

**DISSEMINATION OF EXPOSURE-BASED TREATMENT FOR ANXIETY:  
EXPERIENTIAL TRAINING FOR COMMUNITY THERAPISTS**

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## ABSTRACT

**Background:** Although exposure is considered an active ingredient in evidence-based treatments (EBTs) for anxiety, it is infrequently used in routine clinical care settings. Therapist-level barriers to the use of exposure include inadequate training and negative beliefs about exposure. Prior efforts to train therapists in exposure therapy have resulted in knowledge but not behavior change. This study employed a novel training strategy, experiential learning, designed to improve the translation of knowledge into clinical practice. This study's aims were to assess the feasibility and acceptability of experiential training (ET), as well as to conduct exploratory inferential analyses examining knowledge, attitudes, and use of exposure following training. **Methods:** Participants included 28 therapists working in routine clinical care settings. They were randomized to one of two conditions to learn about exposure therapy: training as usual (TAU) or ET (i.e., undergoing a one-session treatment for fear of spiders). Both workshops lasted one day, and participants were expected to attend weekly consultation calls for three months after training. Qualitative interviews were conducted at the end of the consultation call period. **Results:** The ET was feasible and acceptable to participants. Qualitative interviews suggested that participants, including those who were fearful of spiders, had a positive response to the training and found it to be useful. Quantitative analyses found that there was a significantly greater increase in the number of exposures used following ET than TAU at 1-month follow up. Both conditions demonstrated significant increases in knowledge, attitudes toward exposures, and self-efficacy following the training. **Conclusions:** The findings suggest that, consistent with previous research, a one-day training resulted in significant improvements in therapist-level factors that may affect the

use of exposure. In addition, there is initial evidence that ET resulted in greater *use* of exposure after training, which applied more broadly, could increase the number of clients receiving an EBT for anxiety. The results provide promising evidence for the utility and acceptability of ET as a strategy to increase the use of EBTs in clinical practice.

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# CHAPTER 1

## INTRODUCTION

Anxiety disorders affect up to 20% of youth (Costello, Egger, & Angold, 2004) and are associated with impairments in social, academic, and family functioning (Ialongo, Edelsohn, Werthamer-Larsson, Crockett, & Kellam, 1994; Swan & Kendall, 2016). Left untreated, anxiety disorders may lead to several long-term negative sequelae, including suicidal attempts (Rudd, Joiner, & Rumzek, 2004), substance use (B. Lopez, Turner, & Saavedra, 2005), comorbid disorders (Pine, Cohen, Gurley, Brook, & Ma, 1998) and societal costs (Bodden, Dirksen, & Bögels, 2008). Among adults, anxiety disorders are the most common category of mental disorders (Kessler et al., 2005). Using DSM-IV criteria, which includes posttraumatic stress disorder (PTSD) and obsessive-compulsive disorder (OCD) as anxiety disorders, the lifetime prevalence of anxiety disorders is 33.7% (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012), and the lifetime morbid risk of developing an anxiety disorder is 41.7%. Anxiety disorders are associated with disability (Alonso et al., 2004), loss of workforce productivity (Moitra, Beard, Weisberg, & Keller, 2011), and significant health care costs (Konopka, Leichsenring, Leibing, & König, 2009).

Fortunately, exposure-based cognitive behavioral therapy (CBT) is an efficacious treatment for anxiety across age ranges (Abramowitz, 2013; Higa-McMillan, Francis, Rith-Najarian, & Chorpita, 2016). During exposure for anxiety, clients confront feared stimuli with the goal of reducing fear (Foa, 2011) via habituation (Benito & Walther, 2015) and/or cognitive change (Berman, Fang, Hansen, & Wilhelm, 2015). Numerous studies have demonstrated the efficacy of exposure-based CBT for treating anxiety

disorders, OCD, and PTSD in youth (Hollon & Beck, 2013; Olino et al., 2011; Silverman, Pina, & Viswesvaran, 2008) and adults (Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012; Powers, Halpern, Ferenschak, Gillihan, & Foa, 2010). Even across varying treatment protocols, exposure is a core active ingredient in treatment for anxiety (Ale, McCarthy, Rothschild, & Whiteside, 2015; Barlow, Gorman, Shear, & Woods, 2000; Ollendick et al., 2009), OCD (Abramowitz, Whiteside, & Deacon, 2005; Foa et al., 2005), and PTSD (Foa, Rothbaum, Riggs, & Murdock, 1991), and is considered a first-line anxiety treatment (Berman et al., 2015).

Despite the evidence demonstrating its efficacy, exposure-based CBT is used infrequently in routine clinical settings (C. B. Becker, Zayfert, & Anderson, 2004; E. M. Becker-Haimes et al., 2017; Cook, Biyanova, Elhai, Schnurr, & Coyne, 2010; Wolitzky-Taylor, Zimmermann, Arch, De Guzman, & Lagomasino, 2015). Routine clinical settings include non-academic, non-specialty clinics ranging from community mental health clinics to Veterans Affairs systems. Research on therapist-level factors provides insight into why few clients with mental health disorders receive CBT (Foa, Gillihan, & Bryant, 2013; Freiheit, Vye, Swan, & Cady, 2004; Shafran et al., 2009; Whiteside, Deacon, Benito, & Stewart, 2016) and why therapists report rarely using exposure therapy (C. B. Becker et al., 2004; Hipol & Deacon, 2013; van Minnen, Hendriks, & Olf, 2010). Attitudes toward evidence-based practices (EBPs) appear to be important predictors of whether EBPs will be adopted (Farrell, Kemp, Blakey, Meyer, & Deacon, 2016; Harned, Dimeff, Woodcock, & Contreras, 2013; Ruzek et al., 2015; Shafran et al., 2009). Specifically, therapists' negative beliefs about exposure have consistently been shown to be a barrier to the utilization and optimal delivery of exposure therapy. Deacon et al.

(2013) found that the average clinician has moderately negative beliefs about exposure and these negative beliefs are associated with suboptimal delivery of therapy (Farrell, Deacon, Kemp, Dixon, & Sy, 2013). Many therapists believe that exposures will lead to attrition (Olatunji, Deacon, & Abramowitz, 2009), that exposures will not generalize to the real world (Feeny, Hembree, & Zoellner, 2003), or that exposures will damage emotionally fragile clients (Rosqvist, 2005) and lead to symptom exacerbation (Deacon, Lickel, Farrell, Kemp, & Hipol, 2013). Gola et al. (2015) highlight other common concerns regarding exposure, including client unwillingness to engage in treatment, risk of loss of confidentiality, and ruptures to the therapeutic alliance. Meyer et al. (2014) also report that therapists often exclude clients from exposure therapy because of the presence of a comorbid psychotic disorder, a client's perceived emotional fragility, or a client's reluctance to participate in exposure therapy. However, research suggests that clients in all of these categories can, in fact, benefit from exposure (e.g., psychosis: Frueh et al., 2009; emotional fragility: Olatunji et al. 2009) and that exposure therapy does not cause ruptures in alliance (Kendall et al., 2009). Furthermore, rates of attrition from exposure therapy are very low (e.g., 1.4% for interoceptive exposure for panic disorder; Deacon, Lickel et al. 2013) and it has been shown not to exacerbate symptoms (Foa, Zoellner, Feeny, Hembree, & Alvarez-Conrad, 2002). Training approaches that specifically address therapists' negative beliefs about exposures have shown promise in improving attitudes (Farrell et al., 2016; Waller, D'Souza Walsh, & Wright, 2016).

Another factor contributing to infrequent CBT use in community settings is therapist report of inadequate training in EBPs, including exposure therapy. Lack of training in EBPs is reported across professional disciplines (Karekla, Lundgren, &

Forsyth, 2004; Weissman et al., 2006). In addition, prior efforts to train community therapists in EBPs have not been particularly effective. The limited gains associated with training are in part due to the fact that outcomes for therapist training are likely to be affected by several contextual factors including quality of training, organizational support, and therapist variables (Sanders & Turner, 2005). Few studies have successfully disseminated psychological treatments (Torp et al., 2015; Turner & Sanders, 2006) or directly compared methods of training therapists (Beidas, Edmunds, Marcus, & Kendall, 2012; Dimeff et al., 2015; Dimeff et al., 2009; Farrell et al., 2016; Harned et al., 2013; Harned et al., 2014; Herschell et al., 2009; Miller, Yahne, Moyers, Martinez, & Pirritano, 2004). Exposure therapy may be a particularly difficult intervention to implement given its complex nature (Garcia, 2017), as well as the aforementioned negative clinician reactions and anxiety (Pittig, Kotter, & Hoyer, 2018; Richard & Gloster, 2007). Efforts to train therapists in exposure may require tailored implementation strategies (Becker-Haimes, Franklin, Bodie, & Beidas, 2017) and should be considered within a larger context.

Implementation science, which aims to integrate research findings into “real-world” practice, emphasizes the importance of considering contextual factors in addition to targeting therapists directly through training efforts (Eccles & Mittman, 2006). Implementation frameworks, such as the Consolidated Framework for Implementation Research (CFIR; Damschroder et al., 2009) and the Exploration, Planning, Implementation, and Sustainment framework (EPIS; Aarons, Hurlburt, & Horwitz, 2011) identify the breadth of constructs associated with implementation success in complex systems. In addition to therapist-level factors (i.e., characteristics of individuals

involved), the CFIR highlights the importance of considering the inner setting (i.e., the organization in which the therapist works), the outer setting (i.e., the broader context of the population and area where they work), characteristics of the intervention itself, and the implementation process. Influences at each of these levels interact, such that the success of a therapist in implementing an intervention after receiving training will be affected by the therapists' own beliefs, their clients' characteristics, organizational factors of the setting in which they work (inner setting), as well as the broader context of the region in which they work (outer setting). As evidence of this, some treatments that have demonstrated efficacy in academic settings (i.e., EBPs) have not demonstrated similar effectiveness in community settings (Weisz, Jensen-Doss, & Hawley, 2006), suggesting a need to better adapt implementation efforts to routine clinical settings. Although implementation frameworks such as the CFIR hypothesize that factors such as agency support may facilitate or hinder the delivery of the targeted intervention (Murray, Khoury, Farmer, & Burns, 2018), a necessary first step for implementation is to increase the number of therapists who are trained to use the intervention and target this training to factors known to be relevant to implementation.

Until recently, the “gold standard” method for training therapists included a workshop, manual, and ongoing clinical supervision (Sholomskas et al., 2005). However, studies have found improved therapist knowledge about EBPs following training, but not increased proficiency in or adoption of the treatment (Beidas, Edmunds, et al., 2012; Deacon, Lickel, et al., 2013; Lim, Nakamura, Higa-McMillan, Shimabukuro, & Slavin, 2012). Neglecting to address contextual variables may account for the gap between knowledge and behavior change (Beidas & Kendall, 2010). Recent studies of therapist

training have found that effective training includes a form of external, ongoing support (See Appendix for expanded literature review). One effective form of support is consultation/supervision, which has been shown to minimize barriers to therapist adoption of EBPs and increase the likelihood of bringing about changes in therapist attitudes and behavior (Dorsey et al., 2013; Edmunds, Beidas, & Kendall, 2013; Herschell, Kolko, Baumann, & Davis, 2010; Lyon, Dorsey, Pullmann, Silbaugh-Cowdin, & Berliner, 2014; Ruzek et al., 2016).

Research on therapist training also has identified the importance of active and experiential learning strategies to improve the adoption of EBPs. Passive learning strategies (i.e., reading a manual; lecture-based workshops) alone are not effective methods for producing change in the behavior of therapists (El-Tannir, 2002; Miller et al., 2004). In contrast, active learning, including modeling, practice opportunities, and behavioral role plays, leads to improved knowledge and increased skill development (Cross et al., 2011; Miller et al., 2004). Experiential learning (Kolb, 1984) strategies, which require engaging in the actual activity, have the potential to enhance training outcomes, but have been only preliminarily studied (using brief interoceptive exposures) in the context of therapist training for exposure therapy (Farrell et al., 2016). Recent research has suggested that experiential learning is an effective method to increase critical thinking and engagement and to enhance theory-informed practice (Clem, Mennicke, & Beasley, 2014). Experiential learning has been shown to be an effective learning technique in other disciplines (e.g., economics courses: Hawtrey, 2007; occupational therapy: Coker, 2010; Knecht-Sabres, 2013) and has been recommended as a viable approach for therapist training (Bennett-Levy et al., 2009; Farrell, Deacon,

Dixon, & Lickel, 2013). In addition, a principle-based approach to training, which emphasizes the “underlying spirit” and theory of the intervention, is often preferred to training in a specific manual (Miller et al., 2004). Principle-based training approaches may allow for a flexible application in multiple settings and for multiple populations. Rather than requiring adherence to a session-by-session manual, this approach may be better suited for training therapists to administer treatment with flexibility and fidelity (Kendall & Beidas, 2007). Furthermore, principle-based training limits the need for manuals/printed materials and shifts the focus to competency-based training (Beidas, Koerner, Weingardt, & Kendall, 2011; Ricciardi, 2005).

Given this evidence, an experiential, principle-based training approach followed by consultation is likely to improve therapists’ attitudes toward and use of exposure therapy. The current study used mixed methods to examine the feasibility, acceptability, and outcomes of an experiential training (ET) approach for exposure therapy by comparing it to training-as-usual (TAU). The ET approach used a modified version of the one-session phobia treatment (Ollendick et al. 2009) to allow participants to undergo an entire treatment protocol for exposures related to spiders. TAU included active and passive learning components and was compared to the ET on measures of (a) therapist knowledge; (b) attitudes; (c) self-efficacy; (d) competence; and (e) use of exposure. Because this was a pilot study with a small sample ( $N=28$ ), the majority of analyses were descriptive in nature and focused on assessing the feasibility and acceptability of the experiential training approach. The first aim was to examine the feasibility of evaluating the experiential approach by monitoring rates of recruitment and retention, completion of assessments, and consultation call attendance. The second aim was to assess the



acceptability of the experiential training using mixed methods to merge the quantitative (e.g., fear of spiders) and qualitative findings. In addition, the qualitative interviews were analyzed using a CFIR-informed coding system to gain a better understanding of the acceptability of the intervention in the context of other factors that may affect implementation. The third aim used exploratory inferential analyses to compare the two conditions on knowledge, attitudes toward exposure, intentions, self-efficacy, role play competence, and self-reported exposure use. These outcomes were selected based on previous work examining therapist training in exposure therapy (e.g., Harned et al., 2014). In addition, intentions were examined because of evidence that intentions may be a valid predictor for actual behavior (Ajzen, 1991; Casper, 2007; Eccles et al., 2006). Both training conditions were expected to demonstrate improvements in most domains (e.g., knowledge, competence, self-efficacy), but the ET condition was hypothesized to have fewer negative beliefs, higher intentions, and higher self-reported use of exposure than the TAU condition, as these were the primary targets of the experiential approach.

## CHAPTER 2

### METHODS

#### Participants

Therapist participants ( $N = 28$ ) were mental health therapists practicing in the northeastern United States who were interested in receiving training in exposure therapy. Only individuals with an advanced degree in a mental health field who were actively engaged in clinical practice were included in the present study so as to maximize generalizability to therapists in routine clinical care settings. Participation was limited to those in mental-health related fields because the present study examined variables of interest within the domain of training in which these procedures would typically occur (i.e., psychology, social work, counseling). Therapists with extensive previous training in exposure-based treatments (defined below) were excluded. Participants were compensated minimally upon completion of the training (\$10), at 1- and 2-month follow up (\$5 each time), and after the final follow-up assessment (\$10). Participants who completed qualitative interviews were paid an additional \$20. Continuing education (CE) credits were awarded to participants for attending the workshop.

**Inclusion criteria.** Participants were required to have an advanced degree (master's or above) in a mental health field and be working in a routine clinical care setting. Recruitment initially targeted community mental health (CMH) therapists, but several therapists working in private practice and outpatient clinics in non-academic settings also requested to participate. In addition, participants were required to be currently treating at least one client (child or adult) with anxiety (i.e., an anxiety or related disorder, such as OCD and PTSD) and planning to continue providing therapy to

client(s) with anxiety for the duration of the study. Participants were required to be able to commit to the time requirements for study completion and be willing to provide an email or mailing address to complete study-related measures. Finally, participants were required to be able to read and speak English.

**Exclusion criteria.** Participants who had previously attended a prior full day (six or more hours) workshop on exposure-based treatments for anxiety or who had received equivalent training (e.g., working as a clinician in an anxiety specialty clinic) were not eligible. Therapists were not excluded on the basis of gender, demographic characteristics, or other past experience.

