein, 1997). Trainee characteristics include factors such as previous knowledge and skill, ability, motivation, self-efficacy, and personality. Training design factors are the focus of this review and include the structure and format of training, incorporation of learning principles into training, sequencing of training, and the job relevance of training content. Work environment factors include constraints and opportunities to use the trained skills, support from supervisors and peers, and organizational culture and climate. Successful transfer of training to the work setting is not solely determined by any one factor. Instead, transfer of training is a complex, multi-level process. This review will focus on training design as one part of a larger process because the successful transfer of psychosocial innovations, including EBTs from university or research clinics to community clinics, will require an understanding of the effectiveness of current training methods for assisting post-graduate professionals to implement new treatment approaches.

The Role of Training in EBTs

Community therapists and administrators have acknowledged a need for initial training as well as ongoing support, consultation, and supervision in EBT, but, at the same time, acknowledge the lack of time, support, and opportunities for learning new skills (Essock et al., 2003; Herschell, Kogan, Celedonia, Gavin, & Stein, 2009). Concerns have also been raised about the relevance and utility of existing educational programs for professional psychologists (see Sharkin & Plageman, 2003). Recent guidelines for training practitioners in the use of EBTs emphasize the importance of using specialized techniques designed to engage, train, and support practitioners in their use of new technologies, such as a review of treatment manuals, exposure to intensive didactic training workshops, and participation in closely supervised training cases (Bruns et al., 2008; Hyde, Falls, Morris, & Schoenwald, 2003). To further our understanding of this objective, the goals of this review are to understand the state of the literature for training therapists in psychotherapy and to offer recommendations to improve research in this area.

Previous Reviews and Context for Present Review

Previous reviews of therapist training studies have indicated that there is little empirical evidence to confirm that training improves therapist skills to a level that results in competent administration of treatment (e.g., Alberts & Edelstein, 1990; J. D. Ford, 1979). Instead, skill acquisition is assumed rather than confirmed (Alberts & Edelstein, 1990; J. D. Ford, 1979). Just as Alberts and Edelstein (1990) who reviewed studies from 1979 to 1990 picked up where Ford left off (reviewed 1960 to 1978), the current review begins where Alberts and Edelstein left off (1990) and continues through February 2010.

Alberts and Edelstein's review (1990) included studies divided into two clusters, training in "traditional," process-related skills (e.g., empathy, attending, open-ended questions) and training in "complex verbal skill repertoires" (e.g., clinical assessment, case conceptualization). Participants most often were graduate students in clinical, counseling, or school psychology and techniques were studied within the context of the larger graduate training program. Reviewed studies focused on training discrete skills. A combination of didactic instruction, modeling, feedback, and practice (rehearsal) were important for skill acquisition. Methodological flaws originally noted by Ford (1979), continued to be mentioned as problematic in the Alberts and Edelstein review (1990), which included a lack of validated dependent variables and control groups, as well as little attention devoted to interactions among therapist characteristics, target behaviors, training techniques, and instructor's credentials. Additional concerns included use of single-method measurement strategies, lack of *in vivo* skills assessments, limited external validity of skill assessments, and no follow-up evaluations to assess maintenance.

More specific reviews will be highlighted as they apply to specific areas of this review. For example, Miller and Binder (2002) completed a review focused on training issues related to the use of treatment manuals, and Vandecreek and colleagues (1990) completed a review of psychology continuing education. Stein and Lambert (1995) reviewed literature related to the impact of graduate training in psychotherapy on therapist behavior and patient outcome. In that same year (1995) Holloway and Neufeldt reviewed research related to clinical supervision. Similar to Alberts and Edelstein (1990), this review is meant to provide a more comprehensive evaluation of the broad therapist training literature. Just as treatment techniques have advanced in the last 15 years, training strategies have expanded, which likely is due, in part, to the increased interest in dissemination of EBT to community settings. This expansion is reflected in the current review by the inclusion of studies that include community-based clinicians rather than graduate-level trainees as Alberts and Edelstein included (1990).

Methods

Search Strategy

Relevant studies were identified by using four computer-assisted searches: Psychological Abstracts (PsycINFO), Educational Resources Information Center (ERIC) database, Social Science Citation Index (SSCI), and Medline. Several keywords and authors were used as search terms such as adherence, community, community clinician, community therapist, continuing education, dissemination, empirically supported, evidence-based, evidence-based treatment, fidelity, implementation, interventions, mental health, psychotherapy training, substance abuse, training, transporting, and workshop. Broad terms were used in an effort to be as inclusive as possible. Similar to Greenhalgh, Robert, MacFarlane, Bate, and Kyriakidou (2004), a snowball method (searching references of included articles) produced a large number of valuable citations that were not obtained by other search mechanisms. Multiple studies were identified within specific areas using the snowball method such as substance abuse, training community psychiatric nurses to deliver psychosocial interventions for patients with schizophrenia and their families, residential care facilities for persons with mental retardation, and motivational interviewing. Extreme care was taken to be as thorough as possible; however, it is possible that some studies were missed, in part, because of the lack of consistency in terms used to describe training-related constructs and the diversity of training studies. For example, some studies included in this review were part of a larger implementation effort so that training-related hypotheses were one of multiple questions addressed (e.g., Hunter et al., 2005; Squires, Gumbley, & Storti, 2008). Also, training studies were found across a variety of treatment areas (e.g., child, adult, substance abuse, mental health), which complicated the search.

Inclusion and Exclusion Criteria

Given that the aim of this review was to understand therapist training within the mental health field from 1990 (publication date of Alberts & Edelstein review article) through February 2010, we included studies that focused on training mental health providers (e.g., social worker, psychologist, psychiatrist, nurse, support staff) in a mental health intervention (e.g., Cognitive Behavior Therapy [CBT], Dialectical Behavior Therapy [DBT], psychoeducation) for a clinical population (e.g., DSM-IV diagnosis, substance abuse/addictions, child maltreatment) within the time frame of 1990 to February 2010. Studies focused on training other professionals to apply mental health techniques to a general population were excluded (e.g., teacher training in problem solving to help general classroom). Similarly, given the focus on skill-building, studies that focused on training directed towards mental health policies and practices in schools (e.g., in-service training to facilitate classroom inclusion; Johnson & Knight, 2000) were excluded. Studies that included only medical residents, primary care physicians, or graduate students also were excluded given that the intent was to characterize the training of community-based mental health providers. Considering that the focus of this review was on training (not treatment) we included studies that implemented any psychosocial treatment, regardless of its evidence base. Finally, we included only published empirical studies. Unpublished dissertations, conceptual articles, and recommendation papers were excluded.

Classification Criteria—To provide a measure of methodological rigor, studies in this review have been classified according to Nathan and Gorman's (2002, 2007) criteria, similar to a special section in the *Journal of Clinical Child and Adolescent Psychology* (2008, Volume 37, Number 1). Nathan and Gorman developed these criteria as a tool for evaluating the methodological rigor of research studies. Studies are classified as one of six types.

Type 1 studies are the most rigorous. They involve a randomized, prospective clinical trial. These studies use comparison groups, random assignment, blind assessments, clear inclusion and exclusion criteria, state-of-the-art diagnostic methods, sufficient sample size and power,

and clearly described statistical methods. Type 2 studies are clinical trials in which an intervention is made, but some aspects of the Type 1 study requirement are missing. They have some significant flaws (e.g., no blind assessment, lack of random assignment, short period of observation) but are not necessarily fatally flawed. Type 2 studies do not merit the same consideration as Type 1 studies, but often do provide useful information. Type 3 studies are clearly methodologically limited. This group includes studies that are uncontrolled; use pre-post designs, and retrospective designs. Type 3 studies are often aimed at providing pilot data and include case-control studies, open treatment studies, and retrospective data collection. Type 4 studies include reviews with secondary data analysis such as meta-analysis. Type 5 studies are those that are reviews without secondary data analysis. Type 6 studies include case studies, essays, and opinion papers (Nathan & Gorman, 2002, 2007). Only Types 1 through 3 were included in this review.

To ensure accuracy of classifications, 2 independent raters coded each study. Classification agreement was noted for 89% of the studies (49 out of 55). When an inconsistency was noted (in 6 of the 55 studies; 11%) or questions arose, each was reviewed, discussed, and consensus was obtained with a third rater in order to correctly classify the study. Similarly, to ensure accuracy of information presented in the tables, each study was reviewed and coded by the primary author. Afterward, a second, independent rater checked 100% of the table information. When inconsistencies were noted, each was reviewed, discussed, and consensus was obtained.