## **Procedures**

Study participants were recruited via professional listservs, direct email outreach to local clinic directors, contact with CMH providers who were part of a Provider Advisory Committee in Philadelphia, distribution of flyers to CMH clinics, and word of mouth. Of the 34 people who identified how they heard about the study, 16 heard about it through a listserv email, 12 through word of mouth (e.g., boss, colleague, friend), two through Facebook posts (made by someone who received a listserv email), one through clinicaltrials.gov, and one who reached out to the clinic coordinator where the training took place about training opportunities. Recruitment occurred in January and February 2018. Workshops were conducted in March 2018. Interested participants completed a brief phone screen and those who were eligible were scheduled for one of four training dates (two on weekdays, two on weekends) based on their availability.

**Training workshops.** Random assignment to one of the two training conditions occurred using equal allocation at the level of training date, such that conditions were

randomly assigned to training dates. Training condition was revealed to participants after informed consent. Training method differed in each of the conditions, but both involved eight hours of training in one day (including breaks), plus one hour for completion of study questionnaires. Input from a Community Advisory Board (CAB) was used to tailor the training to therapists working in routine clinical care settings. For example, based on feedback from the CAB, exposure therapy was presented as a tool that could be employed in a flexible manner in a variety of settings even with complex cases.

Prior to beginning training, participants completed written informed consent procedures. During informed consent, participants were told that they could be randomized to a condition in which they would be given the opportunity to engage with spider stimuli, including live tarantulas. They were told that handling a tarantula would be optional, and they were informed of the possible but unlikely risks related to this (i.e., receiving a spider bite). Both training conditions focused on principles for implementing exposures across diagnostic and developmental categories rather than training in one specific treatment protocol. Although in-vivo and imaginal exposures for PTSD were discussed briefly during training, the primary emphasis of the workshop was on treatment for anxiety disorders and OCD. Participants completed measures immediately before and after training (see Table 1). For three months following training, participants attended consultation calls (described below) and received monthly email reminders prompting them to complete study measures.

**TAU.** The TAU condition incorporated passive and active learning components. The first half of the training included lecture-style teaching and had three primary goals: (a) Describe the behavioral model underlying exposure-based treatments; (b) Review

populations for whom exposure is appropriate, as well as potential diagnostic and developmental considerations; and (c) Provide an overview of the “nuts and bolts” of implementing exposure-based treatments, such as building a fear hierarchy, assessing client anxiety during exposure, and minimizing avoidance/safety behaviors. Despite including primarily lecture-style teaching during the first half of training, several efforts were made to incorporate strategies to maintain participant engagement, such as showing client videos and providing tickets for a raffle when participants answered questions. The second half of training incorporated primarily active learning components to reinforce concepts discussed in the first half of training. The instructor provided case examples and demonstrated role plays, and then participants worked in small groups to complete: (a) Behavioral rehearsals, in which they each played different roles (therapist, client, observer) during sample exposure tasks; and (b) Interteaching, in which they engaged in small-group discussion with guided questions.

**ET.** The first half of the ET was identical to the first half of training in the TAU condition. However, the second half of training was experiential, in that all participants underwent a modified version of a one-session phobia treatment for spiders, which has been shown to be an efficacious treatment for phobias (Kashdan, Adams, Read, & Hawk, 2012; Ollendick et al., 2009). The one-session phobia treatment allowed for a unique experience in which participants completed an entire exposure protocol in an afternoon and gained familiarity with all elements of exposure-based treatments, including psychoeducation, assessment and hierarchy building, exposure, and relapse prevention.

Table 1. *Number of participants completing each measure at each time point.*

	<i>Pre- Training</i>	<i>Post- Training</i>	<i>Imo. Follow Up</i>	<i>2 mo. Follow Up</i>	<i>3 mo. Follow Up</i>
<i>Participants Completing Any Questionnaires (N)</i>	28	28	27	24	19
	<i>N (%)</i>	<i>N (%)</i>	<i>N (%)</i>	<i>N (%)</i>	<i>N (%)</i>
Anxiety Sensitivity Index – 3	20 (71.4) <sup>b</sup>				18 (64.3)
Behavioral Anticipation and Confidence Questionnaire <sup>a</sup>	28 (100)	28 (100)			18 (64.3)
Behavioral Role Plays <sup>a</sup>		27 (96.4)			18 (64.3)
Demographic & Background Questionnaire	28 (100)				
Evidence-Based Practice Attitude Scale	28 (100)	28 (100)	26 (92.9)	24 (85.7)	19 (67.9)
Exposure Therapy Clinical Use Survey <sup>a</sup>	28 (100)		27 (96.4)	24 (85.7)	19 (67.9)
Exposure Therapy Intentions <sup>a</sup>		28 (100)	25 (89.3)	24 (85.7)	19 (67.9)
Fear of Spider Questionnaire	28 (100)	28 (100)			
Implementation Climate Scale		27 (96.4)			17 (60.7)
Knowledge Test <sup>a</sup>	28 (100)	28 (100)			19 (67.9)
Organizational Innovation Specific Capacity for Exposure		26 (92.9)			19 (67.9)
Organizational Readiness for Change					16 (57.1)
Post-Training Workshop Evaluation		28 (100)			
Therapist Beliefs about Exposure Scale <sup>a</sup>	28 (100)	28 (100)	26 (92.9)	24 (85.7)	19 (67.9)

<sup>a</sup>Denotes primary outcome measure

<sup>b</sup>Due to photocopy error with measures for first (experiential) workshop; this is the only condition difference in number of measures completed

Although most participants were not expected to meet diagnostic criteria for a spider phobia, spiders were selected because of the relatively high base rate of arachnophobia (11.4% lifetime prevalence; Oosterink, De Jongh, & Hoogstraten, 2009). In addition, the wide variety of spider-related stimuli available were designed to elicit some anxiety for most participants, including those without clinical fear levels. The primary goal of the experiential training was to allow participants to experience exposures from a client's perspective, but participants alternated between the client and therapist roles throughout the experiential training. Prior to beginning the experiential portion of the workshop, therapists rated their fear of spiders on the Fear of Spider Questionnaire (FSQ; Szymanski & O'Donohue, 1995). Small groups were formed based on level of fear so that participants with high fear levels were not asked to lead a less fearful partner through an exposure that was too difficult for them. Groups were determined by scores on the FSQ relative to other attendees on that day, with lower scores indicating less fear. Across both training dates, the low fear groups had a mean FSQ score of 18.6 ( $SD=1.34$ ). The medium fear groups had a mean score of 31.4 ( $SD=13.07$ ). Finally, the high fear groups had a mean score of 52.0 ( $SD=15.04$ ).

Training proceeded in four phases: (a) Psychoeducation/Rationale; (b) Assessment/Hierarchy Building; (c) Implementing Exposures; and (d) Homework/Relapse Prevention. The instructor provided an overview of each phase before asking small groups to practice and apply the skills with each other. First, participants were paired with someone else in their small group to practice providing a rationale of treatment to each other. Second, each participant worked collaboratively to generate a hierarchy of their partner's fear of spiders. They were encouraged to generate

as detailed a hierarchy as possible, including fear about interaction with different modalities (e.g., cartoon photos, photographs, videos, and live spiders). During the third phase, participants began implementing spider-related exposures with one another, beginning with easier exposures and working toward more difficult ones based on the hierarchy. Pre-selected stimuli were available for their use (e.g., photos of spiders, videos of spiders, fake plastic spiders (small and large), dead spiders, live tarantulas), and the use of other stimuli (e.g., finding additional videos online) was also encouraged. Finally, participants were asked to discuss relapse prevention and home practice with their partner. At each phase of practice, participants alternated playing the role of the therapist and the client. Ethical concerns and methods for troubleshooting difficulties during exposure were discussed as a small group.

**Role plays.** An advanced graduate student acted as an anxious client (using standardized case vignettes) and conducted role plays with participants in both conditions after the training workshop and after consultation calls ended. Role plays were conducted within two weeks of the initial training, as well as at three-month follow-up (post-consultation) via Webex video chat. These time points were selected based on Ruzek and colleagues' (2016) finding that additional improvement beyond initial training was demonstrated after consultation. Role plays were audiotaped for coding by advanced graduate students who achieved reliability (ICCs > .70) and attended regular coding meetings to discuss coding questions and ensure that reliability was maintained. Role plays were coded for the frequency of statements made by participants that were hypothesized to increase or decrease the confederate client's anxiety (see Exposure Guide description below).



**Consultation.** For three months following training, participants were asked to participate in at least 75% of the 12 weekly consultation phone calls to receive an adequate “dose” of consultation. Consultation calls were conducted by doctoral students with expertise in exposure-based treatments for anxiety and supervised by a licensed clinical psychologist. Consultation calls were blind to condition and included a mix of participants from both conditions. Participants on each call were determined by availability (not condition), and they were reminded not to reveal their training condition during the calls. Consultation calls included participant case presentations, didactic topics, and assistance in generating exposure ideas, and were audio recorded to code for participation.

**Questionnaires.** Measures regarding therapists’ knowledge about, attitudes toward, and use of exposures were administered before training, after training, and at follow-up(s). Immediately before and after the training, there was time built into the day’s schedule for participants to complete questionnaires. Participants received links via email to complete follow-up questionnaires online (see Table 1 for a timeline of measures administered). Questionnaires were collected via Qualtrics, an online survey platform, and did not require participants to enter identifying information besides an ID number. A “time spent” variable (showing how long participants accessed each survey) was downloaded from Qualtrics and used as a rough estimate for the time spent completing follow-up measures, excluding outliers.

**Qualitative interviews.** Participants in the ET condition were contacted for qualitative interviews until thematic saturation of interviews was reached ( $n = 12$  interviews). Interviews were conducted and audiorecorded via Webex after the

completion of all other study activities (i.e., after training, consultation, and completion of questionnaires).

## **Measures**

### **Acceptability Measures**

*Post-Training TCU Workshop Evaluation (WEVAL; Simpson, 2002)*. The WEVAL is a 26-item measure that assesses participants' reactions to training materials and procedures, factors that might influence their likelihood of adopting the procedures taught in training, and intentions to use the materials. It includes the following subscales: Training, Quality and Utilization, Resources and Skills, Support and Commitment, and Barriers Expected. Responses were rated on a 5-point Likert scale ranging from 1 (*Disagree Strongly*) to 5 (*Agree Strongly*). Cronbach's  $\alpha$  in the current sample was .58.

*Qualitative interviews*. The semi-structured qualitative interview protocol included two parts. The first part assessed the extent to which the training was acceptable and satisfactory in terms of content and training activities. The second part asked about perceptions of exposures and the extent to which participants were able to apply what was learned in the training within their clinical setting.

### **Organization-Level Measures**

*Implementation Climate Scale (ICS; Ehrhart, Aarons, & Farahnak, 2014)*. The ICS is an 18-item self-report measure of implementation climate (i.e., perceptions that EBP adoption is emphasized, supported, and rewarded in the organization); items are rated on a 5-point Likert scale ranging from 0 (*Not at All*) to 4 (*Very Great Extent*). The measure has multiple factors including organizational focus on EBP, educational support for EBP, recognition for using EBP, rewards for using EBP, selection of staff for EBP,

and selection of staff for openness. Higher scores indicate greater organizational support of EBPs. The ICS has been demonstrated to have good reliability and validity. A total score (summing all items) was used for the purposes of this study. Cronbach's  $\alpha$  in the current sample was .92 at both time points.

***Organizational Innovation Specific Capacity for Exposure (OISCE; Becker-Haimes et al., Under Review)***. This measure was developed to assess therapists' perceptions of organizational policies and procedures for supporting exposure use in their clinical setting. Items were selected based on previous research from prior qualitative (Chu et al., 2015; Ringle et al., 2015) and quantitative (Becker-Haimes et al., 2017) studies, the broader implementation literature, input from an expert in organizational psychology, and the authors' collective experiences working in anxiety specialty clinics. Of note, the version of this measure that was administered at post-training was a preliminary version of the measure that included only 12 items and, therefore, was used solely to assess feasibility outcomes (i.e., percentage of participants who completed the measure). The final version of the measure, administered at three-month follow-up, included 17 items that cut across five domains of interest: (a) supervisory support for exposure; (b) collaborations with others in the organization to deliver exposure; (c) organizational policies to facilitate exposure delivery; (d) organizational resources; and (e) organizational emphasis on exposure. Participants were asked to rate how true each attribute was for their clinical setting using a 5-point Likert scale ranging from 0 (*Not at All True*) to 4 (*Extremely True*). Cronbach's  $\alpha$  in the current sample for the final version of the measure (administered at three-month follow-up) was .94.

***Organizational Readiness for Change (ORC) – Organizational Climate***

**Subscale (Lehman, Greener, & Simpson, 2002).** The ORC organizational climate subscale is a 38-item subscale that assesses organizational characteristics on a scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The present study specifically focused on items related to *change*, which included openness to novel ideas, ability to change routine procedures, frequency of hearing ideas for improving operations, attitudes toward changing things, and encouragement for trying new and different ideas. This subscale was selected because it most closely reflected the organizational concerns anticipated for clinicians attempting to use exposure in a setting where it was not a common practice. This subscale is part of the 129-item ORC, which has strong psychometric properties. Cronbach's  $\alpha$  in the current sample was .95.

### **Therapist-Level Measures**

#### ***Anxiety***

*Anxiety Sensitivity Index – 3 (ASI - 3: Taylor et al., 2007).* The ASI-3 is an 18-item measure of fear of anxiety-related body sensations and beliefs about their harmful consequences. Agreement with each item is rated on a 5-point scale ranging from 0 (*Very Little*) to 4 (*Very Much*). Subscales include physical concerns, social concerns, and cognitive concerns. Total scores are calculated as a sum of all items. In a nonclinical sample, convergent, discriminant, and criterion-related validities were established. Cronbach's  $\alpha$  in the current sample ranged from .78 - .89 across the two time points.

*Fear of Spider Questionnaire (Szymanski & O'Donohue, 1995).* The FSQ is an 18-item self-report questionnaire that assesses spider phobias. It assesses fear of spiders across several domains, including cognitive, behavioral, physiological, negative attitudes, and fear of harm by spiders. Responses are made on a 7-point Likert scale ranging from 1

(*Strongly Disagree*) to 7 (*Strongly Agree*). It has good psychometric properties and is able to identify differences between phobics and non-phobics. It was used in the present study to identify low-, medium-, and high-fear groups for participants in the ET condition. This information was used to determine groupings of participants with similar levels of fear of spiders for experiential practice. Cronbach's  $\alpha$  in the current sample ranged from .90 - .95 at both time points.

### ***Attitudes***

*Therapist Beliefs about Exposure Scale (TBES: Deacon, Farrell, et al., 2013).*

The TBES is a 21-item self-report measure that assesses therapists' negative beliefs about exposure therapy. Agreement with each item is rated on a 5-point scale ranging from 0 (*Disagree Strongly*) to 4 (*Agree Strongly*). The TBES has excellent internal consistency ( $\alpha = .90 - .96$ ) and test-retest reliability ( $r = .89$ ). Higher scores indicate more negative beliefs about exposure, and scores have been shown to decrease after a didactic workshop on exposure, suggesting that it is sensitive to change (Deacon, Farrell, et al., 2013). Cronbach's  $\alpha$  in the current sample ranged from .65 - .93 across the four time points.

*Evidence-Based Practice Attitude Scale (EBPAS: Aarons, 2005).* The EBPAS is a 15-item self-report measure that assesses therapists' attitudes toward the adoption and implementation of EBPs. Responses are made on a 5-point Likert scale ranging from 0 (*Not at All*) to 4 (*To a Very Great Extent*). The EBPAS yields a total score comprised of four subscales, including appeal, requirements, openness, and divergence. Cronbach's  $\alpha$  in the current sample ranged from .68 - .86 across the four time points.

### ***Demographics***

*Demographics and Background Questionnaire.* The demographics questionnaire assessed participants' age, gender, race, and education. It also assessed topics related to the participants' work setting, theoretical orientation, and level of familiarity with and understanding of exposure therapy.

### ***Exposure Use***

*Exposure Therapy Clinical Use Survey (ETCUS: Harned et al., 2014).* The ETCUS measures therapist-reported use of exposure over the past month, including the frequency of using nine exposure therapy procedures, such as providing the rationale for exposure therapy, creating a hierarchy, and completing *in vivo* exposures. Therapists completed the ETCUS once a month. Exposure therapy procedure items were summed and divided by the number of clients treated with exposures, consistent with Harned and colleagues (2014). Frequency of exposure use was assessed in two additional ways: (a) number of times the participant reported having used any type of exposure divided by the number of anxious clients treated; and (b) sum of the number of in-vivo, imaginal, and interoceptive exposures used in the past month. In Harned's (2014) study, Cronbach's  $\alpha$  ranged from .85 - .90.