Results

Summary of the Literature: Designs and Types of Investigations

Fifty-five studies evaluating training techniques or methods were identified. Methodologies of these studies were diverse, and included both quantitative and qualitative designs that range from single-subject designs to randomized control trials. As is demonstrated in Tables 1 through 6, each of which includes studies of different training methods (i.e., written materials [Table 1], self-directed training techniques [Table 2], workshops [Table 3], workshop follow-ups [Table 4], pyramid training [Table 5], multicomponent training packages [Table 6]), only a few of the 55 studies incorporated what would be considered rigorous methodologies. For example, 14 (25%) studies used a group comparison, 29 (53%) used a pre/post, 5 (10%) used a single-subject, and 5 (10%) used a survey design. Two (4%) studies used alternative designs (e.g., time series). Nine of the 14 (64%) comparison studies used random assignment. Of all the included studies, 19 (35%) included a follow-up, 24 (44%) utilized a multi-method assessment strategy, and 26 (47%) included standardized measures. In addition, study sample sizes range from 6 to 3,558 depending on the methodology employed (e.g., single subject versus survey research) and typically were small for group comparison studies (i.e., approximately 20 per group). According to Nathan and Gorman's (2002,2007) classification system, only 6 (11%) studies were considered Type 1 studies; 20 (36%) were considered Type 2, and 29 (53%) were considered Type 3 studies. Similar to problems noted in previous reviews (e.g., Alberts & Edelstein, 1990; J. D. Ford, 1979), these studies suffer from several limitations including: a) a lack of control groups, b) no measurement of training integrity, c) poor measurement methods, d) short follow-ups, and e) lack of in-vivo assessments. Additional methodological limitations included a lack of random assignment, standardized measurement, follow-up assessments, and patient-level data. Consistent with our focus on training community therapists to use an EBT, diverse treatment approaches are included that focused, for example, on substance abuse treatment for adults, motivational interviewing, residential care for persons with mental retardation, psychosocial and CBT interventions for patients with schizophrenia and their families, and time-limited dynamic psychodynamic therapy.

Investigators have evaluated a variety of different training approaches, methods, and issues. Some have investigated the utility of specific training techniques such as workshops and

computer-assisted training (e.g., S. E. Anderson & Youngson, 1990; Byington, Fischer, Walker, & Freedman, 1997; Caspar, Berger, & Hautle, 2004). Others have investigated the effectiveness of extended training curriculums with multiple components (e.g., Bein, Anderson, Strupp, Henry, Sachacht et al., 2000; Brooker & Butterworth, 1993; Henry, Strupp, Butler, Schacht, & Binder, 1993). Investigators also have examined whether individuals with diverse training backgrounds can implement mental health techniques (e.g., Brooker et al., 1994; Hawkins & Sinha, 1998) and the importance of treatment adherence and competence (e.g., Barber, Crits-Christoph, & Luborsky, 1996; Huppert et al., 2001; Multon, Kivlighan, & Gold, 1996).

What follows is a summary of the key details and results of studies that have been conducted to examine six different training methods. A summary of the specific details of the studies in each section is shown in Tables 1–6. A study was included in multiple tables if the study's aims addressed more than one topic area. For example, Sholomskas et al. (2005) evaluated the effectiveness of written materials (Table 1), self-directed training (Table 2), and workshop follow-ups as training techniques (Table 4); therefore, this study was included in each of the three mentioned tables. The discussion section more definitively reviews the overall findings, key limitations, and practice and research implications of this literature.

Treatment Manuals and Written Materials

Description of Studies—Five studies were reviewed that focused on the utility of simply reading materials (e.g., a treatment manual, see Table 1). One of these studies was considered a Type 1 study; two were considered Type 2 studies, and two were considered Type 3 studies. Three of these studies were group comparisons in which sample sizes ranged from 74 to 174 ($M = 109$), of which two included random assignment. One study used a pre-post comparison and the fourth study used a single-subject design. Four of the five studies included follow-up assessments after training (Dimeff et al., 2009; Ducharme & Feldman, 1992; Kelly et al., 2000; Sholomskas et al., 2005). Studies examined a variety of assessment domains (e.g., knowledge, skills) using behavior observation (3 of 5 studies) and self-report (4 of 5 studies) methods. Two studies included standardized assessment measures that had acceptable psychometric ratings.

Summary of Findings—Despite variations in study quality, findings were consistent in demonstrating that reading treatment manuals and materials may be necessary, but not sufficient, for skill acquisition and adoption of a psychosocial treatment (e.g., Dimeff et al., 2009; Ducharme & Feldman, 1992; Kelly et al., 2000; Rubel, Sobell, & Miller, 2000). That is, these studies found that reading often resulted in knowledge changes, but the changes were short-lived and smaller than those of therapists participating in more intensive trainings (e.g., Sholomskas et al., 2005). Reading may be used as a “first step” to introduce information about a psychosocial treatment, but reading alone does not result in significant changes in skills or treatment mastery, as indicated in Table 1.

Limitations of Studies Reviewed—In the two (Type 2) group comparison studies, reading a manual was compared with training programs that differed both in the modality and number of hours in training, with additional hours being spent in more intensive trainings compared to reading (Kelly et al., 2000; Sholomskas et al., 2005). This pairing makes it difficult to tease out whether group differences were related to the modality or intensity (increased dose) of training. These studies also are limited in that participating therapists were often taking part in larger implementation efforts (e.g., Sholomskas et al., 2005), so it is not known if findings would generalize to other groups of therapists in potentially less innovative settings.

Self-Directed Training Techniques

Description of Studies—This category included seven studies that focused on an individual's ability to acquire information or skills by independently interacting with training materials (e.g., computer, videotape review; see Table 2). Three studies were considered Type 1 studies; one was considered a Type 2 study, and three were considered Type 3 studies. Study sample sizes ranged from 6 (single-subject design) to 3,558 (survey design). Four studies included a group comparison (three with random assignment); one study included pre- and post- testing; one study included only post- testing; and the final study was a single subject, multiple baseline design. Four of the seven studies included follow-up assessments (Dimeff et al., 2009; W. R. Miller, Yahne, Moyers, Martinez, & Pirritano, 2004; Sholomskas et al., 2005). Assessment primarily focused on knowledge and skill using behavior observation and standardized, self-report methods.

Summary of Findings—As shown in Table 2, self-management strategies were rated favorably by learners (Worrall & Fruzzetti, 2009) and found to be a cost-effective method to increase knowledge (e.g., National Crime Victims Research & Treatment Center, 2007; Sholomskas et al., 2005). However, when stringent assessment methods were used, self-management was found to work only for some therapists (e.g., Suda & Miltenberger, 1993) and was only slightly more effective than reading written materials at improving knowledge (W. R. Miller et al., 2004; Sholomskas et al., 2005). One study that reported substantial knowledge increases (National Crime Victims Research & Treatment Center, 2007) also has substantial methodological flaws. The study relied on one, study-developed knowledge questionnaire administered during the web-based instruction. No comparison, randomization, follow-up, or multi-method assessment was completed. Also, of the 9,149 people who began the web-based training, only 3,558 (39%) completed the training; therefore, results should be interpreted cautiously. In contrast, Dimeff and colleagues' (2009) findings favored online training for highest effect sizes in knowledge, competence, and adherence at post and 90-day follow-up in comparison to written materials or workshop training, which was partially attributed to the sophistication of the online training methods. Despite variations in methodological rigor, each of these studies demonstrated some improvements in discrete knowledge or skills; however, many acknowledged that these improvements were slight (e.g., Miller, Yahne et al., 2004) and that self-management strategies can not be used as a solitary training technique. Instead, they are better used within a larger training curriculum that involves expert consultation (Dimeff et al., 2009).

Limitations of Studies Reviewed—While the focus of these studies was similar (i.e., self-directed and motivated instruction), the specific training techniques differed. Dimeff and colleagues (2009) reported on an interactive online training experience for Dialectical Behavior Therapy. Miller and colleagues (2004) focused on the use of reading a treatment manual supplemented with videotape review. The National Crime Victims Research and Treatment Center (2007) focused on the utility of a web-based training program for Trauma-Focused Cognitive Behavioral Therapy. Sholomskas et al (2005) focused on the utility of a web-based training program for Cognitive Behavioral Therapy, and Suda and Miltenberger (1993) studied the impact of instruction, goal setting, self-monitoring, self-evaluation and self-praise on positive staff interactions with consumers. Worrall and Fruzzetti (2009) focused on participants viewing and rating mock Dialectical Behavior Therapy sessions. This variation allows for few conclusions about any one of these methods (e.g., web-based training, manual and videotape review) because there are not enough studies on any one of these topics to draw conclusions. Representativeness of studies also is questionable in that one study in particular (W. R. Miller et al., 2004) intended to determine if training could change therapist behavior under optimal conditions, thus therapists were well motivated and perhaps less representative of a larger group of therapists. Only one of these studies included patients (Suda & Miltenberger, 1993), and

only four included follow-ups (Dimeff et al., 2009; W. R. Miller et al., 2004; Moyers et al., 2008; Sholomskas et al., 2005). The length of time between post-assessment and follow-ups was short (1, 3, 4, 8, or 12 months). The inclusion of client outcome as well as longer follow-ups would strengthen the methodology of these studies and any conclusions that could be drawn from them.