*Exposure Therapy Intentions.* This measure was adapted from a measure created by Kaye (2018) and asks how likely participants are to use each type of exposure (imaginal, in vivo, interoceptive) on a 5-point Likert scale ranging from 0 (*Not at All Likely*) to 4 (*Very Likely*). The follow-up version of the measure asks participants to indicate why they have not used exposure if they have not used it during the past month.

### ***Involvement***

*Consultation call attendance and involvement.* Consultation call attendance was calculated as a percentage of total calls attended. Each participant's involvement during consultation was rated on a scale ranging from 0 (*Uninvolved*) to 6 (*Extensively Involved*) by an undergraduate research assistant (Edmunds, Kendall, et al., 2013). In addition, all calls were coded for the proportion of time participants spoke on the call relative to the call facilitator.

### ***Knowledge***

*Knowledge Test (Harned et al., 2013).* The knowledge test for the present study (10 items) was adapted from Harned and colleagues' (2013) 50-question version to include a subset of questions determined to be most relevant to the current training. Questions were selected through a consensus process conducted by the workshop co-leaders; they independently reviewed Harned and colleagues' (2013) original measure and identified items that corresponded most closely to the workshop content for the current study. Then, they selected the questions that best represented the topics emphasized in the training.

### ***Self-Efficacy***

*Behavioral Anticipation and Confidence Questionnaire (Harned et al., 2013).* This 31-item questionnaire is a measure of self-efficacy and measures participants' confidence in their ability to use exposure therapy after training. Items begin with "I feel confident in my ability to" and then list specific skills and procedures related to exposures. Responses are rated on a 5-point Likert scale ranging from 1 (*Not Confident*) to 5 (*Very Confident*). Scores are represented as the mean score of all items. This measure

had a Cronbach's alpha of .85 in Harned et al.'s (2013) study. Cronbach's  $\alpha$  in the current sample was .97 at all time points.

### *Skill*

*Behavioral role plays.* Two alternate versions of standardized case vignettes for a young adult with social anxiety were developed with expert input. Specifically, four experts in the treatment of anxiety disorders provided feedback on the difficulty and clarity of both vignettes, as well as how typical the presentation was and how similar the hierarchy was to one they would create. Using paired-samples *t*-tests, ratings on each of these categories for the two vignettes were compared and found not to be significantly different. The order of case vignettes was counterbalanced across participants.

Participants read the vignette and prepared for the 10-minute role play, during which they were asked to prepare the client for and complete an exposure task. An advanced graduate student trained in exposure therapy was trained to portray an anxious client with standardized responses. Role plays were coded with the Exposure Guide (described below) by advanced graduate students trained to criterion (ICCs  $\geq$  .70).

*Exposure Guide* (Benito, Freeman, Garcia, Herren, & Choate-Summers, Unpublished; Benito, Freeman, Garcia, Walther, & Frank, Unpublished). This measure of exposure quality was applied to the behavioral role plays. It was developed based on a microanalytic coding system that assessed therapist behaviors during exposures in previous randomized clinical trials for pediatric OCD (Benito et al., 2012). The exposure guide includes several theoretically-derived codes that are rated for frequency on a scale from 1 (*None*) to 3 (*A lot*). Codes are grouped according to the effect that they are expected to have on anxiety during the exposure, including behaviors expected to



increase anxiety (e.g., encourage approach, intensifying the exposure), decrease anxiety (e.g., relaxation, changing anxious thoughts), and have minimal or no effect on anxiety (e.g., exposure-consistent teaching). Initially developed as a therapist self-report measure of strategies used during exposures, the exposure guide was adapted for the current study as a method for coding audiotaped role plays of exposures.

*Role play competence.* In addition to being coded with the Exposure Guide, role plays were also examined for competence using a single-item competence observational scoring guide to capture how skillfully and responsively the therapist delivered exposure therapy (consistent with definitions of competence; Perepletchikova, Treat, & Kazdin, 2007). Measure development was done in collaboration with four experts in treatment integrity measurement. Item scoring mirrors that of adherence items on the Therapy Process Observational Coding System for Child Psychotherapy-Revised Strategies Scale (TPOCS-RS; Bryce D. McLeod, Smith, Southam-Gerow, Weisz, & Kendall, 2015) and includes a 7-point scale ranging from 1 (*Very Poor*) to 7 (*Excellent*). Testing indicates high inter-rater reliability (ICCs around .9).

## **Data Management and Analysis**

### **Quantitative analyses**

Quantitative analyses were conducted in SPSS 24. Mean imputation was used for measures that had subscales missing up to 20% of items. Participants missing more than 20% of items did not receive scores on those measures. Bivariate correlations were conducted to examine associations between exposure use at one-month follow-up and the other primary outcome measures (knowledge, attitudes toward exposure, exposure use, intentions, self-efficacy, and competence). Exposure use, measured by the ETCUS, was

defined in three ways: (a) sum of all exposure procedure items divided by the number of clients treated (as described by Harned et al., 2014); (b) percentage of anxious clients with whom exposure was used; (c) raw number of exposures used (including in-vivo, imaginal, and interoceptive). A chi square test examined whether condition predicted attending the required number of consultation calls (nine). Paired sample *t*-tests compared pre-to-post training changes in knowledge, attitudes, self-efficacy, and fear of spiders, as well as post-training to post-consultation role play competence and exposure guide items. Independent samples *t*-tests compared the demographic characteristics of participants in both conditions, as well as consultation call attendance and involvement. Chi square tests were used to compare categorical demographic variables (e.g., gender, race). Independent samples *t*-tests compared the two conditions on all measures administered at pre- and/or post-training with the exception of the two primary outcome measures also administered at 1-month follow-up (Exposure Use, TBES). For these measures, repeated measures mixed-factorial ANOVAs tested the main effects of training condition and time, as well as the interaction between training condition and time, controlling for degree (i.e., the only variable that significantly differed between conditions). Bonferroni corrections were not used for *t*-tests because of the exploratory nature of this study. Given the reduced sample sizes at two-month ( $n=24$ ) and three-month follow-up ( $n=19$ ), the measures were not examined with inferential statistics but were reported descriptively.

### **Qualitative and mixed method analyses**

Qualitative analyses were conducted in NVivo. Qualitative interviews were audio-recorded and transcribed by research assistants. Interviews were analyzed in NVivo using an integrated theory approach informed by the CFIR. Initial codes included five theory-

informed *a priori* codes specific to the CFIR (i.e., intervention characteristics, inner setting, outer settings, characteristics of individuals involved, implementation process). Additional codes (i.e., parallel process, addressing myths, suggestions for training, parts of training that were disliked, and parts of training that were liked) were generated using grounded theory (Glaser, 2001; Guba & Lincoln, 1985; P. Y. Martin & Turner, 1986), a rigorous method for analyzing qualitative data in which codes are developed in response to what respondents actually reported. Two advanced doctoral students collaboratively reviewed three transcripts to develop additional codes and refine code definitions. Then, both coders applied the codes by separately coding three transcripts ( $kappa = 0.79$ ). Disagreements were resolved through discussion, at which point the codebook was refined and finalized (available on request). The revised codes were applied to all interviews, which were coded independently by both coders and then discussed to determine final codes by consensus (across all codes:  $kappa = 0.78$ ; “substantial” agreement; DeSantis & Ugarriza, 2000; Hill et al., 2005; Viera & Garrett, 2005). Codes were summarized in NVivo and examined for patterns related to acceptability of the workshop training approach, as well as perceptions of exposure therapy. Finally, mixed methods examined how acceptability of the ET and perceptions of exposure varied by fear of spiders, intentions to use exposure, and practice setting (i.e., CMH versus private practice). Due to a lack of variability in satisfaction (WEVAL) scores, this quantitative variable was not examined using mixed methods. Mixed methods analyses were conducted using a convergent design in which quantitative and qualitative data were collected and analyzed separately (Creswell, 2015). Then, using NVivo, qualitative data were transformed into counts of the number of times each code appeared in the

quantitative categories. This allowed for examination of whether there were differential perceptions of acceptability for therapists with low and high fear of spiders (using a median split), low and high intentions to use exposure (using a median split), as well as therapists in CMH versus private practice.

## CHAPTER 3

### RESULTS

#### **Demographic Characteristics**

Participants were primarily female (75%) and worked in CMH clinics (57.1%). Independent samples *t*-tests examined condition differences in demographic characteristics. The only difference between conditions was graduate degree, such that participants in the TAU condition were significantly more likely than participants in the ET condition to have a doctoral degree than a master's degree. Table 2 provides additional information on participant background and demographic characteristics. In addition, the flow of study participants is shown in the CONSORT diagram (Schulz, Altman, & Moher, 2010; Figure 1).

#### **Feasibility**

Recruitment feasibility was examined as a percentage of the number of participants enrolled to the number of participants who expressed interest in the study. Over the two-month recruitment period, 56 people expressed interest in the study, 46 completed phone screens, and 28 (50% of those who expressed interest and 60.9% of those who completed a phone screen) enrolled. Of those who initially expressed interest and did not complete a phone screen, six reported that they were no longer interested after hearing a brief overview of the study, two never responded to follow-up contacts to complete a phone intake, and two asked about the training dates prior to completing the phone screen and were not available on the training dates.

Table 2. *Characteristics of study participants*

	<b>Full Sample</b> <i>Mean (SD) or</i> <i>N (%)</i>	<b>Experiential</b> <i>Mean (SD) or</i> <i>N (%)</i>	<b>TAU</b> <i>Mean (SD) or</i> <i>N (%)</i>	<i>T or <math>\chi^2</math></i> <i>value</i>
<i>Therapists</i>	<i>n = 28</i>	<i>n = 17</i>	<i>n = 11</i>	
Age	41.00 (12.42)	38.67 (13.32)	44.50 (10.80)	1.03
Sex (Female)	21 (75)	14 (82.4)	7 (63.6)	1.25
Race				1.08
White	19 (67.9)	12 (70.6)	7 (63.6)	
Black/ African American	3 (10.7)	2 (11.8)	1 (9.1)	
Asian	3 (10.7)	1 (5.9)	2 (18.18)	
Multiracial/Other	3 (10.7)	2 (11.8)	1 (9.1)	
Hispanic/ Latino	1 (3.6)	1 (5.9)	0 (0)	0.71
Licensed	19 (67.9)	10 (58.8)	9 (81.8)	1.62
Degree				6.21*
Master's	22 (78.6)	16 (94.1)	6 (54.5)	
Doctorate	6 (21.4)	1 (5.9)	5 (45.5)	
Theoretical Orientation				4.24
Cognitive-Behavioral	10 (35.7)	5 (29.4)	5 (45.5)	
Eclectic	6 (21.4)	3 (17.6)	3 (27.3)	
Acceptance-Based	3 (10.7)	2 (11.8)	1 (9.1)	
Humanistic/Client-Centered	3 (10.7)	3 (17.6)	0 (0)	
Psychodynamic	2 (7.1)	1 (5.9)	1 (9.1)	
Systems/Family Systems	2 (7.1)	1 (5.9)	1 (9.1)	
No response	2 (7.1)	2 (11.8)	0 (0)	
Practice Setting				2.93
Community Mental Health	16 (57.1)	11 (39.3)	5 (45.5)	
Private Practice	8 (28.6)	5 (29.4)	3 (27.3)	
Children's Hospital	3 (10.7)	1 (5.9)	2 (18.18)	
Residential Treatment	1 (3.6)	0 (0)	1 (9.1)	
Years in Practice	9.74 (9.80)	9.44 (10.56)	10.18 (9.06)	0.19
Level in Training in Exposure <sup>a</sup>	1.89 (0.96)	1.82 (1.07)	2.00 (0.78)	0.47
Study Status (Drop Out) <sup>b</sup>	3 (10.7)	3 (17.6)	0 (0)	2.17

\* $p < .05$

<sup>a</sup>Measured with a 1-5 point Likert scale, with 1 being no training and 5 being extensive training

<sup>b</sup>Either requested to drop or did not complete any additional study measures/assessments after training

Although weekend dates tended to be preferred, many people reported not being available on the dates we offered, which may be due to the relatively close proximity between recruitment and the workshop, as well as to the fact that one of the workshops took place on a holiday (Easter/Passover) weekend.

As shown in the CONSORT diagram (Figure 1), of those who completed a phone screen and did not enroll, four were not eligible (e.g., did not have any anxious clients), five were eligible but not available, and one lived too far away. Eight people were eligible for the study, signed up for one of the training dates, and then either cancelled at the last minute or no-showed to the training. Throughout the course of the study, two participants dropped out after one-month follow-up: one due to schedule changes/insufficient time to attend calls and the other due to lack of anxious clients on her caseload. One participant was lost to follow-up after training; she reported that she would be traveling for one month after the training, but did not reply to our attempts to contact her after that. Aside from the three participants who dropped, all but one of the other participants who did not complete the three month-follow up measures online ( $n=6$ ) did continue some engagement in study activities until three-month follow-up, either through consultation calls, role plays, or qualitative interviews. Of note, no one declined to participate because of lack of willingness to be randomized to the ET condition, which was described briefly during the phone screen. Following informed consent procedures, no one declined to participate upon being randomized to either condition. Although the three participants who dropped from the study or were lost to follow-up were in the ET condition, the rate of dropping out of the study did not significantly differ between conditions.

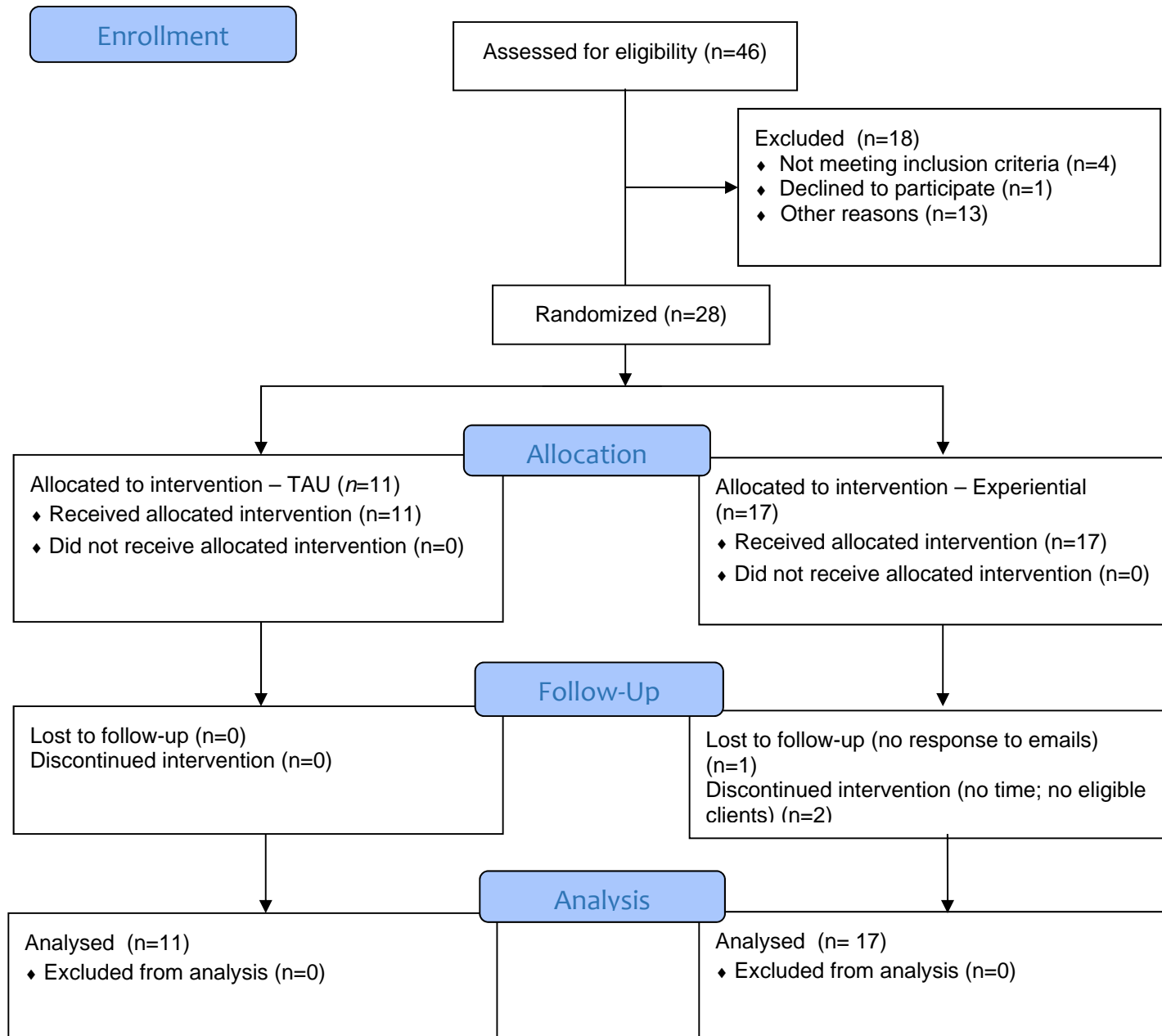


Figure 1. CONSORT Flow Diagram



In addition, the participants who dropped did not report that their reasons for discontinuing participation were related to study condition.