Workshops

Description of Studies—Nineteen studies were reviewed that included an examination of the effectiveness of workshops as a sole training technique (see Table 3). Four studies were considered Type 1 studies, two studies were considered Type 2 studies, and the remaining 13 studies were Type 3. Study sample size ranged from 12 to 3,315 (median = 50). Eleven studies included pre- and post-workshop testing. Another study included a post-test only with retrospective reporting of a pre-assessment. Each of the six group comparison studies randomly assigned participants to different training methods or to a control group. The final study relied on a clinician survey at the end of training as well as review of patient charts. Eight of the nineteen studies (42%) included a follow-up assessment varying from 1 month to up to 5 years after training. Studies examined a variety of assessment domains (e.g., attitudes, knowledge, organizational readiness practice, satisfaction) using predominantly self-report methods, many of which were not standardized ($n = 8$). Seven studies supplemented self-report with behavior observation measures; one study supplemented self-report with chart review. Interestingly, some of the studies that used behavior observation methods used simulated clients as part of their assessment strategy (Baer, Rosengren, Dunn, Wells, & Ogle, 2004; Baer et al., 2009; DeViva, 2006; Dimeff et al., 2009; Freeman & Morris, 1999; W. R. Miller & Mount, 2001b; W. R. Miller et al., 2004). Each study had participants interact with a simulated client (typically an actor); those interactions were audio- or video-recorded and later coded. This assessment strategy offers a practical, yet methodologically rigorous, method for behavior observation assessment of potentially knowledge and skill acquisition as well as treatment adherence (Russell, Silver, Rogers, & Darnell, 2007). Another study included work samples (Moyers et al., 2008).

Summary of Findings—Similar to the research focused on medical and psychology continuing education (Davis et al., 1999; Davis, Thomson, Oxman, & Haynes, 1992), the studies reviewed herein demonstrated that workshop training formats generally do little to change behavior (Saitz, Sullivan, & Samet, 2000). Most often, workshop attendance resulted in increased knowledge, but not significant changes in attitude, application of knowledge, or clinical skills assessed via behavior observation (S. E. Anderson & Youngson, 1990; Byington et al., 1997; Freeman & Morris, 1999; McVey et al., 2005; Rubel et al., 2000). Two studies (both Type 3) found that therapists reported improvements in practice (i.e., case worker assessment of substance abuse, assessment and treatment of suicidal behavior, Gregorie, 1994; Oordt, Jobes, Fonseca, & Schmidt, 2009). Other studies, using more stringent assessment methods, behavior observation (Miller & Mount, 2001) and chart review (Jensen-Doss, Cusack, & de Arellano, 2007), found that training did not impact patient response or provider behavior, respectively. Well-controlled studies by Miller, Yahne and colleagues (Type 1, 2004), Moyer and colleagues (Type 1, 2008) and Chagnon et al (Type 2, 2007) found initial improvements in therapist skill (e.g., increase in motivational interviewing statements) after completion of a workshop; however, over time, skills decreased and were comparable to those in the untrained therapist group four months post training (Table 3). Similarly, Baer and colleagues (2009) found that even though workshop participant's gains were significantly better than a context tailored training group at post, the groups were equivalent at follow-up.

Length of workshop training varied considerably, and there may be a relation between training time and training outcome. For example, Neff et al. (1999) found that one to three hour trainings

were insufficient to produce changes in knowledge, practice, or attitude. Instead, longer trainings produced change, though four-hour sessions yielded the same benefit as a full day training (Neff, 1999), suggesting a possible saturation point for participants. DeViva (2006) found no differences in 3 and 6 hour trainings on the same topic. Some have spent as many as 10 to 15 hours in workshop training with no change in behavior (Byington et al., 1997; Jensen-Doss et al., 2007). Recent training studies (e.g., W. R. Miller et al., 2004; Sholomskas et al., 2005) have shown that increases in skill and knowledge of motivational interviewing techniques may be present immediately following the workshop, but that without ongoing support (e.g., individualized feedback, continued consultation), gains can be reversed (Baer et al., 2009; W. R. Miller et al., 2004).

Limitations of Studies Reviewed—Each study examined the impact of workshop training; however, the techniques that were integrated into the workshop format varied (e.g., didactic vs. roleplay) and the length of each training varied from 1 hour (Neff, 1999) to 15 hours (Byington et al., 1997; W. R. Miller & Mount, 2001a), complicating comparisons across studies. Similar to the other categories of studies, results were compromised due to knowledge tests with unknown psychometric properties and ceiling effects (e.g., S. E. Anderson & Youngson, 1990), low response rates (S. E. Anderson & Youngson, 1990), and a lack of focus on the impact of training on consumers, with two notable exceptions (W. R. Miller & Mount, 2001b; Russell et al., 2007). Another study suffered methodologically from combining instrument development and assessment of knowledge and practice within the same study and reporting on both simultaneously (Byington et al., 1997).

Workshop Supplements (observation, feedback, consultation, coaching)

Description of Studies—Ten studies were reviewed that focused on the effectiveness of workshop follow-ups (see Table 4). Two studies were considered Type 1 studies, four studies were considered Type 2 studies, and four studies were considered Type 3 studies. Five studies used a group comparison method; two studies used a single-subject design, two studies used a pre-post test design; and one study used a pre-post with an interrupted time series design. Three of the 5 group comparison studies included random assignment. Five of the 10 studies included a follow-up assessment, which varied in duration from 2 (Milne, Westerman, & Hanner, 2002) to 12 months (Kelly et al., 2000). Studies examined a variety of assessment domains (e.g., knowledge, attitudes, practice, satisfaction) by means of behavior observation and predominantly non-standardized, self-report methods. In many cases, researchers took care to evaluate knowledge, skill, and practice using a multi-method strategy including videotaped role-plays that were coded for skill acquisition (Sholomskas et al., 2005) and actual therapy sessions (Moyers et al., 2008; Schoener, Madeja, Henderson, Ondersma, & Janisse, 2006).

Summary of Findings—Highlighted in Table 4, active, behaviorally-oriented training techniques like those employed in these studies (e.g., feedback, behavioral rehearsal/role-play, supervision) were found to be effective, particularly when used in combination (e.g., Miller et al., 2004). In two well-designed studies comparing workshops to workshops with additional consultation, the additional consultation resulted in more frequent adoption of an innovation (Type 2, Kelly et al., 2000) and improved retention of skill proficiency (Type 1, W. R. Miller et al., 2004). In contrast, Moyers and colleagues found no additional benefit to providing feedback and up to six consultation calls after providers had participated in a two-day workshop (2008).

Ducharme and Feldman (Type 2, 1992) found that a “general case” training strategy, in which multiple examples are chosen and reviewed that represent nearly all possible client responses, produced criterion levels of generalization even without the use of other strategies. Timing also is important in that Hawkins and Sinha (Type 3, 1998) found that expert consultation

became more important as therapists had a reasonable amount of knowledge. Parsons and Reid (Type 2, 1995) found that supervisor feedback enhanced maintenance of staff members' teaching skills. Milne, Westerman, and Hanner (Type 2, 2002) examined the utility of a relapse prevention module and found that in comparison to a group receiving standard training, the relapse prevention group demonstrated greater knowledge and generalization of training across behaviors and clients.

Limitations of Studies Reviewed—Many of the studies included in this category were designed with treatment implementation challenges in mind. Accordingly, they focused on inclusion of 'real world' therapists and compared various practical training methods. One caveat is that the included 'real world' therapists may not be representative of a more general therapist group because those included in these studies were reportedly highly motivated to learn the treatment. For example, in order to participate in the Miller, Yahne, and colleagues study (2004) and learn motivational interviewing, therapists had to travel to Albuquerque, New Mexico for an initial training and then submit work samples of actual client counseling sessions. These study inclusion/exclusion criteria may have excluded more representative community therapists.

Pyramid Training (Cascade, Train-the-trainers)

Description of Studies—Training only supervisors or a select group of staff who then train other staff has been studied by different names including the "Pyramid" (e.g., Demchak & Browder, 1990), "train the trainer" and "Cascading" models (e.g., S. E. Anderson & Youngson, 1990). Three studies focused on this method as is shown in Table 5, all of which were considered Type 3 studies, using single subject, multiple baseline designs and pre- and post-comparisons of training knowledge ($n = 40$) without random assignment. None of these studies included follow-up assessments. The pre- and post-training study utilized non-standardized self-report measures to assess attitudes and knowledge (S. E. Anderson & Youngson, 1990). In contrast, the single-subject design studies used behavior observation methods to assess skills (Demchak & Browder, 1990; Shore, Iwata, Vollmer, Lerman, & Zarcone, 1995).

Summary of Findings—In a single-subject design study, Demchak and Browder (1990) evaluated the utility of training supervisors who were told to replicate training with their staff. Both supervisors and staff improved their skills and patient improvement was evident for both supervisors and staff; however, staff did not evidence as many gains as did their supervisors. In another single subject design study, Shore and colleagues (1995) noticed improvements in staff skill and decreases in client self-injurious behavior following a pyramidal training intervention with supervisors. They also concluded that training supervisors in addition to staff improves staff performance (Shore et al., 1995). Anderson and Youngson (1990) demonstrated increases in staff knowledge about sexual abuse after implementing a cascade training. Studies with large sample sizes and scientifically rigorous designs are needed to determine if the benefits of training only supervisors results in effective training for a broader group of practitioners and their clients.

Limitations of Studies Reviewed—Training a small number of staff seems to be a fairly common "real-world" practice, particularly considering how time- and cost-effective it can be; however, there currently are few data to support its use. Each of the 3 studies reviewed in this category should be considered preliminary or pilot studies. They were either single-subject design studies (Demchak & Browder, 1990; Shore et al., 1995) or extremely methodologically flawed (S. E. Anderson & Youngson, 1990). Available data depicted in Table 5 suggest that there may be improvements in therapist knowledge (S. E. Anderson & Youngson, 1990) as well as client behavior (Shore et al., 1995); however, Demchak & Browder (1990) found better outcomes for supervisors than their staff which lead them to comment that it seemed as if the

training effect was “watered down” from supervisor to staff. Larger, more representative and methodologically rigorous replications that include follow-up assessments are needed to confirm study results and the utility of this training method.

Multi-component Training Packages

Description of Studies—Twenty-one studies focused on the effectiveness of multicomponent training packages (see Table 6) consisting of several training methods in one protocol. Components often include: 1) a treatment manual, 2) multiple days of intensive workshop training, 3) expert consultation, 4) live or taped review of client sessions, 5) supervisor trainings, 6) booster training sessions, and 7) completion of one or more training cases. The studies reported widely different sample sizes (10 to 221). Two studies were considered Type 1 studies, five were considered Type 2 studies, and 14 studies were considered Type 3 studies. Five studies were group comparisons, three of which randomized participants; twelve studies included pre- and post- testing; three studies involved surveys; and one study frequently assessed practitioners and used pre- and post- testing for patients. Four studies included follow-up assessments from 3 months to 2 years after training. Studies examined a variety of assessment domains (e.g., knowledge, attitudes, practice, satisfaction) using predominantly self-report and behavior observation methods.

Summary of Findings—Nineteen of the 21 studies reviewed demonstrated improvements in measured outcomes as is indicated in Table 6. However, it is difficult to generalize study findings given that each study included different training protocols (with different components and timelines) and assessed different constructs. For example, Morgenstern et al. (Type 1, 2001) found that counselors responded well to the CBT content and manualized format of the training and that adequate skill levels were reached. Henry, Strupp, et al., (1993) found that their year-long training program successfully changed therapists’ technical skills in Time-Limited Dynamic Psychotherapy: increases were observed in emphasis on the expression of in-session affect, exploration of the therapeutic relationship, improved participant-observer stance, and open-ended questions. Similarly, Lochman and colleagues (2009) found that their more intensive training condition resulted in substantial treatment benefits for children treated by trained school counselors in comparison to less intensely trained counselors and a comparison condition. The two studies that showed little to no gains were Type 3 studies (Bein, Anderson, Strupp, Henry, Schacht et al., 2000; Brooker & Butterworth, 1993). In a year-long training with multiple components (reading, 100 hours of seminars, small group supervision, audio- and video-tape review) for Time-Limited Dynamic Psychotherapy the majority of therapists did not achieve basic competence in the model (56% did not conduct a case with at least minimal skill; Bein, Anderson, Strupp, Henry, Sachacht et al., 2000). In another study, community psychiatric nurses completing a six-month training evidenced little change in their attitudes about schizophrenia and their preference for behavior therapy over time (Brooker & Butterworth, 1993).

Limitations of Studies Reviewed—Only five of the 21 studies reviewed were group comparisons. The others (including pre-post testing and single subject designs) do not control for therapist maturation effects, which might partly account for better post-training outcomes. Assessment time also might be important. Of those that conducted follow-up assessments, the longest length of a follow-up was one year post training, which limits our understanding of maintenance of training gains and treatment sustainability. Similarly, it is unclear how long or how many cases might be needed for skills to be consolidated. Similar to other groups of studies, many of these have limited generalizability in that only therapists who were experienced and interested in the approach to be trained were included. For example, in one study (Crits-Christoph et al., 1998) therapists were selected to participate by supervisors on the basis of background education and training, letters of reference, and audiotaped samples

of their work, which were rated for quality. Of those who applied for specific treatment trainings, as few as 50% were accepted.

Discussion

This empirical review of 55 studies evaluating six therapist training methods has found that there are differences in the number of studies for specific training methods and their respective effectiveness. Multiple studies have been conducted on multi-component treatment packages (20), workshops (19), and workshop follow-ups (9). Fewer studies have been completed on the utility of pyramid (train-the-trainer) models (3), reading (5), and self-directed trainings (7). Not only have multi-component treatment packages been studied most often, they also have most consistently demonstrated positive training outcomes relative to other training methods. Conversely, studies evaluating the utility of reading, self-directed trainings, and workshops have documented that these methods do not routinely produce positive outcomes. Workshop follow-ups help to sustain outcomes. Little is known about the impact of pyramid or train-the-trainer methods.

The literature is limited by a lack of methodological rigor and multiple “pilot” studies characterized by small sample sizes, limited power, and absent comparison groups, random assignment, standardized assessment measures, and routine follow-up assessments. The inclusion of therapists who may not be representative of those providing services in community agencies also has compromised conclusions that can be drawn within this area of investigation. Few follow-ups have been conducted, and those that have been conducted are generally of short duration. Patient outcomes also are rarely included in studies. Therefore, we are unable to understand treatment sustainability or the impact of training on patient outcomes. Despite significant methodological flaws, what follows is a brief summary of some key lessons learned from this research, including: a) the level of effectiveness for a variety of training methods, b) factors that appear to influence training outcome, c) methodological concerns, and d) recommendations for therapist training and training research.

Effectiveness of Different Training Methods

To date, the most common way to train community therapists in new treatment approaches like EBTs has been to ask them to read written materials (e.g., treatment manuals) or attend workshops. There is little to no evidence that either of these approaches will result in positive, sustained training outcomes (i.e., increases in skill and competence). The most positive result of reading written materials was a slight increase in knowledge. Of the five studies reviewed that examined the utility of reading, none demonstrated increases in significant behavior change or competence. In fact, one study found no differences between those who read versus did not read a treatment manual (Rubel et al., 2000). In terms of workshop attendance, this review confirms what others (e.g., Davis et al., 1999; VandeCreek et al., 1990; Walters, Matson, Baer, & Ziedonis, 2005) have found: while workshop participants sometimes demonstrate increases in skills and (more often) knowledge, workshops are not sufficient for enabling therapists to master skills (Sholomskas et al., 2005), maintain skills over time (Baer et al., 2004; W. R. Miller et al., 2004), or impact patient outcome (W. R. Miller & Mount, 2001a).

Additional information is needed on the effect of self-directed training methods on therapist skills. For example, web-based trainings are cost-effective, convenient, and well liked by participants (National Crime Victims Research & Treatment Center, 2007); however, there is only a small amount of data to support their effectiveness (Dimeff et al., 2009). One study found a 36.3% increase in knowledge after completing a web-based training (National Crime Victims Research & Treatment Center, 2007); however, this finding is based on a Type 3 study with significant methodological flaws. Using more rigorous methodology, Dimeff and colleagues (2009; Type 1) demonstrated increases in knowledge, competence, and adherence

at post and 90-day follow-up using a sophisticated online learning method. In contrast, Sholomskas et al. (2005), a Type 2 study, found that web-based training was only slightly more effective than reading a treatment manual. There simply is not yet enough evidence to draw a conclusion about the utility of this training technique. Additional information on the interactive nature of the online method and other technologies (e.g., podcasts, archived webinars) will be important to gather given their potential broad application.

Workshop follow-ups that included observation, feedback, consultation, and/or coaching have improved adoption of the innovation (Type 2; Kelly et al., 2000), retention of proficiency (Type 1; W. R. Miller et al., 2004), and client outcome (Type 2; Parsons, Reid, & Green, 1993), compared to workshops alone. Essentially, there does not seem to be a substitute for expert consultation, supervision, and feedback for improving skills and increasing adoption. The challenge is that these methods are resource intensive as they require the availability of expert consultation, clinical supervisors, and therapist time, all of which are costly for community-based mental health agencies. The implementation field needs to determine: a) how to sequence learning activities to be cost-effective without compromising training and treatment outcome, and b) how to use technology more effectively. Participants report liking web-based training (e.g., National Crime Victims Research & Treatment Center, 2007); perhaps we can capitalize on technology to increase the availability of expert consultation. Additionally, utilizing cost-effective training methods initially might reduce the amount of expert consultation and supervision needed later. Hawkins and Sinha (1998) found that consultations appeared to be more effective for therapists with a reasonable amount of pre-training knowledge, but this result is tentative given that the methodological flaws of this Type 3 study. If results were replicated, one strategy might be for therapists to complete a web-based training prior to attending a workshop. Once competency knowledge and skill levels were met, that therapist could proceed to participate in conference calls with an expert trainer and other therapists from different agencies as a form of group supervision. Afterward, the therapist could receive individual supervision and expert consultation on selected cases. This type of training approach might minimize costs and maximize the potential for skill acquisition by sequencing training activities, imposing competency standards, and utilizing internet technology.

Pyramid or train-the-trainer training methods also have the potential to be time- and cost-effective; however, this method has received the least amount of rigorous examination, limited to only three studies (S. E. Anderson & Youngson, 1990; Demchak & Browder, 1990; Shore et al., 1995). The ultimate question that remains is that even if effects are watered down from supervisors to therapists, are the improvements for consumers still clinically meaningful. Chamberlain and colleagues currently are conducting a large-scale, prospective study to examine the effects of using a cascading model to transfer components of Multidimensional Treatment Foster Care (NIMH Grant # 060195) from a research setting (The Oregon Social Learning Center) to the foster care system in San Diego. Initially, the original developers of the model will train and supervise staff in San Diego to implement the model. In the second training iteration, the developers will have substantially less involvement. Similarly, Chaffin and colleagues are examining the utility of a Cascading model for implementing in-home family preservation/family reunification services. Providers from a well-trained, model, seed program will serve as implementation agents for sequential implementations at other agencies. (NIMH Grant #001334). Studies like these will contribute to a better understanding of the utility of cascading models as a training technique.