Study retention was calculated as the percentage of participants who completed at least one measure at each time point. Pre- and post-training measures were completed by 100% of participants ( $N=28$ ), as there was time built into the training workshops for completion of study measures. At follow-up, 96.4% ( $n=27$ ) of participants completed at least one one-month follow-up measure, 85.7% ( $n=24$ ) completed at least one two-month follow-up measure, and 67.9% ( $n=19$ ) completed at least one three-month follow-up measure. Two other participants opened the three-month follow-up survey online, but did not complete any measures. Table 1 shows the percentage of participants who completed each measure at each time point. Of note, the order of measures appeared to determine how many people completed them, such that more people completed measures that came earlier. Feasibility of assessment procedures was assessed by examining the mean number of measures each person completed at each time point. At pre-training, participants completed an average of 96.4% ( $n=7.71$ ) of measures. This number was partially affected by a photocopying error for one workshop at pre-training that left out one questionnaire for some participants. At post-training, an average of 98.8% ( $n=8.89$ ) of measures were completed. At one-month follow-up, an average of 96.3% ( $n=3.85$ ) of measures were completed. All measures (100%;  $n=4.00$ ) were completed by all participants who completed two-month follow up questionnaires ( $n=24$ ). Finally, an average of 96.3% ( $n=9.63$ ) of measures were completed by participants who responded at three-month follow-up. There were no significant condition differences in the number of measures completed.

Time spent completing online measures was calculated after excluding outliers (e.g., those who may have left the questionnaire open on their computer while not actively responding to questions) and those who did not complete all questionnaires. At one-month follow-up, the mean time to completion was 11.56 ( $SD=5.22$ ) minutes; the median was 9.55 minutes. The two-month follow-up mean completion time was 10.33 ( $SD=5.66$ ) minutes and the median was 8.58 minutes. Finally, at three-month follow-up, the mean time to completion was 44.63 ( $SD=24.14$ ) minutes; the median was 34.12 minutes.

The feasibility of requiring attendance on at least 9 consultation calls also was examined. The mean number of calls attended was 8.14 ( $SD=3.45$ ), and 60.7% ( $n=17$ ) of participants met the required number of calls. The mode number of calls attended was 10 ( $n=6$  participants attended 10 calls). The majority of participants (92.9%;  $n=26$ ) attended at least one call. One of the participants who did not attend any calls was lost to follow-up, and the other dropped out of the study because of her lack of availability to attend the calls and complete additional follow-up assessments. Excluding those who dropped out of the study, there was no significant condition difference in the number of consultation calls attended or in the percentage of people who met the threshold of attending nine calls.

Finally, participants were offered three options for receiving ongoing support after the three months of consultation: (a) sharing phone numbers/emails with other participants who were willing to share their contact information so that they could contact each other as needed; (b) being assigned a peer supervision "buddy" who they could directly contact as frequently as they wanted to ask questions about using exposures; (c)

joining a listserv that was created specifically so that they could email questions to one another about exposures. After an informal poll of all participants, most preferred the option of having a listserv. Although a listserv was created, no participants used the listserv after consultation calls ended.

### **Acceptability**

Acceptability was assessed quantitatively by comparing mean scores on the training satisfaction measure (WEVAL) across conditions. Independent *t*-tests indicated that there were no condition differences in acceptability of the training. Scores on the WEVAL subscales, which range from 10-50, were generally strong and suggested high acceptability. Higher scores indicate stronger agreement with the prompts. The Training subscale measured the quality of training and ability of trainers to train others. The mean score on the Training subscale was 39.64 (*SD*=5.47) out of 50. The Quality and Utilization subscale, which assesses the extent to which training was well done, useful, and relevant, had a mean score of 44.55 (*SD*=4.41) out of 50. The Resources and Skills subscale asked about the participants' organizations' ability to implement what was learned in the training. The mean score on this subscale was 37.04 (*SD*=6.52) out of 50. The Support and Commitment subscale measured the degree to which other staff members in their work setting were likely to support the use of what was learned in the training and yielded a mean score of 40.57 (*SD*=5.30) out of 50. Finally, the Barriers Expected subscale assessed the reasons why participants may not use what they learned in training. The mean score on the Barriers Expected subscale was 22.28 (*SD*=5.63) out of 50.

## **Qualitative interviews**

Qualitative interviews were conducted with a subset ( $n=12$ ) of participants in the ET condition. Representative quotes for each of the qualitative codes are presented in Table 3. Qualitative interviews included codes that assessed acceptability of training (i.e., Liked, Disliked, Suggestions), as well as CFIR-informed and grounded theory codes. A summary of responses within each of the ten qualitative codes is provided below.

**Liked.** Participants generally had positive attitudes toward the training; this was the category with the most codes. Specifically, participants reported positive perceptions of the training. They said that the handouts were helpful, as was the focus on explaining the theory underlying exposure and how to relay that rationale to clients. In addition, multiple participants stated that it was helpful that we directly addressed their resistance to using exposures and discussed how it could fit with what they are already doing with clients. There was positive feedback about strategies that were employed to make the training engaging, including videos, role plays (i.e., “getting to actually practice”), structured activities, games, and “hands-on” practice with spiders. Regarding the consultation calls, participants reported enjoying hearing about other cases and clients and expanding their training beyond the examples provided at the workshop. They also described the calls as being helpful to address questions about their own cases and to apply what was learned in training. Consultation calls were described as being useful to keep the material “fresh” in their minds. Finally, participants said that they appreciated that we offered a weekend time for training, as that made it more feasible to attend.

Table 3. *Qualitative interview codes and quotes*

Code	Example Quotes
Implementation Process	“I think it was really helpful being able to get immediate feedback on any issues I had while I was implementing it, because certainly, it’s one thing to learn it there but it’s another thing to be using it consistently in practice.”
	“Very rarely do I get a negative reaction, and there are patients who feel like they maybe aren’t ready for it or patients who believe very strongly that their worst fears are going to happen, so for some of them, I might do a little cognitive work before I get into that, but honestly about 99% of patients seem gung-ho about doing it.”
	“I’ve been using it very consistently with my anxious patients, and I think I’m really floored with how quickly they progressed with exposure therapy.”
Parallel Process	“At first, I thought there was no way that I would actually complete it, and I had very minimal confidence. I think that with a little bit more time, I would’ve gotten there, but it definitely changed my initial thoughts and perceptions because by the end of it, I was able to actually touch the spider.”
	“I think a lot of it is the experiential piece and while I knew in a cognitive way how the process works, just like with clients it’s not until you do it yourself that you actually see, and have that different level of learning that’s so important and essential to having this therapy work.”
	“It was a challenge for myself and I think that therapists are always trying to challenge our clients, but we don’t often get the opportunity for the experience ourselves which I think is great. It was experiential learning exactly what we are trying to teach clients, so I thought that was really cool.”
	“I think just experiencing the habituation curve, cause I was definitely one of the people that was afraid of spiders, so I think that it was helpful for me to get more confident using the technique. I could see myself that within a relatively short period of time, that the anxiety really does go away.”
Individuals Involved	“I think the biggest surprise was how quickly patients seem to improve by using exposures, sometimes they’ll get excited with pushing themselves and then they’ll even be surprised by how quickly they feel a lot better.”
	“Maybe there is some hesitation on my part as well, as far as implementing it, but it has helped me expand how I use it and how often I’m using it. I think a lot of it is the experiential piece and while I knew in a cognitive way how the process works, just like with clients it’s not until you do it yourself that you actually see, and have that different level of learning that’s so important and essential to having this therapy work.”
	“It was something that I thought, ‘oh these are the type of therapists that will take you into an elevator even if you don’t want to’, and that was my first impression. I never thought that I myself would use exposures with my clients, and after the training, I got a little more comfortable using exposures.”
	“I guess just wanting to make sure that it works. When I first started out, I was fearful of moving too fast too soon, and exposing them to something where they’re gonna be too anxious and then not want to continue. I think now, with more experience, I’m more so fearful of not pushing them enough.”
	“I’m definitely more open to using it because I understand the processes, before the workshop, to me it was really just a test for my licensing exam, you know a question for my licensing exam that I needed to study when I was getting ready for that.”
Addressing Myths	“I think that a lot of the myths that were presented, like ‘this is a boundary violation,’ ‘this will hurt the therapeutic relationship,’ ‘this isn’t effective,’ ‘clients will drop out,’ are common misconceptions about exposure therapy, especially that one about ruining the client relationship, because it was one that I thought myself would happen, because no one likes to do anything uncomfortable, so having that spelled out would increase confidence in anyone’s ability.”
	“I didn’t know much about it, and what I did know made me think it was more dangerous and I was skeptical of the efficacy behind it, I didn’t really understand the concept. Afterwards, I now feel confident that I understand the mechanisms behind exposures.”
Inner Setting	“I think related to where I work, it’s pretty supportive of anyone learning different methods and trying out new things so that’s been helpful, and for the clients in general, I had such a good relationship with them, so they trusted me and were easily able to jump right in.”
	“I think it would’ve been nice if one of our agency supervisors was able to join the training as well, just so they would know better... If I had a real clinical question, none of my supervisors are trained in that, so if I got stuck, I wouldn’t really have anyone to go to.”
	“I would say it’s hard to do in vivo exposures just because my appointment times are usually only like half an

	<p>hour, and then also, I can't leave my clinic, so I am a little bit limited in that way, but I still feel like I've had a lot of success in coming up with homework of exposures for those patients."</p> <p>"I don't really have time to prepare because I'm usually just seeing one person after another all-day long."</p>
Outer Setting	<p>"We work with a population that often doesn't come to their appointments, medical or otherwise, so certainly there are some patients who don't have money to come in, so that definitely is part of the issue."</p> <p>"I think where I work, a lot of the patients don't have access to other mental health treatments and we see patients who are uninsured. We basically see everyone. A lot of them have been suffering with unaddressed anxiety for a really long time, so I think that a lot of the patients are just very eager to try something that will hopefully work for them."</p> <p>"I guess with the population I work with, they have the tendency to not do the homework, and are not very consistent in coming to sessions."</p> <p>"Specifically, with the younger kid, it's not just the anxieties, [it's] the ADHD and the behavioral issues. So you kind of have to address those when they occur, you know, and I can't get to the exposures at that time."</p>
Intervention Characteristics	<p>"It takes a lot of work to try to even get people on board with any part of it, so if anything at this point, I'm using pieces, not like a full protocol."</p> <p>"After the workshop, I can see that exposures can be very beneficial and effective and it's something that can be an additive to your other techniques."</p> <p>"One of the things that I do, is help clients to see how things in their everyday life that they're already forced to deal with and interact with can be reframed in this context of exposures. I find that they're more willing to engage with it in that way, as opposed to doing a formal hierarchy or in processing after the fact, we talk about how it relates to their anxieties and approach it from that perspective as well."</p>
Liked	<p>"I think experiencing it, that it wasn't as scary, and seeing some examples of it. Seeing that it fits with my style of how I do things, and before it felt very harsh, but that's not how anyone presented it, and it was presented matter of factly about the anxiety cycle and it made a lot of sense."</p> <p>"I think [the consultation calls were] really helpful with being able to get immediate feedback on any issues I had while I was implementing it, because certainly, it's one thing to learn it there but it's another thing to be using it consistently in practice."</p> <p>"I highly enjoyed it, I enjoyed it more than I thought I would. It was very engaging, there was plenty of background material and research to support the theory of exposure therapy for anxiety disorders and debunking the myths that are associated with exposure therapy. I also enjoyed the fact that the participants that were present got to participate in their own level of exposures. For me, it wasn't a stimulus that was necessarily a fear evoking response, but I understand the value of putting yourself in the client's shoes and seeing how it would make them feel."</p> <p>"The fact that it was a group was engaging, and I liked how you got a piece of candy if you got a question right because that encouraged participation. Having us split up into the real-life exposures and doing the roleplays with the fear hierarchies, since I do find value in practicing, and I know it's uncomfortable for a lot of therapists including myself, but it is helpful because I don't learn by just reading about it, I learn by doing it with trial and error and having one of your team members give feedback. I found more value in the practice."</p>
Disliked	<p>"During the weekly calls, to be perfectly honest, I was somewhat disengaged during most of them because I found that there were people in the group or the call who were newer to the field. And the questions they were asking or the things they were working on was much more basic than where my skill level is at now."</p> <p>"Also, there was such a wide variety of what people did in your group that sometimes I felt like the people who were there to learn were pulling the topic away from what you were trying to teach to gear it more towards their own particular situation, and I got a little frustrated with that, because I knew that we had only the one day."</p> <p>"I don't think anybody in my group was afraid of spiders, so I think that it wasn't valuable, at least that part of it wasn't valuable to me until I watched another group that had a fear of spiders."</p>
Suggestions	<p>"So, for me, I would have liked it to have been a two-day training, but I was able to kind of pull it all together and take it away with me and make it usable. I don't know if somebody who was not as familiar or who was really brand new to it would have felt as comfortable implementing it."</p> <p>"I think it would have been more useful to be with someone who was afraid of spiders. I understood the</p>

activity better when we joined another group.”

“Maybe because [the consultation calls] were a phone call and not a video call. I felt like maybe, a video call or something in person would have been better, because I would have been forced to sit there and focus, but it was generally helpful.”

**Disliked.** One frequently endorsed disliked topic was frustration with the logistics of the consultation calls, including scheduling and accessing the technology (Webex) required for the calls. Some participants noted that they disliked aspects of the content and process of the calls. For example, some people reported feeling frustrated that other members of their consultation call group were at a different level than they were, which affected the pacing and types of questions being asked. Others reported having difficulty focusing and being engaged over the phone. Regarding the training more broadly, there were logistical comments about frustrations with parking and the layout of the room. Many people also said that there was not enough time to cover all of the content they would have liked to review, including interoceptive exposures and theory. Some also said that they wished there was more time for the “exposure piece” (i.e., experiential practice) of the training. Finally, multiple therapists reported that spiders were not a fearful stimulus for them, so they did not get the full benefit of the experiential portion of the day. Others said that they wished we could have used a stimulus that was more relevant to their clients (e.g., social anxiety exposures).

**Suggestions.** Participants had several suggestions to enhance the experiential practice, such as having a wider diversity of stimuli available and putting participants in “mixed fear-level” groups so that everyone worked with someone during the training who was engaging in a “real” exposure. The most frequently mentioned suggestion was that participants wished the training was two days instead of one. Many therapists suggested that we have follow-up booster trainings to serve as a refresher and/or to cover advanced topics in more depth, such as difficult clients, working with children, fears other than phobias, interoceptive exposures, and adapting exposure to different practice settings.



People suggested that we include more videos during the training, as many reported that they thought the videos were helpful. Finally, suggestions regarding consultation calls included that we have smaller groups on the calls, space the calls out over a longer period of time (e.g., every other week for six months), and meet in person or at least over video rather than by phone.

**Implementation process.** Implementation process was a CFIR-informed code referring to the process of learning about and trying to use the intervention, such as how the training and consultation calls applied to efforts to actually use the intervention in clinical practice. Participants' positive experiences of the implementation process included being "surprised" both by the speed of progress and effectiveness of exposures, as well as clients' willingness to engage in exposures once exposures were proposed to them. Many participants said that they felt capable of addressing clients' concerns and explaining the rationale and procedures of exposure based on what was learned in training. Furthermore, some people stated that they gained confidence from having participated in exposure practice. Participants described the handouts as being useful and said that consultation calls were a helpful "backup" that allowed for immediate feedback in addressing week-to-week difficulties with using exposure. Participants' negative experiences of the implementation process included frustration with lack of client motivation and how to apply what was learned in the workshop if they were unable to get client buy-in. In addition, many therapists reported that they did not have enough knowledge and confidence to proceed with exposures. Some people said that they would often get "stuck" in generating exposure ideas and implementing exposures in session.

**Parallel process.** Parallel process was a grounded-theory code that arose out of several therapists' descriptions of the ways in which their experience interacting with spiders during the training was consistent with what a client might experience during exposures. Many described this process as being helpful to understanding what a client might experience during exposure (i.e., to "gain empathy for clients") and as an effective way to address their negative beliefs about exposures. Participants said that it was helpful to experience a decrease in anxiety ("habituation") personally to see how exposures worked. In addition, the experiential practice helped many therapists better understand the logistical aspects of exposures and feel more confident using exposures with clients.

**Characteristics of individuals involved.** This CFIR-informed code focused on individuals involved with the implementation of exposures and included statements about the therapists' knowledge, beliefs, and attitudes related to exposures. Many participants reported that they attended the workshop because they were interested in learning new therapeutic strategies. Following the training, several participants described feeling excited and motivated to implement exposure with their clients. Many participants reported a shift in attitudes about exposures after attending the workshop, including feeling more positive and/or more informed about exposures. Many described exposure as "now a tool in my toolbox" that is effective and complementary to other strategies. Exposure also was described as a "clear-cut approach" that is flexible and more broadly applicable than they initially realized. Some people had positive associations with exposure prior to the workshop but never really used it (e.g., it was "glossed over" in their training). Others were resistant to exposure and had perceptions that exposure was expected to be rigidly implemented, but reported that they were surprised that it was

flexible and could be used as an adjunct to other treatments. Many also reported that understanding the theory behind exposure helped them feel more confident and comfortable using it. In general, participants who described having less success with using exposure also reported fears that it was not the right technique, that they did not have sufficient knowledge to apply it, or that they could harm the client (e.g., interoceptive exposures causing health issues) or damage the therapeutic relationship when using exposures.

**Addressing myths.** Addressing myths was a grounded-theory code that arose as a common theme when therapists described their perceptions of the training. Many therapists highlighted ways in which the training addressed myths and misconceptions that they had about exposures prior to the training. Some participants reported that they had negative associations with exposure prior to the training and believed many of the myths that they said were dispelled in the training. Many reported that addressing these myths improved their attitudes toward exposure and their willingness to use exposures in practice.

**Inner setting.** This CFIR-informed code referred to wherever the therapist is embedded (e.g., agency, private practice) and how it related to implementation of exposures. The majority of the statements coded as inner setting referred to barriers at the organizational level. The most commonly-stated barrier to implementation was that participants' supervisors did not have training in exposure and could not provide supervision in it. Relatedly, some participants said that people at work did not know what exposures were and were unable and/or unwilling to assist with them. Another commonly endorsed inner-setting barrier was short appointment times (e.g., 20-30 minutes), which

make it hard to do in-session exposures. Similarly, infrequent sessions (e.g., biweekly, monthly) were described a barrier to implementing exposures consistently. Many participants also said that having a high case load meant that they had little time to prepare for exposures prior to the session. In addition, some people reported that they were not allowed to leave their clinic with their clients for exposures, limiting the scope of exposure that could be completed. Some people also said that attending the consultation calls was difficult because they could not get time off during the work week to attend the calls. Positive statements related to inner setting included some reports of supervisors who knew about exposures and provided support for implementing them. A few people also mentioned that their work setting is generally supportive of people learning new treatment approaches.

**Outer setting.** This CFIR-informed code referred to characteristics of the larger context in which treatment is being implemented (e.g., Philadelphia), as well as factors related to the population receiving treatment. The majority of statements coded in this category referred to patient characteristics that affected therapists' ability to implement exposures. Common examples included clients being inconsistent with session attendance, homework completion, and/or caregiver involvement in treatment. Participants also described client avoidance, lack of motivation, and clients "not being ready for exposures" as barriers to using exposures in session. Related to this, participants said that clients would often bring in "crises of the week" that they would want to address prior to engaging in exposures. Another common theme was the presence of comorbid conditions that may interfere with the use of exposures, such as ADHD

(causing a short attention span for exposures), autism (causing a lack of social motivation), trauma, and complex cases with multiple diagnoses.

In addition to discussing client characteristics, some participants also mentioned that they had an increased awareness and willingness to provide referrals for OCD and anxiety in the Philadelphia area if they were unable to treat it themselves. One person mentioned that they previously did not know anyone using exposure therapy in the area and now felt comfortable making referrals to established providers in the area.

**Intervention characteristics.** This CFIR-informed code included perceptions and descriptions of the intervention itself, including core components (i.e., essential and indispensable elements of the intervention) and adaptable periphery (i.e., adaptable elements, structures and systems related to the intervention; Damschroder et al., 2009). As noted above, exposure was frequently described as a “tool in [my] toolbox” that can be used alongside other techniques. Some participants reported liking that exposure is concrete, clear-cut, and structured, while others described using it flexibly and in a “less structured way” that integrates what is happening in the client’s “real life.” Many described using exposure in an “informal” way where they did “mini exposures” based on current treatment goals or life stressors. Participants also reported liking that the exposure process could be broken into small steps and was intuitive. Several people reported using the psychoeducation component of exposure (i.e., the negative reinforcement cycle of avoidance) and connecting it to what was happening in the client’s life. However, others stated that this rationale can sound counterintuitive to clients, so buy-in for exposures can be hard. Some described only using parts of the intervention,

such as identifying core fears, the cycle of avoidance and the fear hierarchy, but not being able to use exposures consistently in session.

**Mixed method analyses.** Mixed methods were used to merge the quantitative and qualitative findings. Specifically, we examined how therapist-level characteristics (i.e., intentions to use exposure and fear of spiders) corresponded to therapist perceptions of exposure and acceptability of the ET. We also examined whether qualitative interview responses varied by setting (i.e., private practice versus CMH).<sup>1</sup> People with higher levels of fear of spiders made fewer statements about what they disliked about the training ( $n=8$ ) than people with low levels of fear ( $n=16$ ). People with high and low fear made a similar number of statements about what they liked about the training (low fear:  $n=51$ ; high fear:  $n=48$ ). Participants with higher intentions to use exposure made more statements on all acceptability codes (liked:  $n = 62$ ; disliked:  $n = 21$ ; suggestions:  $n = 45$ ) than those with low intentions (liked:  $n = 37$ ; disliked:  $n = 3$ ; suggestions:  $n = 20$ ), possibly suggesting higher overall engagement in the training process. Finally, participants in CMH settings made approximately five times more statements about inner setting ( $n=46$ ) than those in private practice ( $n=9$ ), and they made nearly three times as many statements about the implementation process (CMH  $n=47$ , private practice  $n=16$ ). Those in private practice discussed far fewer logistical barriers at the organizational level (inner setting). The majority of implementation process statements made by those in private practice suggested positive and successful experiences implementing the intervention, whereas those in CMH described a greater variety of outcomes and barriers in the implementation process.

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<sup>1</sup> Although academic degree varied by condition, all participants who completed qualitative interviews had a master's degree, so degree was not assessed using mixed methods.

## **Inferential analyses**

**Correlations with exposure use.** Bivariate correlations between exposure use at one month follow-up and the following (primary outcome) variables from pre- and post were examined: exposure use at pre-training, intentions to use exposure at post-training, attitudes toward exposure at pre- and post-training, TBES at pre- and post- training, knowledge at pre- and post-training, self-efficacy at pre- and post-training, and role play competence at post-training (Table 4). Exposure use at one-month follow-up was significantly correlated with exposure use at post-training, but most other measures were not correlated with exposure use. Pre-training knowledge, post-training attitudes about exposure, and post-training self-efficacy were correlated with post-training intentions to use exposure, but none of these variables (including intentions) were correlated with exposure use at one-month follow up. Finally, participants with higher self-efficacy at pre-training reported that they used exposures with a higher percentage of anxious clients prior to training. However, pre-training self-efficacy was not significantly associated with exposure use at one-month follow-up. Change in self-efficacy was also not significantly associated with exposure use.

**Pre- to post-training comparisons.** Paired samples *t*-tests examined changes in measures administered at pre- and post-training (Table 5). Knowledge, attitudes toward exposure, attitudes toward EBPs, self-efficacy, and fear of spiders significantly improved from pre-to post-training, collapsing across conditions. Role play competence also was assessed at post-training ( $M=3.72$ ,  $SD=1.53$ ) and post-consultation ( $M=4.06$ ,  $SD=1.39$ ), and did not significantly improve,  $t(17) = -0.81$ ,  $p = .43$ .

Table 4. *Correlations between exposure use at 1-month follow-up and primary outcome measures*

<i>Measures</i>	<i>Correlation Coefficients</i>													
	ETCUS: 1-month	% Exposure Use: 1-month	Total Exposure: 1 month	ETCUS: Pre	% Exposure Use: Pre	Total Exposures: Pre	Exposure Intention: Post	TBES: Pre	TBES: Post	KT: Pre	KT: Post	BAQ: Pre	BAQ: Post	Role Play Competence: Post
ETCUS: 1-month	—													
% Exposure Use: 1-month	.79**	—												
Total Exposures: 1-month	.75**	.45*	—											
ETCUS: Post	.29	.09	.43*	—										
% Exposure Use: Post	.64**	.42*	.68**	.78**	—									
Total Exposures: Post	.43*	.17	.59**	.77**	.71**	—								
Exposure Intention: Post	.09	.24	.17	-.10	-.01	.02	—							
TBES: Pre	.20	.13	.02	-.06	.05	.02	-.28	—						
TBES: Post	.28	.07	.15	.22	.37	.32	-.42*	.67**	—					
KT pre	.16	.23	.27	.18	.24	.03	.39*	-.24	-.28	—				
KT post	.13	.31	.10	.17	.17	.02	-.04	-.13	-.22	.46*	—			
BAQ: Pre	.27	.26	.21	.31	.48*	.19	.22	-.23	-.02	.35	.17	—		
BAQ: Post	.34 <sup>†</sup>	.38	.22	.08	.20	.04	.38*	-.16	-.22	.25	.32	.46*	—	
Role Play Competence	.30	.29	.26	-.07	.03	-.23	-.14	-.07	-.08	.24	.23	-.01	.23	—

\* $p < .05$  \*\* $p < .01$

Notes: ETCUS is the sum of ETCUS items divided by the number of anxious clients; % Exposure Use is the percentage of anxious clients with whom exposure was used; Total Exposure is the raw sum of number of imaginal, in-vivo, and interoceptive exposures used

Abbreviations: BAQ: Behavioral Anticipation and Confidence Questionnaire; ETCUS: Exposure Therapy Clinical Use Survey; KT: Knowledge Test; TBES: Therapist Beliefs about Exposure Scale



Table 5. *Comparisons of pre- to post-training measures (N=28)*

	Pre-Training <i>Mean (SD)</i>	Post-Training <i>Mean (SD)</i>	<i>T value</i>
Knowledge <sup>a</sup>	3.79 (1.79)	6.43 (1.37)	-8.31**
Attitudes toward Exposure (TBES) <sup>a</sup>	30.78 (8.46)	22.79 (10.16)	5.50**
Attitude toward EBPS (EBPAS)	2.53 (0.36)	3.20 (0.50)	-12.89**
Self-Efficacy (BAQ) <sup>a</sup>	2.89 (0.87)	3.83 (0.64)	-6.13**
Fear of Spider Questionnaire (FSQ)	30.54 (15.26)	22.07 (7.13)	3.92**

\* $p < .05$ , \*\* $p < .01$ ;

<sup>a</sup>Denotes primary outcome measure

The OISCE could not be compared at pre-training and three-month follow-up because of the different versions used (noted earlier). However, the OISCE mean at three-month follow-up for the current sample was 1.21 ( $SD=0.86$ ), which is markedly lower than the mean OISCE score in a specialty anxiety clinic sample ( $M=3.62$ ,  $SD=0.34$ ; Becker-Haimes et al., under review).

**Condition comparisons.** Means for all measures at all time points are displayed in Table 6, with the exception of the WEVAL and OISCE, whose means are included in the results above. There were no significant condition differences in the measures examined at pre- and post-training, including knowledge (pre- and post-training), EBPAS (pre- and post-training), implementation climate (post-training), anxiety sensitivity (pre-training), self-efficacy (pre- and post-training), fear of spiders (pre- and post-training), and role play competence (post-training and post-consultation). Intentions at post-training did not differ between the TAU ( $M=2.90$ ,  $SD=0.78$ ) and Experiential conditions ( $M=3.09$ ,  $SD=0.47$ ). Consultation call involvement also did not differ between the TAU ( $M= 3.29$ ,  $SD= 0.65$ ) and Experiential ( $M= 2.95$ ,  $SD=0.55$ ) conditions.

Table 6: Means for measures at each time point by training condition

Measures	Pre-Training		Post-Training		1-Month Follow-Up		2-Month Follow-Up		3-Month Follow-Up	
	Training-as-Usual	Experiential	Training-as-Usual	Experiential	Training-as-Usual	Experiential	Training-as-Usual	Experiential	Training-as-Usual	Experiential
Knowledge <sup>a</sup>	3.91 (1.87)	3.71 (1.79)	6.73 (1.35)	6.24 (1.39)	—	—	—	—	5.75 (1.49)	5.36 (2.25)
ETCUS <sup>a</sup>	1.30 (1.55)	0.75 (1.08)	—	—	2.32 (2.37)	4.18 (5.29)	3.73 (2.99)	4.53 (5.75)	1.82 (0.95)	3.49 (2.71)
% Exposure Use <sup>a</sup>	22.88 (22.88)	17.81 (28.92)	—	—	40.25 (28.94)	56.56 (44.69)	41.55 (26.66)	52.82 (34.43)	39.48 (18.72)	64.03 (31.25)
Total Exposure <sup>a</sup>	1.36 (2.01)	0.59 (0.87)	—	—	1.40 (1.51)	2.94 (3.57)	4.23 (2.69)	4.15 (3.48)	3.88 (2.36)	4.55 (4.74)
TBES <sup>a</sup>	29.04 (7.81)	31.91 (8.89)	20.37 (9.49)	24.35 (10.55)	22.82 (9.63)	23.87 (11.01)	20.50 (10.99)	22.39 (11.54)	20.25 (9.78)	24.18 (11.74)
Exposure Therapy Intentions <sup>ab</sup>	—	—	3.09 (0.47)	2.90 (0.78)	—	—	—	—	—	—
EBPAS	2.64 (0.36)	2.45 (0.35)	3.22 (0.50)	3.19 (0.51)	2.94 (0.46)	3.07 (0.35)	3.05 (0.38)	3.18 (0.50)	3.25 (0.33)	3.16 (0.50)
ORC: Change	—	—	—	—	—	—	—	—	38.75 (8.75)	29.33 (5.20)
ICS	—	—	2.04 (0.64)	2.23 (0.79)	—	—	—	—	2.04 (0.64)	2.23 (0.79)
ASI	16.82 (8.16)	17.22 (12.14)	—	—	—	—	—	—	12.50 (7.37)	8.40 (4.88)
BAQ <sup>a</sup>	3.12 (0.89)	2.75 (0.85)	3.89 (0.32)	3.80 (0.80)	—	—	—	—	3.83 (0.53)	3.68 (0.79)
FSQ	25.18 (9.71)	34.00 (17.37)	21.18 (5.91)	22.65 (7.94)	—	—	—	—	—	—
Role Play Competence <sup>a</sup>	—	—	3.00 (1.61)	3.75 (1.84)	—	—	—	—	4.38 (1.60)	3.80 (1.23)

\* $p < .05$  \*\* $p < .01$ ; <sup>a</sup>Denotes primary outcome measure; <sup>b</sup>Intentions questionnaire at post-training asks about likelihood of using exposure; at follow up, instead asks reasons they have not used exposure (if applicable), as reported in Table 6

Notes: ETCUS is the sum of ETCUS items divided by the number of anxious clients; % Exposure Use is the percentage of anxious clients with whom exposure was used; Total Exposure is the raw sum of number of imaginal, in-vivo, and interoceptive exposures used

Abbreviations: ASI: Anxiety Sensitivity Index; BAQ: Behavioral Anticipation and Confidence Questionnaire; EBPAS: Evidence-Based Practice Attitude Scale; ETCUS: Exposure Therapy Clinical Use Survey; FSQ: Fear of Spiders Questionnaire; ICS: Implementation Climate Scale; ORC: Organizational Readiness for Change; TBES: Therapist Beliefs about Exposure Scale

Repeated measures ANOVA examined primary outcomes (exposure use and attitudes toward exposure) at pre-training, post-training, and one-month follow up. Specifically, changes in attitudes toward exposure (TBES) were examined using a repeated-measures, mixed factorial ANOVA with a Time (pre-training, post-training, 1-month follow up) x Condition (TAU versus Experiential) design. Neither Condition nor the interaction (Time x Condition) was significant, but there was a significant main effect of Time,  $F(1, 23) = 12.46, p < .001, \text{partial } \eta^2 = .35$ . These analyses also were conducted using repeated-measures, mixed factorial ANOVAs to assess exposure use with a Time (pre-training, 1-month follow-up) x Condition (TAU versus Experiential) design. There was a significant main effect of Time for both the ETCUS sum,  $F(1, 22) = 4.62, p = .04, \text{partial } \eta^2 = .17$ , and the percentage of exposure use,  $F(1,21) = 7.72, p < .01, \text{partial } \eta^2 = .27$ . However, neither had significant main effects of Condition or interactions (Time x Condition). When examining the raw total of exposures used, there was a significant main effect of Time,  $F(1, 23) = 13.01, p = .001, \text{partial } \eta^2 = .36$ , and a significant Time x Condition interaction,  $F(1, 23) = 7.13, p = .01, \text{partial } \eta^2 = .24$ . This interaction indicates that there was a significantly greater change in exposure use over time for the ET condition than for the TAU condition (Figure 2). Finally, Table 7 includes reasons that people did not use exposure for those who reported not using it since last assessment period.