The familiar tone of Bickman's observations (Bickman, 1996) demonstrating that "more is not *always* better" resonates in studies examining the effectiveness of multi-component training packages as a training method. Of the twenty studies in this area, the large majority found positive training outcomes. However, two (Bein, Anderson, Strupp, Henry, Sachacht et al., 2000; Brooker & Butterworth, 1993) studies found that therapists did not achieve even basic

competence in the treatment approach after extended (e.g., year-long) training initiatives. One study (Crits-Christoph et al., 1998) found that only one of three therapies (CBT) demonstrated learning that carried over from training case to training case. This is somewhat disappointing given the substantial resources invested; however, it highlights the need to understand the utility of specific components of these training packages and the ease of training specific approaches.

Additional information is also needed on the methods in which therapists should be trained. Chorpita and Weisz (e.g., Chorpita, Becker, & Daleiden, 2007) have focused on comparing the benefits of training therapists in a modular based treatment versus individual EBTs, which will help to inform this area. As these authors have suggested, perhaps training therapists in one conceptual approach will have broader implications and be well received by therapists rather than training them in multiple EBTs.

Influences on Training Outcome Not Included in this Review

This review focused on the training design component of Transfer of Training Models (Machin, 2002). Essentially the focus was on outcomes of what happens during training; however, the two remaining components of the model, what happens before (therapist characteristics) and after (organizational setting) training, are equally important, which has been highlighted by those implementing EBTs (Chaffin, 2006). For example, Bruns and colleagues' (2008) maintain that a supportive organizational context and clinical supervisors who are trained to supervise EBTs, are critical to the success of EBT implementation.

Therapist Characteristics

Therapist characteristics are often mentioned as key factors in treatment implementation and dissemination. After all, the characteristics of those who receive the training and provide the treatment could affect implementation on multiple levels such as treatment competence (Siqueland et al., 2000) and client outcomes (Vocisano et al., 2004). Most EBTs have been developed by and for doctoral-level clinical professionals (e.g., clinical psychologists, psychiatrists) within defined theoretical orientations (e.g., behavioral, cognitive-behavioral). In contrast, community mental health centers employ primarily masters-level therapists to provide most of the mental health therapy (Garland, Kruse, & Aarons, 2003; Weisz, Chu, & Polo, 2004). Therapists report their theoretical orientation to be "eclectic" (e.g. Addis & Krasnow, 2000; Kazdin, 2002; Weersing, Weisz, & Donenberg, 2002) and that they value the quality of the therapeutic alliance over the use of specific techniques (Shirk & Saiz, 1992).

Small sample sizes and lack of random assignment hinder our ability to determine the degree to which therapist characteristics are important and which characteristics in particular need to be addressed by trainers. Therapists are a diverse group with different learning histories, training backgrounds, and preferences. Understanding more about how to tailor training to maximize learning outcomes for diverse groups will be an important academic endeavor. Studies that randomly assign therapists to different training conditions could control characteristics that are common to research studies, such as high motivation and interest in the treatment approach, while examining factors that could be addressed such as knowledge, caseload size, and supervisor support, each of which has been raised as impacting training results. Examining therapist characteristics seems to be a missed opportunity within the existing research. Much more could be learned if researchers conducted studies of therapists or at a minimum, included moderator analyses in their existing implementation studies.

Organizational Factors—Organizational difficulties are commonly cited in discussion sections and conceptual papers as challenges that have to be overcome in order to implement EBT (e.g., Bailey, Burbach, & Lea, 2003; Fadden, 1997); however, organizational factors are seldom studied. When they are examined, it seems that they are sometimes included at the end

of a study to potentially account for findings (e.g., post study interviews; W. R. Miller et al., 2004; Schoener et al., 2006). Also missing in this literature are multiple studies on how organizational interventions (Glisson & Schoenwald, 2005) could be used to enhance implementation successes. This may be an emerging area of study (e.g., Glisson et al., 2008; Gotham, 2006; Schoenwald, Chapman et al., 2008).

Glisson and colleagues (Glisson, Dukes, & Green, 2006) developed the Availability, Responsiveness, and Continuity (ARC) organizational intervention strategy to improve services in child welfare and juvenile justice systems, which is now being used to support the implementation of Multisystemic Therapy in rural Appalachia (Glisson & Schoenwald, 2005). Similarly, the Addiction Technology Transfer Center of New England has implemented an organizational change strategy, Science to Service Laboratory, in 54 community-based substance abuse treatment agencies in New England (Squires et al., 2008) since 2003.

Clinical Supervision—Finding appropriate training and supervision has been cited as a primary barrier in dissemination of EBT (Conner-Smith & Weisz, 2003; Essock et al., 2003). Extensive reviews have been completed on the methodological limitations of research on clinical supervision (Ellis, Ladany, Krenzel, & Schult, 1996) as well as the efficacy of supervision in training therapists (Holloway & Neufeldt, 1995). The links between clinical supervision and therapist efficacy and treatment adherence have rarely been studied (Ellis et al., 1996; Lambert & Ogles, 1997), with a few notable exceptions (e.g., Henggeler, Melton, Brondino, Scherer, & Hanley, 1997; Henggeler, Schoenwald, Liao, Letourneau, & Edwards, 2002). These existing studies indicate that: a) training supervisors has been shown to facilitate improvements in staff performance, b) supervision increases therapist knowledge and proficiency with complex therapeutic procedures, c) supervisor expertise is positively correlated with therapist treatment adherence, d) supervisor rigidity (over focus on the analytic process and treatment principles) is associated with low therapist adherence, e) supervisor feedback appeared to enhance the maintenance of staff members' skills, and f) supervisors benefit from receiving specific instruction on how to supervise others in addition to instruction on treatment content. Even fewer studies have examined the relation of therapist performance and client outcome to clinical supervision (Holloway & Neufeldt, 1995). A better understanding of how supervisors should be trained and included in the implementation process is needed.

Methodological Concerns

Lack of Theory to Drive Implementation Research—This emerging area of research appears to be suffering from a lack of theory-driven studies. Researchers (Glisson & Schoenwald, 2005; Gotham, 2004) have highlighted the value in understanding the complex environment of which these training efforts are a part. Despite these recommendations, there remains a lack of systematic investigations tied together by a strong theoretical framework. Perhaps there is value in looking to other disciplines with similar missions to understand potentially relevant theoretical frameworks. For example, the medical field has tried to implement evidence-based practices. The field of behavioral health may benefit from incorporating organizational theories from this work such as complexity science adaptive systems (R. A. Anderson, Crabtree, Steele, & McDaniel, 2005; Scott et al., 2005).

Uneven Implementation—This literature seems to be largely composed of a few significant dissemination/implementation efforts within specific topic areas such as behavioral family therapy for schizophrenia, substance abuse treatments including motivational interviewing, DBT, and behavioral interventions for individuals with developmental disabilities in residential treatment facilities. Considering that studies on these topics are dominant within a small implementation literature, generalizations across treatment approaches are difficult and

questionable. For example, it is unclear if results from training studies focused on implementing family therapy for schizophrenia might be applicable to training studies focused on implementing motivational interviewing. Perhaps the method and dose of training necessary for adequate skill acquisition (competence in a treatment) is specific to each treatment. More intensive treatment approaches and/or those that require the use of significantly different skills than a therapist's current skill set may require more intensive training methods or doses than less intensive treatment approaches and/or those that are similar to therapists existing skill sets.

Alternatively, our observation that the literature is dominated by a few significant dissemination/implementation efforts may be due to the snowball search method employed. The reference section for each identified article was reviewed for the possible inclusion of referenced studies in this review. To guard against this potential bias, several keywords and databases were used, as indicated in the methods section of this paper. Also, all relevant articles reference sections were reviewed, even those that were not included in this review (e.g., reference sections of conceptual papers). Therefore, however plausible, it appears unlikely that the snowball search method biased the selection of studies for inclusion in this review.

Measurement of too few constructs—As previously noted, trainers often seek to improve knowledge and skill; however, knowledge acquisition appears to be easier to demonstrate and is more commonly assessed in comparison to skill acquisition. A few studies that have assessed both knowledge and skill have found that these constructs do not always increase at the same rate nor do they always positively correlate. Freeman and Morris (1999) found statistical significance was demonstrated on a knowledge measure, but not on a clinical vignette where the application of knowledge had to be demonstrated. Similarly, Byington et al. (1997) found that knowledge improvements were evident, but improvements were not evident on applying concepts. Reporting only knowledge can lead to a more optimistic or skewed (Baer et al., 2009) view of training outcome than is possibly accurate.