**Role play comparisons.** Role play exposure guide items were examined individually, based on evidence that individual items relate to patient outcomes (Benito, Freeman, Garcia, Herren, et al., unpublished).

Table 7. Participants' report of reasons for not using exposures.

	<b>1mo. Follow Up N (%)</b>	<b>2 mo. Follow Up N (%)</b>	<b>3 mo. Follow Up N (%)</b>
No new clients with primary anxiety and addressing other concerns with existing anxious clients	4 (14.3)	1 (3.6)	2 (7.1)
Current clients with anxiety disorders do not seem like a good fit for exposure	3 (10.7)	1 (3.6)	1 (3.6)
Inadequate training and/or supervision to conduct exposure	1 (3.6)	1 (3.6)	0 (0)
Other <sup>a</sup>	5 (17.9)	3 (10.7)	1 (3.6)
<b>Total not using exposures in last month</b>	<b>13</b>	<b>6</b>	<b>4</b>

<sup>a</sup>Other reasons included: high no-show, other higher priority issues, difficulty getting on board; I'm not skilled enough to recognize a good exposure fit; client has legitimate anxiety; anxiety is self-protective and not incapacitating; client has multiple diagnoses, grief, PTSD

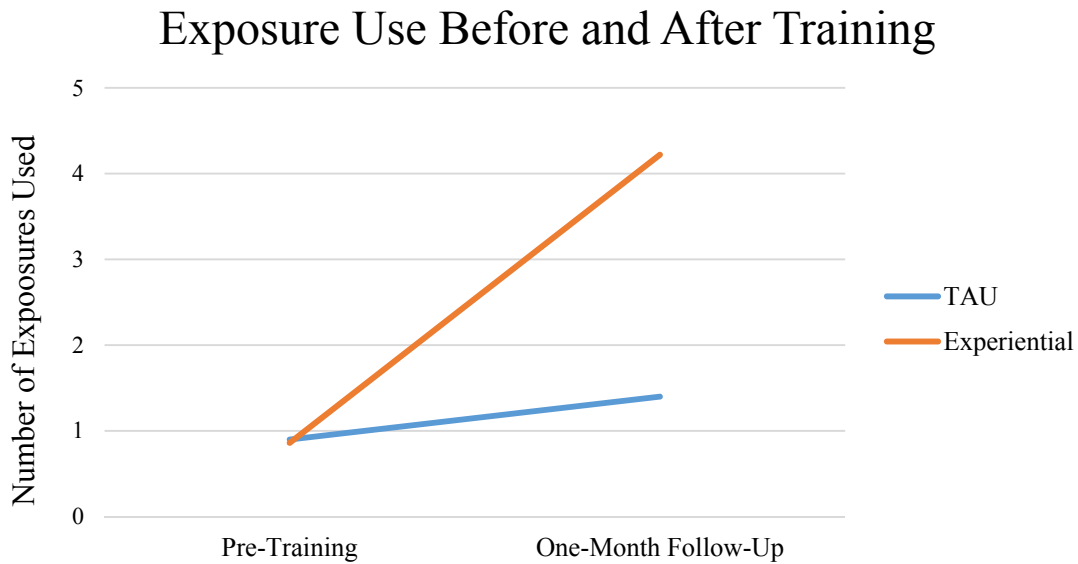


Figure 2. *Exposure Use over Time*

Because therapist statements that increase anxiety (i.e., encourage approach, intensify exposure) are the items hypothesized to be associated with the best treatment outcomes, we focused on these two variables. From post-training to post-consultation, there were no significant changes in the frequency with which participants used statements that encouraged the client to approach fear-evoking stimuli (post-training  $M = 2.46$ ,  $SD = .51$ ; post consultation  $M = 2.47$ ,  $SD = .62$ ) nor in the frequency of statements used to intensify the exposure (post-training  $M = 1.50$ ,  $SD = .51$ ; post consultation  $M = 1.76$ ,  $SD = .56$ ). There were also no significant condition differences on these measures at either time point. These items were not significantly correlated with exposure use (measured any of the three ways at pre-training or 1-month follow-up). Many exposure guide items were used infrequently, including externalizing talk ( $n=1$  participant at post-consultation), unrelated talk ( $n=2$  participants at post-training) and non-exposure teaching ( $n=1$  participant at post-training), but these types of statements are less likely to be associated with treatment outcomes (Benito, Freeman, Garcia, Herren, et al., unpublished).

## **CHAPTER 4**

### **DISCUSSION**

Workshops focused on training therapists in exposure therapy have been shown to be effective in improving knowledge about exposure, but not in increasing the use of exposure in clinical practice. The present study examined a novel experiential approach to training therapists in exposure therapy that was designed to address barriers related to the translation of knowledge into practice. Results indicated that the ET was both feasible and acceptable. In addition, the ET resulted in a significantly greater increase in self-reported exposure use (number of exposures used) at one-month follow-up compared to the TAU condition. As hypothesized, both conditions demonstrated improvements in most domains, including knowledge and self-efficacy, as well as attitudes toward exposures, attitudes toward EBPs, and exposure use. Contrary to expectations, there were no significant differences between conditions in beliefs about exposure or intentions to use exposure, nor were there significant condition differences on most other measures.

This study was unique in its application of a truly experiential training. Other studies have referred to using experiential methods for training (e.g., Bennett-Levy et al., 2001: self-practice and self-reflection of cognitive therapy elements; Farrell et al., 2016: simulated interoceptive exposures for a total of five minutes; Richards et al., 2011: experiential willingness to share difficult experiences with the group; Herschell et al., 2009: role plays and practice coding of videotapes with individualized feedback; Webster-Stratton, Reid, & Marsenich, 2014: self-reflection, role plays, group sharing; Hadjistavropoulos, Thompson, Klein, & Austin, 2012: practice responding to client emails). However, none of these studies had therapists themselves complete prolonged

experiential practice. Instead, many studies incorporated very brief (i.e., five minute) practice or encouraged participants to complete activities (e.g., thought record) independently and outside of the training setting. In contrast, the experiential approach in the current study incorporated practice that was prolonged and designed to be consistent with a client's experience of the intervention (exposure). Using the one-session treatment format (Ollendick et al., 2009) allowed for experiential practice across all phases of exposure (i.e., psychoeducation; hierarchy building; in-vivo exposure; homework/relapse prevention). Given that this was a novel training approach, mixed methods allowed us to thoroughly assess the acceptability of training. For example, through mixed methods analyses, we found that participants with low fear levels felt that they missed out on witnessing a "real" exposure. As noted above, we paired participants with others who had similar levels of anxiety about spiders. However, it may be helpful to allow for some practice across fear levels in future work. In addition, it may be helpful for other types of stimuli to be available (e.g., snakes, social anxiety exposures) to increase the likelihood that all attendees could personally experience an exposure. This also raises the question of how important it is for participants to experience exposures themselves, or if practicing using exposure with another person who is experiencing anxiety in the moment would provide sufficient opportunity for experiential learning.

Quantitative measures of training satisfaction were comparable for both conditions, suggesting that the ET condition, like TAU, was satisfactory to participants. Qualitative interviews with participants in the ET condition indicated that attending the workshop shifted attitudes about exposure to be more positive, especially through discussion of the myths about exposure (similar to Farrell et al.'s (2016) enhanced

training). In addition, mixed methods analyses found that participants who were more fearful of spiders actually had fewer negative perceptions of the workshop than participants who were less fearful. Participants who were less fearful described feeling like they missed out on the full training opportunity and requested more fearful stimuli in future trainings. Not surprisingly, participants from CMH settings made many more statements about barriers related to their organizations and the implementation process, which is consistent with previous findings suggesting that there are differences in implementation success across settings (Proctor et al., 2009). The majority of barriers endorsed in qualitative interviews were related to client factors and organizational policies and limitations. This is consistent with the finding that the OISCE mean score in the current sample was substantially lower than OISCE mean for anxiety specialty clinics. Taken together, these findings highlight the importance of (a) addressing barriers and facilitators of exposure use at multiple-levels and (b) integrating therapist-level variables with client- and organizational-level variables when testing causal models of implementation success (Williams & Beidas, 2018).

Given the focus on therapist-level variables, the ET approach expanded upon best practices for therapist training. We incorporated active, principle-based learning strategies, strategies for engaging participants, as well as true ET through participation in exposures. In addition, participants received three months of support after training via weekly hour-long consultation calls. Another strength of this study was its use of mixed methods to merge quantitative and qualitative findings, which provided greater depth to the results.



Despite the strengths of this study, it also had several limitations. Some measures (e.g., the ASI; the OISCE) were not able to be analyzed because of the particularly small sample size at three-month follow-up. Inferential analyses that were conducted for pre-training, post-training, and one-month follow-up measures were underpowered and may have resulted in Type II errors. This likely explained the lack of statistically significant differences between conditions on variables that had substantial differences in means (e.g., post-training fear of spiders). However, because of the exploratory nature of this study, a greater emphasis was placed on examining descriptive statistics (e.g., means) rather than inferential analyses. In addition, there were limitations in the timing and type of measures. First, we did not include measures after consultation ended, which could be important to include in future research to assess the sustainability of training. Second, as noted above, measures of exposure use were self-report (often inflated or inaccurate; Nakamura et al., 2014) and there was no measure of client outcomes. In addition, competence was measured by role plays rather than through actual client sessions.

Future research using role plays as an analogue fidelity measure may benefit from a more fine-grained analysis of therapist statements and their impact on the client's anxiety. Specifically, it will be important to consider what kinds of therapist statements are associated with the best patient outcomes when tailoring strategies for training. In the current study, anxiety-increasing statements (i.e., encouraging approach) were the most frequent of all coded statements. Ongoing work suggests that such encouraging approach statements predict greater habituation for moderate or high fear levels and has a significant indirect positive effect on clinical outcomes (via habituation; Benito, Freeman, Garcia, Herren, et al., Unpublished; Benito et al., 2018). However, other statements, such

as externalizing talk during exposures, may not have the desired effect. Given the importance of therapist statements during exposure, it will be important to integrate ongoing research about exposure process into trainings for therapists.

Feasibility outcomes provide suggestions that may guide the design of future studies and approaches to training. Specifically, listservs appeared to be the most successful method for recruitment. Recruitment may be improved by starting more than two months prior to the training, as this timing limited participants' availability to attend the dates available. The study approach appeared to be feasible, as retention was relatively high (approximately two-thirds of participants completed measures at three-month follow-up). However, measures toward the end of each assessment were less likely to be completed, suggesting that future studies should order measures in terms of relative interest. Notably, the three-month follow-up questionnaires took substantially more time to complete than the one- and two-month follow-up questionnaires, so this may have reduced rates of completion at this time point. Although only about 60% of participants met the required number of consultation calls, the mean number of calls attended was eight calls, and the mode was ten calls. Thus, requiring around nine calls may be a reasonable target number based on this sample. Finally, participants asked for ongoing support in exposures, but did not use the option offered (a peer listserv). This may be explained by some of the responses from the qualitative interviews, which included mention of high caseloads, competing priorities, and frustration with participants who had less training in exposure therapy. Consultation call groups may benefit from being assigned by therapists' comfort or experience with the intervention.

Finally, there were significant post-training improvements in many of the targeted domains, including those that have not been successfully addressed by many previous studies of therapist training (e.g., exposure use; Frank & Kendall, 2019). However, exposure use was still relatively low after training, with a mean of approximately three exposures used per month for the ET condition. In addition, mean competence scores were between “acceptable” and “good” at post-training and post-consultation. Given the importance of both adherence (use of the intervention components) and competence (skill and responsiveness) as key indicators of treatment integrity (McLeod et al., 2017; Schoenwald et al., 2011), these results suggest that post-training outcomes may not meet a threshold of treatment integrity. This is consistent with previous research showing that therapists in community settings deliver EBTs at a lower “dose” than therapists in research settings (McLeod et al., 2017; Weisz, et al., 2009; Wood, Piacentini, Southam-Gerow, Chu, & Sigman, 2006). Related to this, even though this training focused on just one intervention component (i.e., exposures), qualitative interviews indicated that many participants only used “pieces” of exposure, such as psychoeducation, hierarchy building, or homework, and did not conduct in-session exposures. This is consistent with Chu and colleagues’ (2015) finding that only 35% of community therapists trained in *Coping Cat* for anxiety in youth used exposures and that the majority of participants (78.5%) only used parts of the intervention. Although the current training may have increased the use of exposures to some extent, this does not necessarily ensure that the intervention was implemented with integrity or that it led to more positive client outcomes. This again highlights the fact that therapist trainings must be considered in the context of other factors defined by implementation science frameworks, including client- and

organization-level variables (Powell, Proctor, & Glass, 2014). In the context of the current study, additional organization-level themes emerged in qualitative interviews. For example, participants reported a desire for additional training, but also noted that it was difficult to schedule attendance at workshops and on consultation calls because of their work schedules. Similarly, participants reported having minimal time to prepare for sessions, which may affect their ability to implement the intervention as planned. Future efforts to increase implementation will need to target multi-level barriers such as these.

### **Conclusions**

In summary, the experiential approach to training therapists in exposure therapy is both feasible and acceptable. There is preliminary evidence that it may increase the use of exposure above and beyond TAU, but this will need to be examined with a larger sample of participants in future research. In addition, the ET was described as being most useful for those who experienced fear themselves when practicing with exposure stimuli. This provides additional evidence for acceptability and suggests that it may be useful to provide a wider array of fearful stimuli to ensure that everyone benefits from the experiential practice. Finally, as hypothesized by many implementation science frameworks, it continues to be important that efforts to train therapists address barriers beyond therapist factors, including client- and organizational-level factors.

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## **APPENDIX**

### **EXPANDED LITERATURE REVIEW**

Therapist training in evidence-based practices for mental health:

A review of training approaches and outcomes

Preliminary Examination, September 2018

Although numerous psychological treatments have been developed and determined to be efficacious for a range of mental health disorders (e.g., substance abuse, eating disorders, anxiety, depression), most therapists do not receive training in or use evidence-based practices (EBPs) in routine clinical care (e.g., Garland, Bickman, & Chorpita, 2010; Gyani, Shafran, Myles, & Rose, 2014; Shiner et al., 2013). Recognition of this research-to-practice gap (APA Presidential Task Force on Evidence-Based Practice, 2006) promoted several initiatives focused on the dissemination and implementation of evidence-based practices (e.g., Department of Veterans Affairs, 2008; Nakamura et al., 2011). Relatedly, the field of implementation science has identified strategies that facilitate the transfer of research knowledge into clinical settings where mental health services are most often delivered (e.g., community mental health settings; Ringel & Sturm, 2001).

Stirman, Gutner, Langdon, and Graham (2016) commented that treatments examined in research are often thought to require some modification for the setting in which they are implemented. To the degree that this is accurate, it may be difficult to implement treatments that meet the criteria needed to be defined as empirically-supported treatments (ESTs; Chambless & Hollon, 1998). An intervention for a given problem should be evidence-based, and research methodologies in addition to randomized

controlled trials (RCTs) can guide treatment selection for a given context (Anderson, 2006; as cited by Stirman et al., 2016). As a consequence, the focus within implementation science is often on evidence-based psychological therapies, rather than on specific ESTs.

### **Therapist Training**

Although there are several barriers to the dissemination and implementation of EBPs, the lack of training in EBPs has been identified as one of the reasons for limited access to effective mental health services (Weissman et al., 2006). Efforts to increase the use of EBPs through therapist self-study of treatment manuals has been found to be ineffective (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005). In-person and online training courses are more effective than manuals and lead to increased therapist knowledge and self-efficacy but do not alone result in changes to provider behavior or better client outcomes (e.g., Dimeff et al., 2009; McHugh & Barlow, 2010). Active (as opposed to passive) training strategies, such as behavioral rehearsal (role play) during training, have been shown to lead to higher adherence and skill on behavioral rehearsals after training (Beidas & Kendall, 2010), but this does not necessarily translate to greater use of the interventions in practice. One strategy that has been demonstrated to increase the likelihood of EBP use following training is the provision of ongoing consultation or supervision<sup>2</sup> (Herschell et al., 2010). Increasing evidence indicates that consultation following training leads to increased knowledge and skill, as well as more use of the intervention in practice (e.g., Beidas, Edmunds, et al., 2012; Schoenwald, Sheidow, &

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<sup>2</sup>As defined by Nadeem, Gleacher, and Beidas (2013), consultation (sometimes referred to as “coaching” in education) is more often the appropriate term for the studies included in this review, as it refers to external support provided by experts on the intervention being disseminated and implemented. In contrast, supervision typically refers to internal support provided to clinicians by their agency, clinic, or school district.