Exclusive Reliance on Therapist Self-report—Therapist self-report is commonly used to evaluate response to training; however, studies that have examined the validity of therapist self-report have found that therapist self-reports of their own behavior (e.g., clinical proficiency) and patient improvements were more optimistic when compared with behavior observations (Gregorie, 1994; W. R. Miller & Mount, 2001b; W. R. Miller et al., 2004). Behavior observation ratings present challenges to studies (e.g., cost, time, sample adequacy), but poor concordance between therapist and observer ratings suggest that therapist reports may be a supplement to, but not substitute for, observer ratings (Carroll, Nich, & Rounsaville, 1998, p. 307). In one study by Carroll et al. (2000), 741 sessions were rated by a therapist and an independent rater. For 71% of those sessions, therapists' ratings were higher (more optimistic) than the independent raters, 26% of ratings were identical, and 6% of ratings were higher for independent raters than therapists.

Lack of Rigor in Study Design and Scope—As mentioned previously, the multiple methodological flaws limit the conclusions that can be drawn from these studies. There also is significant heterogeneity among therapists, training methods, training protocols, interventions trained, and constructs assessed. All of this variability combined with a lack of methodological rigor in completed studies significantly complicates this area of inquiry. While this review sought to organize the literature in a meaningful way by using an established classification system (Nathan and Gorman, 2002, 2007), the categorization of studies should not be treated as sacrosanct. Nathan and Gorman's classification system is not the only system available for classifying research methodologies (e.g., Bliss, Skinner, Hautau, & Carroli, 2008); however, it is the most comprehensive and widely disseminated system with regard to rank ordering research methods by the degree of scientifically regarded rigor. For example,

Bliss and colleagues (2008) describe different research methodologies, but do not rank order them.

Research Directions

We are just beginning to understand how to train community therapists in psychosocial treatment skills. Thus far, some methods appear to more effective in changing knowledge and skill (e.g., multi-component training packages, feedback, consultation, supervision) than others (e.g., reading a treatment manual, attending workshops). The former methods are notable for their individualized approach, although it should also be noted that these methods have other requirements or limitations (e.g., time, cost, intensity). Few studies have *directly* compared different methods, which may be one of the main directions for further work. One key question is, what is the most efficient method in order to achieve initial therapist *skill acquisition*. Perhaps an even more important question is whether it is necessary to administer ongoing training and consultation (feedback) in order to achieve therapist *adoption*. An ongoing study by Chaffin and colleagues (NIMH Grant #065667) is evaluating the role of ongoing fidelity monitoring on the implementation of an EBT at the state level. Results may help to determine whether this component is essential in maintaining good adherence to a treatment model and ultimately improved client outcome. Similar research might also examine the benefits of different training activities, such as supervisor training or use of live coaching/consultation.

Complex, but important questions originally proposed in the review by Ford (1979) continue to remain unanswered, including: a) What is the minimal therapist skill proficiency level that could serve as a valid cutting point for predicting success or failure in training?, b) Are there certain complex interpersonal skills that underlie treatment approaches that should be considered prerequisites for training?, and c) Is there a way to match trainees with a training method to produce better training outcomes?. However, even simpler questions remain such as: d) What educational level (e.g., M.A./M.S., M.S.W., Ph.D.) is necessary to be able to benefit from training?, e) What is the impact of therapist training on client outcomes?, f) How well do trained skills generalize from training cases to ‘real-world’ clients?, g) Is the impact of training transient or long-term?, and h) what program/agency or organizational mechanisms/structures/resources are needed to maximize the likelihood of successful therapist acquisition and adoption of a psychosocial treatment? To address some of these unanswered questions, Kolko and colleagues are currently completing a randomized effectiveness trial (NIMH Grant # 074737) to understand the potential benefits of training therapists who are diverse in background (BA vs. MA/MS/MSW) and service setting (in-home, family-based, outpatient) in one EBT for child physical abuse, Alternatives for Families: A Cognitive Behavioral Therapy. This same study will provide information on therapist knowledge, skills, attitudes, real-world practices, and the impact of these factors on family outcomes. It also will provide information on supervisor and organizational characteristics that impact implementation over time. Perhaps these efforts as well as some of those included in this review are reflective of a shift toward applying increasing rigorous methods to the study of psychosocial treatment implementation. Notable is that 5 of the 6 studies included in this review that were rated as a Type 1 study were published after 2004 (Baer et al., 2009; Dimeff et al., 2009; Lochman et al., 2009; W. R. Miller et al., 2004; Moyers et al., 2008).

In summary, surprisingly little research has been conducted to evaluate methods for training therapists in implementing a broad array of psychotherapy techniques. Clearly, there is a need to develop and test innovative and practical training methods. Research of training methods should move beyond examinations of workshop training into developing and testing training models that are innovative, practical, and resource effective. Large-scale, methodologically-rigorous trials that include representative clinicians, patients, and follow-up assessments are necessary to provide sufficient evidence of effective training methods and materials. Without

such trials, the field will continue to try to disseminate evidence-based treatments without evidence-based training strategies.

Ultimately, the current national focus on dissemination requires researchers to examine two issues together: 1) how well can community therapists be trained to effectively retain and implement new psychotherapy skills and knowledge and 2) does the application of these new skills and knowledge increase positive outcomes for clients when delivered in community settings. Attention to the integration of these complementary objectives will hopefully promote advances in training technologies that can play a significant role in promoting advancing the mental health competencies of community therapists and enhancing the quality of care delivered in everyday practice settings. Ultimately, just as “Evidence-based medicine should be complimented by evidence-based implementation” (Grol, 1997), so too should evidence-based psychosocial treatments be complimented by evidence-based implementation.

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Table 1

Summary of Studies Examining the Effectiveness of Written Materials (e.g., treatment manuals) as a Training Method

Nathan & Gorman (2002) Criteria										
	Author(s)	Sample	Design	Measurement Method			Findings & Comments			
				Type	Random Assign	# and Primary Comparison Groups				
								Follow-up	Domain	Type
								Standardized measures with psychometrics		
1	Dimeff et al. (2009)	n = 174 drug and mental health treatment providers	Group Comparison	Yes	3: 1. Manual 2. Online training 3. Instructor led 2-day workshop	1 and 3 months (30 and 90 days)	IA, C, S, Sat K, BO, SR	No	2>3>1 Relative to other conditions, those who reading the treatment manual had smaller improvements in knowledge, self-efficacy, competence, and adherence and lower satisfaction	
3	Ducharme & Feldman's (1992) study 1	n = 9 direct care staff	Single-subject multiple baseline	NA	0	6 months	G, S	BO	No	Written material had little effect on skill
2	Kelly et al. (2000)	n = 74 AIDS Service Organizations directors	Group comparison	Yes	3: 1. Manual, 2. Manual+2-day workshop, 3. Manual+2-day workshop + follow-up consultation	6 and 12 months	O, P	SR	No	Condition 1 resulted in the least frequent adoption of the intervention; Condition 3 resulted in more frequent adoption of the intervention 3>2>1
3	Rubel et al. (2000)	n = 44 clinicians and researchers	Pre/Post	No	0	None	K, S	SR	Yes	No differences in those who read versus did not read the treatment manual
2	Sholomskas et al. (2005)	n = 78 full-time, substance abuse counselors	Group Comparison	No	3: 1. Manual, 2. Manual + website, 3. Manual + didactic seminar + supervised casework	3 months	F, I, K, P, S	BO, SR	Yes	Slight improvements in knowledge, adherence, and skill after reading; improvements did not near criterion mastery levels 3>2>1

Note. Measurement domains: A = Attitudes, C= Confidence, F = Treatment Fidelity or adherence; G = Generalization; I = Implementation Difficulty or Barrier – Anticipated or Actual; K = Knowledge, O = Organizational Resources and Characteristics, P = Practices or techniques used, S = Skills/competence, Sat = satisfaction/acceptability, Measurement Types: BO = Behavior observation, SR = Self-report.

Table 2

Summary of Studies Examining the Effectiveness of Self-directed Training Techniques (e.g., computer assisted, video review) as a Training Method

Nathan & Gorman (2002) Criteria	Author(s)	Sample	Design	Measurement Method					Findings & Comments		
				Type	Random Assign	# and Primary Comparison Groups	Follow-up	Domain		Type	Standardized measures with psychometrics
1	Dineff et al. (2009)	n = 174 drug and mental health treatment providers	Group Comparison	Yes	3: 1. Manual 2. Online training 3. Instructor led 2-day workshop	1 and 3 months (30 and 90 days)	IA, C, K, S, Sat	BO, SR	No	2>3>1 Though sometimes comparable to other conditions, findings favored online training for highest effect sizes in knowledge, competence, and adherence at post and 90-day follow-up	
1	Miller, Yahne et al. (2004)	n = 140 substance abuse counselors	Group Comparison	Yes	5: 1. Workshop, practice feedback, 2. Workshop + individual coaching sessions, 3. Workshop + individual coaching, feedback + coaching, 4. Workshop + control of self-guided training	4 and 8 months	K, P, S	BO, SR	Yes	Manuals and videotape insufficient for behavior change; ongoing support is necessary for maintenance of gains 4>2>3>1>5	
1	Moyer et al. (2008)	n=129 behavioral health providers	Group Comparison	Yes	3: 1. Workshop 2. Workshop + feedback + consult calls 3. Waitlist control of self-guided training	4, 8, and 12 months	S	BO	Yes	The addition of feedback and consult calls to the workshop did not result in greater performance; skills declined by the 4 month follow-up; Self-directed techniques did not result in skill improvement. (1=2)>3	
3	National Crime Victims Research and Treatment	n = 3,558 mental health professionals	Pre/Post	No	0	None	K, Sat	SR	No	36.3% overall increase in knowledge; high satisfaction	

note. Measurement domains: A = Attitudes, C = Confidence, F = Treatment Fidelity or adherence, G = Generalization, I = Implementation Difficulty or Barrier – Anticipated or Actual, K = Knowledge, S = skills/competence, Sat = satisfaction/acceptability; Measurement Types: BO = Behavior observation, SR = Self-report.

Table 3

Summary of Studies Examining the Effectiveness of Workshops as a Training Method

Nathan & Gorman (2002) Criteria	Author(s)	Sample	Design	Measurement Method			Findings & Comments		
				Random Assign	# and Primary Comparison Group(s)	Standardized Measures with psychometrics	Follow-up	Domain	Type
3	Anderson, & Youngson (1990) part 1	n = 40 senior clinical staff	Pre/Post	No	0		None	A, K	SR
1	Baer et al. (2009)	n = 144 community counselors	Group Comparison	Yes	2: 1. 2-day workshop 2. context tailored training		3 months	K, OR, S, Sat, SP	BO, SR
3	Baer et al. (2004)	n = 22 clinicians	Pre/Post	No	0		2 months	S	BO, SR
3	Byington, et al. (1997)	n = 50 rehabilitation and general counselors	Pre/Post	No	0		None	K, S	SR
2	Chagnon et al (2007)	n = 78 helpers serving youth clientele	Group Comparison	Yes	2: 1. Training, 2. Control		6 months	A, K, S	SR
2	DeViva (2006)	n = 60 mental health professionals and students	Group Comparison	Yes	2: 1. 3-hour workshop, 2. 6-hour workshop		None	F, O, Sat	BO, SR
1	Dimeff et al. (2009)	n = 174 drug and mental health	Group Comparison	Yes	3: 1. Manual		1 and 3 months (30)	IA, C, K, S, Sat	BO, SR

Nathan & Gorman (2002) Criteria	Author(s)	Sample	Design	Measurement Method				Findings & Comments			
				Type	Random Assign	# and Primary Comparison Group(s)	Follow-up	Domain	Type	Standardized Measures with psychometrics	
		treatment providers				2. Online training 3. Instructor led 2-day workshop	and 90 days)			satisfaction, and demonstrated skills comparable to online training, though online training knowledge gains were significantly higher than workshop	
3	Freeman & Morris (1999)	n = 12 CPS workers	Pre/Post		No	0	3 months	K, S	BO, SR	No	Training improved knowledge, but not skills
3	Gregoire (1994)	n = 37 child welfare workers	Post-test w/retrospective reporting for pre-		No	0	None	A, P	SR	No	Positive impact on attitudes and self-report practice change
3	Jensen-Doss et al. (2007)	n=66 mental health practitioners, 84 youth	Pre/Post		No	0	3 months	A, P	SR, CH	Yes	Training improved therapist attitudes about the treatment, little impact on behavior
3	McVey et al. (2005)	n = 3,315 health care practitioners and educators	Pre/Post		No	0	None	C, K	SR	No	Increases in perceived knowledge and confidence
3	Miller & Mount (2001)	n = 24 counselors	Pre/Post		No	0	4 months	A, F, I, P, S	BO, SR	Yes	Training did not impact patient response
1	Miller, Yahne et al. (2004)	n = 140 substance abuse counselors	Group Comparison		Yes	5: 1. Workshop, practice feedback, 3. Workshop + individual coaching sessions, 4. Workshop + feedback + coaching, 5. Waitlist control of self-guided training	4 and 8 months	K, P, S	BO, SR	Yes	Found initial improvements in clinician skill after workshop completion; skills decreased and were comparable to the waitlist control at 4 month follow-up 4>2>3>1>5
1	Moyer et al. (2008)	n=129 behavioral	Group Comparison		Yes	3: 1. Workshop	4, 8, and 12 months	S	BO	Yes	The addition of feedback and consult calls to the workshop did not result in

Nathan & Gorman (2002) Criteria	Author(s)	Sample	Design	Measurement Method			Findings & Comments
				Type	Random Assign	# and Primary Comparison Group(s)	
		health providers				2. Workshop + feedback + consult calls 3. Waitlist control of self-guided training	Standardized Measures with psychometrics
3	Neff et al. (1999)	n = 837 providers of medical, psychiatric, nursing, and social services	Pre/Post	No	3:	1. Full-day (N=514) 2. Half-day (N=209), and 3. Brief (1-3 hrs) (N=114) workshops	None A, K, P SR No Dose effect evidenced in that longer trainings produced change (1=2)>3
3	Oordt et al. (2009)	n=82 mental health professionals	Pre/Post	No	0		Increases in confidence and intent to change practice behavior were reported
3	Rubel et al. (2000)	n = 44 clinicians and researchers	Pre/Post	No	0		Knowledge and motivational interviewing statements increased over time
3	Russell et al. (2007)	n = 175 Department of Defense/Department of Veterans Affairs clinicians; 72 clients recruited by 8 participating clinicians	Post-training clinician survey; archival patient chart review	No	0		High satisfaction with the training was reported by clinicians Statistically significant improvements were reported for 4 of 4 patient measures; chart review was completed by 8 clinicians who had participated in training on their own clients
3	Saitz et al. (2000)	n = 87 clinicians	Pre/Post; Follow-up survey	No	0		In the follow-up interview, high levels of confidence, satisfaction, and desirable treatment practices were reported. In the pre/post comparisons, no changes evidence in knowledge or confidence; attitudes slightly higher

Nathan & Gorman (2002) Criteria	Author(s)	Sample	Design	Measurement Method		# and Primary Comparison Group(s)			Standardized Measures with psychometrics	Findings & Comments
				Random Assign	Follow-up	Domain	Type	Type		

Note. Measurement domains: A = Attitudes, C= Confidence, F = Treatment Fidelity or adherence, I = Implementation Difficulty or Barrier - Anticipated or Actual, K = Knowledge, O = openness to learning, OR = Organizational Readiness for Change, P = Practices or techniques used, S = Skills/competence, Sat = satisfaction/acceptability; SP = Supportive practices; Measurement Types: BO = Behavior observation, Ch = Chart Review, SR = Self-report.

Table 4

Summary of Studies Examining the Effectiveness of Workshop Follow-ups (observation, feedback, consultation, coaching) as a Training Method

Nathan & Gorman (2002) Criteria											
	Author(s)	Sample	Design	Measurement Method					Findings & Comments		
				Type	Random Assign	# and Primary Comparison Groups	Follow-up	Domain		Type	Standardized measures with psychometrics
3	Ducharme & Feldman (1992) study 2	n = 7 staff members	Single-subject multiple baseline	NA	0	None	G, S	BO	No	General case training produced criterion levels of generalization	
3	Hawkins & Sinha (1998)	n = 109 clinicians	Pre/Post	No	0	None	K	SR	No	The best predictors of knowledge were (highest first): reading, peer support/consultation, study group attendance, time spent applying the treatment; expert consultation became more important as training progressed	
2	Kelly et al. (2000)	n = 74 AIDS Service Organizations directors	Group Comparison	Yes	3: 1. Manual, 2. Manual+2-day workshop, 3. Manual+2-day workshop + follow-up consultation	6 and 12 months	P, O	SR	No	Condition 3 resulted in more frequent adoption of the intervention 3>2>1	
1	Miller, Yahne et al. (2004)	n = 140 substance abuse counselors	Group Comparison	Yes	5: 1. Workshop, 2. Workshop + practice feedback, 3. Workshop + individual coaching sessions, 4. Workshop + feedback + coaching, 5. Waitlist control of	4 and 8 months	K, P, S	BO, SR	Yes	Addition of feedback and/or coaching improved retention of proficiency 4>2>3>1>5	

Nathan & Gorman (2002) Criteria	Author(s)	Sample	Design	Measurement Method			Findings & Comments
				Type	Random Assign	# and Primary Comparison Groups self-guided training	
2	Milne et al. (2002)	n = 56 nurses, case managers, social workers, occupational therapists	Group Comparison		No	2: 1. Standard training (n=45), 2. Relapse prevention (n=11)	Relapse prevention group evidenced greater training transfer than control group 2>1
1	Moyer et al. (2008)	n=129 behavioral health providers	Group Comparison		Yes	3: 1. Workshop 2. Workshop + feedback + consult calls 3. Waitlist control of self-guided training	The addition of feedback and consult calls to the workshop did not result in greater performance; skills declined by the 4 month follow-up. Self-directed techniques did not result in skill improvement. (1=2)>3
3	Parsons & Reid (1995)	n = 10 residential staff supervisors	Single-subject multiple baseline		NA	0	Supervisor feedback enhanced maintenance of staff members' teaching skills
2	Parsons et al. (1995)	n = 13 direct care staff	Pre/Post		No	0	Improvement in knowledge with observation and feedback; Improvement in skill will extended feedback; When skills applied within existing client program, clients made gains in skill acquisition
3	Schoener et al. (2006)	N = 10 community clinicians; 28 clients with co-occurring mental health and substance use disorders	Pre/Post with Multiple data points – interrupted time series design		No	0	Increases in responses consistent with motivational interviewing; however, motivational interviewing proficiency was lower than in more controlled studies (Baer et al., 2004; Miller et al., 2004)

Nathan & Gorman (2002) Criteria	Author(s)	Sample	Design	Measurement Method			Findings & Comments			
				Type	Random Assign	# and Primary Comparison Groups	Follow - up	Domain	Type	Standardized measures with psychometrics
2	Sholomskas et al. (2005)	n = 78 full-time, substance abuse counselors	Group Comparison	No	3: 1. Manual, 2. Manual + website, 3. Manual + didactic seminar + supervised casework	3 months	F, I, K, P, S	BO, SR	Yes	3>2>1

Note. Measurement domains: A = Attitudes, F = Treatment Fidelity or adherence, G = Generalization, I = Implementation Difficulty or Barrier – Anticipated or Actual, K = Knowledge, O = Organizational Resources and Characteristics; P = Practices or techniques used, S = Skills/competence, Sat = satisfaction/acceptability; Measurement Types: BO = Behavior observation, SR = Self-report.