Letourneau, 2004). However, even with consultation, the use of EBPs in routine practice remains disturbingly low (E. M. Becker, Smith, & Jensen-Doss, 2013; Stirman et al., 2012).

### **Implementation Science Frameworks**

Several dozen implementation science frameworks have been proposed that identify factors that may affect the successful implementation of EBPs (Tabak, Khoong, Chambers, & Brownson, 2012). Implementation frameworks, such as the Consolidated Framework for Implementation Research (CFIR; Damschroder et al., 2009) and the Exploration, Planning, Implementation, and Sustainment (EPIS; Gregory A Aarons et al., 2011) identify the breadth of constructs associated with implementation success in complex systems. In addition, these frameworks identify potential barriers to implementation, which can occur across several levels. For example, the CFIR (Damschroder et al. 2009) highlights the importance of considering the inner and outer setting, characteristics of the individuals involved, the intervention itself, as well as the implementation process. Influences at each of these levels interact, such that the success of a therapist in implementing an intervention after receiving training will be affected by therapists' own beliefs, their clients' characteristics, organizational factors of the setting in which they work (inner setting), as well as the broader context of the region in which they work (outer setting). The CFIR framework suggests that, in addition to providing training and ongoing consultation or supervision, it is necessary to consider the ways in which other factors (e.g., agency support,) facilitate or hinder the delivery of the targeted intervention (Murray et al., 2018).

### **Reviews of Therapist Training**

Although we acknowledge that training of therapists takes place within a broader context, this review focuses specifically on strategies for training mental health therapists who work in routine care settings, particularly community mental health centers. In 2010, three reviews of the effectiveness of training were published (Beidas & Kendall, 2010; Herschell et al., 2010; Rakovshik & McManus, 2010). Following a brief summary of the earlier findings, we review the current status of the effects of different methods of training.

Reading a treatment manual alone has consistently been shown not to result in changes to therapist skill or competence in the provision of the intervention. Similarly, workshop participation alone is not sufficient to improve therapist skill, increase the use of the intervention, or improve client outcomes. In contrast, active learning strategies during workshop training have been found to be effective in influencing therapist behavior change. Expert consultation and feedback appear to be necessary for increasing the use of the intervention in practice but are not always feasible due to the fact that they are resource-intensive and usually relatively short-term. In addition, multi-component trainings (e.g., manual, in-person training, consultation, supervisor training, booster training) have demonstrated better outcomes than training approaches that only use one or two training components alone. The prior reviews called for additional research on consultation/supervision practices, web-based training, train-the-trainer methods, and direct comparisons of different methods. In addition, the prior reviews highlighted methodological issues, including lack of theoretical frameworks, measurement of a limited number of constructs from a limited number of observers (i.e., self-report only; no gold-standard outcome measures), and use of non-standardized measures. In addition to

updating the literature related to training strategies for EBPs in usual care (52 new reports), the present review examines the degree to which the limitations identified by the previous reviews have been addressed and offers suggestions for the next needed studies.

### **Method**

A comprehensive literature search identified all relevant articles published since the 2010 reviews (Herschell et al. 2010; Beidas & Kendall, 2010; Rakovshik & Mcmanus, 2010) through May 2018. Searches were conducted in PsychInfo and Pubmed using the following key words: training, evidence-based, community, mental health, clinicians, dissemination, implementation. In addition, Google alerts for the phrases “dissemination and implementation” and “clinician training evidence-based practice” were used from November 2017 through May 2018 to find current articles. Finally, consistent with Greenhalgh et al. (2004) and Herschell et al. (2010), we used a snowball method, in which we searched references of all included articles to find additional citations.

Studies published between 2010 and May 2018 were included if the focus was on training mental health providers (e.g., social worker, psychologists, psychiatrists, substance abuse counselors) to deliver an evidence-based mental health or substance abuse intervention. We excluded studies that focused on training non-mental health providers (e.g., teachers), as well as studies focused on providing training in the implementation of non-mental health prevention programs. Because of the focus on practicing mental health providers, articles about semester-long courses and graduate training programs were excluded. Finally, unpublished dissertations, articles only including qualitative results, and conceptual papers were excluded.

Consistent with Herschell and colleagues (2010), we classified studies according to Nathan and Gorman's (2002, 2007) criteria for evaluating methodological rigor. All studies in this review were classified as Type 1, Type 2 or Type 3; we excluded Type 4 (reviews with secondary data analysis), Type 5 (reviews without secondary data analysis) and Type 6 (case studies, essays, opinion papers) studies. Type 1 studies are RCTs with comparison conditions, random assignment, blind assessments, clearly-defined inclusion and exclusion criteria, state-of-the-art diagnostic methods, sufficient statistical power, and description of statistical methods. Type 2 studies are clinical trials, missing one or more of the criteria defined in Type 1 studies (e.g., lack of random assignment, underpowered), but not fatally flawed. Finally, Type 3 studies have clear methodological limitations and are typically uncontrolled studies using pre/post and retrospective designs. The first author (HEF) coded all studies for classification as Type 1, Type 2, or Type 3. The second author (PCK) reviewed a random subset of studies ( $n=10$ ; 19.2%) and discussed their classification with the first author, obtaining consensus of classification for 100% of studies reviewed.

## **Results**

### **Summary of the Literature**

A total of 52 research reports meeting inclusion criteria were identified. Studies that were sub-studies from the same parent study are described in text, but not included in the 52 papers. Five training approaches were examined in these studies, including in-person workshop only (10 studies), in-person workshop and consultation (17 studies; 1 sub-study), online workshop (14 studies; 2 sub-studies), train-the-trainer (3 studies), and intensive trainings (i.e., at least 20 hours of training and two components in addition to

the workshop; 8 studies). Of note, no studies examined treatment manuals or written materials alone, likely due to the well-established finding that self-study is not sufficient to significantly change therapist behavior (Beidas & Kendall, 2010). Thirteen percent of studies ( $n = 7$ ) were Type 1, 19% ( $n = 10$ ) were Type 2, and 67% ( $n = 35$ ) were Type 3. The majority of Type 2 studies were missing clear inclusion criteria or random assignment to training conditions. Most Type 3 studies were classified as such due to their lack of comparison conditions (i.e., within-subjects design) or lack of randomization. Other reasons for Type 3 classification included lack of treatment integrity measures, lack of client outcome measures, non-standardized measures, and short or no follow-up assessments.

The following sections detail and review the approach, findings, and limitations of studies using each training modality (i.e., workshop only, workshop plus consultation, online workshop, intensive training, train-the-trainer) in a manner consistent with Herschell et al. (2010). Although some studies conducted workshops using multiple approaches, studies are classified by the modality of the active comparison condition (i.e., if a study compared an online workshop to training-as-usual, it would be included in the online training section). Additional details are in Tables A1- A5.

## **Workshop Only**

### **Description of Studies**

Ten studies focused on training clinicians via in-person workshops with no additional consultation or follow-up (Chin et al., 2018; Deacon, Farrell, et al., 2013; Farrell et al., 2016; Heather D. Hadjistavropoulos, Maureen J. Thompson, Britt Klein, & David W. Austin, 2012; Leffler, Jackson, West, McCarty, & Atkins, 2013; Lim et al.,

2012; M. A. Lopez, Osterberg, Jensen-Doss, & Rae, 2011; Palfrey et al., 2018; Richards et al., 2011; Waller, Walsh, & Wright, 2016). Nine of 10 were Type 3 studies that employed within-subject designs or had other important limitations. One study was Type 2 (Farrell et al., 2016) because it was a between-subjects design and had randomization (at the condition level), but it lacked follow-up. Only two studies had follow-up assessments beyond the initial training, at 6-months (M. A. Lopez et al., 2011) and 12-months (Richards et al., 2011). Lim and colleagues' (2012) study examined changes over time for participants who attended multiple trainings over a 15-month period. The remainder of the studies only included pre- and post-training assessments. Sample sizes varied widely with a range of 20 to 268 participants. Regarding outcome measures, most studies (8 of 10) examined attitudes toward evidence-based practice. Five of these studies used measures about attitudes with acceptable psychometric properties (i.e., the Evidence-Based Practice Attitudes Scale (EBPAS: Gregory A Aarons, 2004); or the Therapist Beliefs about Exposure Scale (Deacon, Lickel, et al., 2013), whereas other studies used assessments of attitudes that were developed specifically for each study. Knowledge was the second most commonly assessed domain and was assessed in 4 out of 10 studies. However, only one study used a psychometrically-examined assessment of knowledge (i.e., Lim et al. 2012; Knowledge of Evidence-Based Services Questionnaire; Stumpf, Higa-McMillan, & Chorpita, 2008). All outcome measures were self-report. Training was provided for a variety of treatments, including exposure therapy for anxiety, post-traumatic stress disorder (PTSD), and eating disorders; cognitive behavioral therapy (CBT) for internalizing and externalizing disorders; behavioral parent training programs

for youth with externalizing disorders; acceptance and commitment therapy (ACT); and multi-family psychoeducation psychotherapy (MF-PEP). See Table A1.

### **Summary of Findings**

Previous studies found that workshops improve therapists' EBP knowledge and attitudes but not actual behaviors (Beidas & Kendall, 2010). However, as noted by Lim and colleagues (2012), therapist knowledge and attitudes are still often a primary barrier to the competent and regular use of EBPs and should be examined further. Consistent with previous studies, the recent studies of in-person workshops without additional consultation or follow-up again indicated improvement in knowledge and attitudes about EBPs after training. Several of these studies examined pre-training therapist characteristics as predictors of training outcomes (e.g., knowledge, attitudes), given that these characteristics could have implications for who may benefit most from training (Lim et al., 2012; Waller, Walsh, et al., 2016). Results were mixed regarding whether having previous experience with the EBP or having more favorable attitudes toward EBPs is associated with more or less change in knowledge and attitudes (Deacon, Farrell et al. 2013; Lim et al. 2012; Lopez et al. 2011; Waller et al. 2016). Richards et al. (2011) reported that participants with higher psychological flexibility had higher knowledge post-training. In addition, Lim and colleagues (2012) found that providers over-generalized the label for EBPs, often applying it to non-EBP strategies. Not surprisingly, more time spent in training resulted in better training outcomes (Leffler et al. 2013). Some studies incorporated the use of experiential approaches (e.g., Richards et al. 2011; Lopez et al. 2011; Hadjiistavropoulos et al. 2012), which were rated positively by participants. Finally, Farrell and colleagues (2016) conducted the only workshop-only

study that directly compared conditions and found that therapists who received an enhanced training focused on discussing therapist concerns about exposure therapy had significantly greater reductions in concerns about exposure from pre- to post-training. In addition, those in the enhanced training reported superior quality delivery of exposure therapy.

### **Limitations of Studies Reviewed**

The majority of studies in this category were within-subject and non-randomized. Most had a naturalistic design that allowed for examination of training efforts that were already underway but were not necessarily designed specifically for empirical assessment or comparison. Most of the measures were self-reports that have not been psychometrically evaluated. In addition, comparison across studies was difficult given variability in the duration of training, with most trainings being approximately one day, but one being as brief as 90 minutes (Waller et al. 2016). There was also variability in the training approach; most workshops included some active learning components (e.g., experiential training; Hadjiistravopoulous et al. 2012; Chin et al. 2018), given previous research suggesting their importance. However, although most studies mentioned the use of active learning strategies, they did not expand on the specific way or frequency with which these strategies were implemented. The findings from these studies indicate that knowledge and attitudes are improved after a workshop training, but the lack of standardized measures limits the generalizability of other conclusions (e.g., therapist characteristics associated with training outcomes).

### **Workshop and Consultation**

#### **Description of Studies**



Seventeen studies trained therapists with in-person workshops and included ongoing consultation (or supervision) after the study (Beidas, Edmunds, et al., 2012; Brookman-Frazee, Drahota, & Stadnick, 2012; Chu et al., 2015; Eftekhari et al., 2015; Eftekhari et al., 2013; Hamblen, Norris, Gibson, & Lee, 2010; Henggeler, Chapman, Rowland, Sheidow, & Cunningham, 2013; Lewis & Simons, 2011; Lu et al., 2012; Luoma & Vildardaga, 2013; Lyon, Dorsey, Pullmann, Silbaugh-Cowdin, & Berliner, 2015; Pemberton et al., 2017; Reese et al., 2016; Ruzek et al., 2017; Ruzek et al., 2016; Simons et al., 2010; Webster-Stratton et al., 2014). Beidas, Mychailyszyn, and colleagues (2012) reported a study of school-based providers using a subset of data from Beidas, Edmunds, et al. (2012). Findings for this sub-study are described below, but not included in the description of study characteristics. Of the 17 unique studies, 13 were Type 3, with predominantly pre/post within-subject designs, though some included follow-ups. Other variations of Type 3 studies included quasi-experimental designs (e.g., comparison of client outcomes for therapists who had and had not received CBT training; Simons et al. 2010) and retrospective surveys of therapists who had attended a workshop (Reese et al., 2016). Another Type 3 study included follow-up interviews of therapists who were previously trained in CBT (Chu et al. 2015). There were three Type 2 studies (Luoma & Vildardaga, 2013; Henggeler et al. 2013; Webster-Stratton et al. 2014), none of which had explicit inclusion/exclusion criteria, and some of which were lacking in blind assessments or a sufficient sample size. Finally, there was one Type 1 study (Beidas, Edmunds, et al., 2012), which was a rigorous RCT comparing different training approaches.

Sample sizes ranged widely from 12 (Simons et al. 2010) to 1105 participants (Eftekhari, et al., 2015). Outcome measures that were most frequently assessed included

attitudes, knowledge, competence, fidelity, and use of the intervention. Measures of attitudes included the EBPAS (Beidas, Mychailyszyn, et al., 2012; Pemberton et al., 2017), as well as other assessments of attitudes that were adapted from measures that have been psychometrically evaluated (e.g., Hamblen et al. 2010; Lewis & Simons, 2011, Lyon et al. 2015). In addition, a measure of attitudes specific to prolonged exposure was developed by Ruzek, Eftekhari, et al. (2014), examined psychometrically, and used in three related studies (Ruzek et al. 2016; Ruzek et al. 2017; Eftekhari et al. 2015). Knowledge was measured in seven of 17 studies, though the majority of studies used knowledge measures that had been developed specifically for the study and not standardized. Other domains measured included training satisfaction, barriers to implementation, use of the intervention in practice, confidence, competence, and fidelity. Some studies (e.g., Eftekhari et al. 2013; Eftekhari et al. 2015; Simoons et al. 2010) measured client outcomes using psychometrically-examined measures (e.g., Beck Depression Inventory; Beck, Steer, & Brown, 1996).. The majority of therapist measures were self-report, with the exception of competence, which was assessed either through role plays with standardized patients (Beidas, Edmunds, et al., 2012), or through observation of actual sessions (Webster-Stratton et al. 2014; Simons et al. 2010; Henggeler et al. 2013; Lu et al. 2012; Brookman-Frazee et al. 2012). Role plays or actual sessions were recorded and rated by trained coders. However, two studies used a self-report measure of skill (Reese et al. 2016; Lyon et al. 2015). Finally, one study (Chu et al., 2015) used semi-structured qualitative interviews about therapists' perceptions of training.

In some studies, training was provided for specific treatment manuals (e.g., Incredible Years, Webster-Stratton et al. 2014; Coping Cat and Primary and Secondary Control Enhancement Training (PASCET), Chu et al. 2015; Coping Cat, Beidas, Edmunds, et al. 2012). Other studies focused on providing training in a theoretical framework (e.g., ACT; Luoma & Vilardaga, 2013), and some focused on using a specific framework (e.g., CBT) or strategy (e.g., exposure) to treat a specific disorder (e.g., PTSD, depression, substance use).

Consultation was weekly or biweekly for most studies and typically occurred over the phone or via video chat for up to one year post-training. Most consultation was in a group format and lasted 60-90 minutes. However, some studies had individual consultation calls that lasted 30 minutes (e.g., Reese et al. 2016; Luoma & Vilardaga, 2013). One study provided on-site weekly group supervision (Lu et al. 2012), and another provided group feedback on fidelity based on reviews of videotaped sessions (Brookman-Frazer et al. 2012). As described by Karlin et al. (2010), studies that were part of the U.S. Department for Veterans Affairs (VA) Prolonged Exposure (PE) Therapy Training Program (Eftekhari et al., 2013; Eftekhari et al., 2015; Ruzek et al., 2016, Ruzek et al., 2017) included consultant review of audio-tapes to inform small group consultation, which was supplemented by brief individual consultation. Some studies also had an online component. For example, Pemberton et al. (2017) asked trainees to complete an online trauma-focused CBT (TF-CBT) training prior to the in-person workshop. Henggeler et al. (2013) offered a computer-assisted training as an adjunct to in-person training for participants in two of the three training conditions. Finally, Beidas, Edmunds, et al. (2012) compared an augmented in-person training to a computerized training

condition. However, in these studies, in-person training was the primary focus of the study and the way in which training was provided to the majority of participants. See Table A2 for additional details on each study.