Table 5
Summary of Studies Examining the Effectiveness of Pyramid Training as a Training Method

Nathan & Gorman (2002) Criteria	Author(s)	Sample	Design	Measurement Method					Findings & Comments	
				Type	Random Assign	Follow-up	# and Primary Comparison Groups	Standardized measures with psychometrics		
								Domain		Type
3	Anderson, & Youngson (1990) part 2	n = 40 managers and senior staff	Pre/Post	No	None	0	A, K	SR	No	Increased knowledge; no change in attitude
3	Demchak & Browder (1990)	n = 6 group home supervisors and aides; 6 residents with profound mental retardation	Single subject multiple baseline	NA	None	0	S	BO	No	Seems as if training effect was “watered down” from supervisor to staff
3	Shore et al. (1995)	n = 8 Supervisors and direct care staff for state residential facility for persons with MR; 6 patients	Single-subject multiple baseline	NA	None	0	S	BO	No	Improvements noticed in client behavior following pyramidal training intervention with supervisors

Note. Measurement domains: A = Attitudes, K = Knowledge, S = Skills/competence; Measurement Types: BO = Behavior observation, SR = Self-report.

Table 6
Summary of Studies Examining the Effectiveness of Multicomponent Training Packages as a Training Method

Nathan & Gorman (2002) Criteria									
Author(s)	Sample	Design	Measurement Method				Findings & Comments		
			Type	Random Assign	# and Primary Comparison Groups	Follow-up	Domain	Type	Standardized measures with psychometrics
3	Bein et al. (2000)	n = 16; psychiatrists (8) & psychologists (8)	Pre/Post	No	0	None	F	BO	Yes
3	Brooker & Butterworth (1993)	n = 10 community psychiatric nurses	Pre/Post	No	0	None	A, S	BO, SR	Yes
3	Classen et al. (1997)	n = 24 therapists from 10 oncology centers and 2 university medical centers	Pre/Mid/Post	No	0	None	K	SR	No
1	Crits-Christoph et al. (1998)	n = 65 therapists; 202 Patients with cocaine dependence	Group Comparison	Yes	3: 1. Cognitive Therapy, 2. Supportive-Expressive Dynamic Therapy, 3. Individual Drug Counseling	None	K, S	BO, PR, SR	Yes
3	Gamble et al. (1994)	n = 12 community-based mental health nurses	Pre/Mid/Post	No	0	None	A, K, S	SR	No
3	Henry, Strupp et al. (1993)	n = 16 psychiatrists (8) and psychologists	Pre/Post	No	0	None	S, T	BO	Yes
									Majority of therapists did not achieve basic competence at TLDP
									No significant differences
									Improvement in written responses for all 4 dimensions of the model: affect, personalization, coping, and group interaction
									Adherence and competence increased for all groups 1>2=3; only cognitive therapy demonstrated learning that carried over from training case to training case
									Improvements in knowledge of and attitudes towards family work and schizophrenia
									Increased adherence to technical intervention

Nathan & Gorman (2002)		Criteria		Author(s)		Sample	Design	Measurement Method			Findings & Comments		
							Type	Random Assign	# and Primary Comparison Groups	Follow-up	Domain	Type	Standardized measures with psychometrics
3		Hughes & Halek (1991)		(8); 84 patients n = 24 psychiatric nurses			Survey	No	0	None	C, K	SR	No Overall had a greater understanding of psychotherapy and greater confidence that they were competent with individuals and groups
2		Hunter et al. (2005)		n = 16 substance abuse treatment staff			Pre/Post	No	2: 1. 3 intervention sites, 2. 2 comparison sites selected with similar client flow rates	1 year	A, K, M, Sat (with job)	SR	Yes Due to low n, statistical analyses were not completed. Knowledge, attitudes, job satisfaction, and morale improved over time for the intervention, but not the comparison group
3		Hurley et al. (2006)		n = 221 direct care staff			Pre/Post	No	0	None	F, K, P, S	BO, SR	No 79% of staff completed all training sessions and scored 80% or higher on knowledge and skill tests; 30% reduction in critical incidents for youth post-implementation
3		Jameson et al. (2007)		n = 38 mental health professionals			Survey	No	0	None	A, K, S, Sat	SR	No Positive results for: change in therapeutic practice (especially in client-therapist relationship and intrapersonal dynamics) Positive results also reported for therapeutic effectiveness; small groups better promoted skill development in comparison to readings and lectures
3		Lancashire et al. (1997)		n = 12 community psychiatric			Ongoing assessment for nurses, Pre/Post for patients	No	0	None	Cl, S	BO, SR	Yes Patients reported improvements in total symptom ratings and in positive and affective symptoms. No change

Nathan & Gorman (2002) Criteria								
	Author(s)	Sample	Design	Measurement Method			Findings & Comments	
				Random Assign	# and Primary Comparison Groups	Standardized measures with psychometrics		
			Type	Follow-up	Domain	Type		
3	Leff & Gamble (1995)	nurses, 33 patients n = 43 community mental health nurses	Pre, 2 month, post	No	0	A, K	SR	Yes was noted in negative symptoms. Nurses increased knowledge and positive attitudes about schizophrenia
1	Lochman et al. (2009)	n = 49 school counselors, 531 children	Group Comparison	Yes	3: 1. enhanced training, 2. basic training 3. comparison	Cl, I,	BO, SR	Yes The more intense clinician training, the better the outcome for children treated by the trained school counselor 1>2>3
3	Milne et al. (1999)	n = 20 psychologists, psychiatrists, and mental health nurses; 20 patients	Pre/During/Post training (clinicians) and therapy (patients)	No	0	Cl, G, S	BO, SR	Yes Statistically significant increase in therapist competence following training and patient improvement in coping
3	Milne et al. (2000)	n = 48 mental health practitioners	Pre/Post 3-month follow-up	No	0	C, G, K, S, Sat	BO, SR	Yes High satisfaction reported with the workshop format; skill and knowledge improved from pre to post, generalization across clients, time, and setting were reported by participants.
2	Milne et al. (2003)	n = 25 mental health professionals	Group Comparison, Focus Group	No	2: 1. Training 2. Waitlist control Group	G, I, K, S, Sat	BO, PR, SR	Yes High satisfaction reported with training content, process, and trainers Significant improvement in paper and pencil knowledge test and video-presented skill tests; generalization 6–9 months after training reported
2	Morgenstern et al. (2001)	n = 29 front-line substance abuse counselors	Group Comparison	Yes	2: 1. CBT Training,	A, C, F, S, Sat	BO, SR	Yes Counselors responded well to the CBT content and manualized format of the training. Adequate skill levels were reached

Nathan & Gorman (2002) Criteria	Author(s)	Sample	Design	Measurement Method			Findings & Comments
				Type	Random Assign	# and Primary Comparison Groups	
							Standardized measures with psychometrics
							1>2
3	Moss et al. (1991)	n = 11 therapists	2-year Follow-up	No	0	2. Control group	No
2	Myles & Milne (2004)	n = 90 mental health professionals	3-month pre-training Pre/Post	No	2: 1. CBT Training, 2. Participants served as their own controls by having double baseline assessment	2. Control group	Yes
3	Ryan et al. (2005)	n = 137 nurses	Survey	No	0	None	Experience of and satisfaction with the course were rated high Nurses reported enhancement of general and behavior therapy skills
2	Strosahl et al. (1998)	n = 18 therapists, and 321 patients	Group Comparison	No	2: 1. Training 2. No training	None	Cl. Sat, T PR, SR Clients of trained clinicians were more likely to finish treatment, agree with the clinician and report better clinical outcomes

Note. Measurement domains: A = Attitudes, C = Confidence, Cl = Clinical Outcome, F = Treatment Fidelity or adherence, G = Generalization, I = Implementation Difficulty or Barrier – Anticipated or Actual; K = Knowledge, M = Job Morale, OR = Organizational Readiness for Change P = Practices or techniques used, S = Skills/competence, Sat = satisfaction/acceptability, SP = Supportive practices; T = therapeutic interaction/rapport/working alliance; Measurement Types: BO = Behavior observation, PR = Patient report of therapist behavior, SR = Self-report.