### **Summary of Findings**

Studies that incorporated consultation consistently demonstrated some degree of positive results. However, there was variability in the type and quality of outcomes measured, the type of training provided, and the study design. Several studies did not have a comparison condition but examined the degree to which a new intervention could successfully be taught to therapists using a relatively short (one- to four-day) workshop and ongoing consultation. Measures of knowledge, attitudes, self-efficacy, and self-reported use of the target intervention generally improved after training and consultation (e.g., Hamblen et al. 2010; Ruzek et al. 2016; Ruzek et al. 2017). Lyon and colleagues (2015) found similar results after training therapists in evidence-based assessment, but self-reported use of standardized assessments decreased after consultation ended. Studies examining client outcomes for clinicians trained with a workshop and consultation showed significant improvements for a wide variety of clinical symptoms, including child problem behaviors (Brookman-Frazer et al. 2012), depression and anxiety (Simons et al. 2010), and PTSD (Eftekhari et al. 2013; Eftekhari et al. 2015).

Given the limitations of past studies using therapist self-report of EBP use after training, some studies used videotaped sessions to assess therapist fidelity and adherence. Simons and colleagues (2010) trained therapists in CBT for depression and found that therapists improved in their ability to deliver the intervention after training. In addition, client anxiety and depression significantly improved after receiving treatment from the

trained therapists. Lu and colleagues (2012) used videotaped sessions to provide feedback on delivery of CBT for PTSD to therapists and found that 91% of therapists achieved competency with their first case and that client symptoms improved. Brookman-Frazee and colleagues (2012) developed a training protocol following recommendations made by Herschell and colleagues (2010). Their training in an intervention for children with autism was highly interactive and included opportunities for practicing treatment planning during the training. It also included a self-study component, ongoing consultation, and feedback on delivery with an actual client. Similar to Simons and colleagues (2010) and Lu and colleagues (2012), Brookman-Frazee et al. (2012) found that observer-rated therapist fidelity after training was high and that parent-reported child problem behaviors significantly decreased from pretreatment to follow-up.

Other studies compared two or more active training approaches. One major takeaway from these comparisons is that consultation continues to garner support as an important addition to workshop training alone. For example, Beidas, Edmunds, et al. (2012) found that although all training modalities (routine, computer, and augmentation with active learning components) resulted in limited improvements in clinician adherence and skill, the more consultation calls attended, the higher participants performed on behavioral rehearsals in terms of adherence and skill at three-month follow-up. Webster-Stratton and colleagues (2014) specifically compared training conditions that did and did not provide ongoing consultation and feedback on video recordings of therapy sessions. Those who received ongoing consultation and feedback had stronger fidelity in several domains, again suggesting that consultation enhanced adherence to the model. Reese and colleagues (2016) also reported that, among therapists who attended a workshop for OCD

treatment, using phone consultation and peer consultation after training was associated with more use of the skills taught during training. One study included a comparison of therapists who did and did not receive consultation after an ACT workshop on psychological flexibility and burnout (Luoma & Vildardaga, 2013). Those who received consultation had higher psychological flexibility at 3-month-follow-up than those who did not receive consultation.

Only one study found a lack of improved training outcomes with ongoing supervision (Henggeler et al. 2013). This study included a comparison of three conditions (a) workshop only, (b) workshop and access to computer-assisted training, and (c) workshop, access to computer-assisted training, and supervisory support and coaching. There were no significant differences across conditions; All conditions demonstrated improvements in use of the intervention (contingency management for substance use), knowledge, and adherence. The authors suggest that this outcome may have been due to strong organizational support, high practitioner turnover (27% turnover during the study follow-up period), or the fact that the support was primarily for supervisors (i.e., not direct consultation with therapists implementing the intervention). Of note, across all studies that included some degree of consultation or supervision, the dose and type of consultation or supervision varied widely. None of the studies reviewed specifically examined the ideal dosing or delivery of consultation, though this is the topic of an in-progress study for which Stirman and colleagues (2013) published a protocol. Taken as a whole, these results suggest that receiving consultation bolsters several training outcomes.

Many studies also examined therapist attitudes toward EBPs. These studies generally found that attitudes influence a variety of outcomes in studies examining workshops followed by consultation. For example, Beidas, Mychailyszyn, and colleagues' (2012) study among school mental health providers found that better attitudes toward EBPs predicted higher adherence and skill on behavioral role-plays of CBT for anxiety. Relatedly, Lewis and Simons (2011) found that better attitudes toward empirically supported treatments were correlated with fewer perceived client barriers to implementation of CBT for depression. They also found that therapists who were more concerned about client "differences" (e.g., comorbid conditions, symptom severity) and setting barriers (e.g., insufficient resources, training, or supervision) were less likely to use CBT after training. In one study, for those who attended consultation calls, better attitudes toward EBPs were associated with more frequent use of online trauma assessments following training in TF-CBT (Pemberton et al. 2017). Clinicians trained through the VA PE Training Program demonstrated improvements in attitudes and beliefs related to delivering PE (Ruzek et al. 2016; Ruzek et al. 2017). Following six to nine months of consultation, these therapists reported even more positive attitudes and beliefs toward PE and fewer concerns about the time and emotional burden of delivering PE (Ruzek et al. 2016). In addition, changes in therapist beliefs about PE (e.g., outcome expectancies, self-efficacy) predicted therapists' intention to use and actual self-reported use of PE (Ruzek et al. 2017). The role of consultation was shown to be particularly important, as changes in beliefs during consultation had a greater impact on PE use than changes in beliefs that occurred immediately after the initial training (Ruzek et al. 2017).

Chu and colleagues (2015) conducted interviews with clinicians who had previously been trained in an effectiveness trial (Southam-Gerow et al., 2010; John R Weisz et al., 2009) to understand use of EBPs 3-5 years after initial training. Therapists who had been trained in *Coping Cat* for treating anxious youth reported that they saw homework as the least effective and in-session role plays as the most effective interventions. They also reported that exposures were the most difficult element to implement and that exposures were harder to implement for their current cases than for the cases they saw during the effectiveness trial. Of note, therapists reported using exposures with only 35% of cases, and the majority of participants (78.5%) only used parts of *Coping Cat*. Participants also reported that they thought that exposures were appropriate for less than half ( $M = 45.9\%$ ) of their anxiety cases. These findings indicate that post-training fidelity to the model is lower than expected, especially given that exposure is an active ingredient in treatment for anxiety (Hofmann et al., 2012) and considered necessary for fidelity (Kendall et al., 2008). Similar results were reported for those who were trained in PASCET; a majority (58.6%) of therapists reported only using parts of the protocol. Therapists reported using cognitive restructuring the most and homework the least. This corresponded to therapist beliefs about what strategies they thought were most relevant for their depression cases, with homework being seen as appropriate for the smallest percentage of current cases ( $M = 58.2\%$ ) and cognitive restructuring being seen as appropriate for the highest percentage ( $M = 90.4\%$ ).

### **Limitations of Studies Reviewed**

Findings indicate that workshops combined with consultation are a successful approach to transfer knowledge, effect some change in practice, and improve client



outcomes. However, the sustainability of these gains remains unknown. Thus, one limitation is the lack of emphasis on sustainment and the lack of follow-up greater than one year, with the exception of Chu and colleagues (2015). The majority of studies included only pre- and post-training assessments. Sustainment of gains, especially after the discontinuation of consultation calls, merits further examination.

Another limitation is the variability in training, including the duration/dose of training and the workshop training approaches. The length of training ranged from 6 hours to 4 days. Only one study (Leffler et al. 2013) compared various lengths of workshops, so it is not known how much training time is sufficient to successfully transfer knowledge and, ideally, to change practice. The decision for the length of the workshop is typically not discussed and does not appear to be empirically determined. A similar limitation is true for the dosage of consultation calls, where the length and frequency is rarely justified.

Issues of measurement also persist. Many studies used measures that have not been psychometrically evaluated. The limitation applies for measures of knowledge, but a more notable concern is the number of studies that assessed fidelity to and/or use of the intervention using only self-report measures. Several studies did use direct observation of sessions to assess fidelity (e.g., Brookman-Frazee et al. 2012), but several studies used therapist self-report only (e.g., Reese et al. 2016; Henggeler et al. 2013). One study only measured fidelity using a billing measure, and may have had inflated reporting of fidelity (Hamblen et al. 2010). Another study used behavioral role-plays as an analogue fidelity measure (Beidas et al. 2012a), which is preferred over self-report, but less preferred than direct observation of therapist behavior. Given the limitations to many fidelity measures,

conclusions from studies that do not use direct observation of fidelity of intervention delivery should be made with some caution.

## **Online Training with or without Consultation**

### **Description of Studies**

Online modalities have been proposed as an approach to increase access to trainings in EBPs (Fairburn & Cooper, 2011), as the flexibility and ease of access are thought to address common barriers (i.e., time and cost; Stewart, Chambless, & Baron, 2012). As shown in Table A3, 14 studies focused primarily on providing online training to therapists (Cooper et al., 2017; Dimeff et al., 2015; Ehrenreich-May et al., 2016; Fairburn, Allen, Bailey-Straebler, O'Connor, & Cooper, 2017; Harned et al., 2014; Harned, Dimeff, Woodcock, & Skutch, 2011; Kobak, Craske, Rose, & Wolitsky-Taylor, 2013; Kobak, Wolitzky-Taylor, Craske, & Rose, 2017; Mallonee, Phillips, Holloway, & Riggs, 2018; J. Martin, Gladstone, Diehl, & Beardslee, 2016; Persons, Koerner, Eidelman, Thomas, & Liu, 2016; Rakovshik, McManus, Vazquez-Montes, Muse, & Ougrin, 2016; Rakovshik et al., 2013; Ruzek, Rosen, et al., 2014). In addition, Harned et al. 2014 had a sub-study that used the same sample (Harned et al., 2013), as did Ruzek, Rosen, et al. 2014 (Edwards et al., 2017). Findings from these two studies are described in the summary, but not in the following overview. Of the 14 unique studies of online training, six were Type 3, three were Type 2, and five were Type 1.

The majority of the Type 3 studies did not include a comparison condition, with the exception of Mallonee et al., (2018), which compared in-person training to online “3D” training. However, assessments were anonymous, so pre- and post-training responses could not be matched. The other four Type 3 studies were within-subject, but

three of them had more than two assessment points (Persons et al. 2016; Martin et al. 2016; Kobak et al. 2017). All three Type 2 studies (Harned et al., 2011; Rakovshik et al., 2016; Rakovshik et al., 2013) used between-subjects designs and compared two or more different training approaches.

Sample sizes ranged from 26 (Persons et al. 2016) to 706 participants (Mallonee et al. 2018). Length of training varied from 2 hours (Harned et al. 2011) to 20 hours (Rakovshik et al. 2016). Skill and knowledge were the most commonly assessed outcomes. Measures of skill were mostly based on either role plays with standardized clients (e.g. Dimeff et al. 2015) or on observation of actual therapy sessions (e.g., Rakovshik et al. 2016), which are considered gold-standard approaches for measuring skill. Measures of knowledge were used in 9 of 14 studies but were limited because they typically lacked psychometrics. A question for future research is the extent to which role plays are concordant with actual observation of therapy sessions.

### **Summary of Findings**

Studies that examined online training generally demonstrated positive results in terms of increasing knowledge and skill in the targeted intervention. Feasibility and acceptability studies (e.g., Fairburn et al. 2017; Kobak et al. 2013) demonstrated that therapists are willing to be trained using online programs and that knowledge and clinical skills may improve as a result. Studies varied in the types of comparison conditions, ranging from waitlists (e.g., Rakovshik et al. 2016) to in-person training or a manual only (e.g., Dimeff et al. 2015). There was variability in the degree to which consultation was incorporated into the training if it was included at all. In addition, the majority of online trainings were asynchronous (i.e., self-paced), but two studies examined the effectiveness

of synchronous training that used virtual classrooms and teleconferencing (Mallonee et al. 2018; Persons et al. 2016).

Similar to studies of in-person workshops alone, online trainings improve therapist knowledge and skill in the short-term. For example, Kobak and colleagues (2013) used a web-based CBT training program. This training was novel in that, after the didactic online training, participants completed three live one-hour sessions with a standardized client during which they received live and immediate feedback. Results indicated that participants had a significant increase in CBT knowledge, clinical skills, and self-reported use of CBT. Kobak and colleagues (2017) used the same training approach with a larger group of therapists and found consistent results. They also examined client outcomes and found that clients had significant reductions in anxiety and depression. Other than client outcomes, neither of these studies included follow-ups after the training. Martin and colleagues (2016) also used a hybrid approach that included a didactic web-based training followed by face-to-face training in a preventative intervention. Therapist ratings of the workshop were positive, but the majority of therapists (90%) reported that they did not use the entire intervention at four-month follow-up. One study compared internet-based CBT training to a delayed training condition and found that participants who received the online training had significantly higher scores on CBT assessment and formulation skills, again measured with a role play with a standardized client (Rakovshik et al. 2013). Together, these studies provide consistent, though preliminary evidence for the effectiveness of online training to improve knowledge and clinical skill as measured shortly after training.

Given that online training is relatively new, comparison between in-person trainings and online training is warranted. Mallonee et al., (2018) did such a study and compared in-person training to live 3-D (i.e., involving interactive virtual worlds) synchronous training for a variety of EBPs. They found that participants in both training modalities had significant gains in knowledge and that there were no differences between conditions in knowledge or readiness to implement EBPs. This finding suggests that online training may provide comparable outcomes to in-person training, except that participants in the in-person training condition reported higher satisfaction, which is consistent with previous studies (e.g., Beidas, Edmunds, et al., 2012). However, other findings are in contrast: Dimeff et al (2015) compared online training in dialectical behavior therapy (DBT) to in-person training and to a treatment manual. Although Mallonee et al., (2018) found no differences in knowledge related to the intervention, Dimeff et al., (2015) found that knowledge was higher for participants who received online training. Dimeff et al., (2015) also found that participants who received instructor-led training reported higher motivation and self-efficacy following training. They did not find condition differences for observer-rated proficiency (based on a standardized role play). Although Dimeff et al., (2015) and Mallonee et al., (2018) had discrepant findings regarding knowledge, improvements in knowledge (whether from an in-person or online training) alone are likely not sufficient to increase clinical use or proficiency (Beidas et al. 2012).

Dimeff et al. (2015) also reported that instructor-led training was better than online training at improving motivation to use chain analysis, which is a more complex technique than the other skill (validation) taught in their training. This finding suggests

that there may need to be a match between training strategies and types of treatment approaches, such that more complex treatment approaches may benefit from being taught in person. In contrast, Persons and colleagues (2016) reported that a more straightforward intervention, such as progress monitoring (i.e., using quantitative measures to monitor symptom change), might benefit from online training alone. Specifically, after a 60-minute orientation meeting, Person and colleagues (2016) conducted four weekly 90-minute online classes via a web-hosting platform. These courses were synchronous, meaning that all participants attended at the same time and the audio portion of the course was conducted via telephone conference call. In addition, participants were given online access to materials and to a listserv on which they could request help from instructors and classmates. Participants received training on specific progress monitoring measures included in an online progress tracking tool, as well as on progress monitoring more generally. Immediately after training, there was a significant increase in use of the specific online progress tracking tool and in progress monitoring generally. At one year follow-up, there remained significantly greater use of general progress monitoring relative to baseline, but there was no longer significantly greater use of the online tool. This again raises questions about the maintenance of learning following online training.

Post-training consultation has been found to maintain and increase the use of newly-learned EBPs following in-person training (Herschell et al. 2010). Two studies examined the role of consultation following online training. Ruzek, Rosen, and colleagues (2014) conducted an RCT of web-based training approaches for PTSD. They compared three conditions: a web-based training only, a web-based training with consultation, and a no training condition. They examined three intervention skills

(motivation enhancement, goal setting, behavioral task assignment) and found that participants receiving consultation demonstrated greater skill on a standardized patient assessment for two of the three skills (motivation enhancement and goal setting) relative to the other conditions. There were no condition differences on the third skill (behavioral task assignment) or on self-reported implementation of the techniques taught in the training, which improved for all conditions. In addition, the group phone consultation for web-based training with consultation condition was shown to be a feasible and acceptable approach for consultation (Edwards et al. 2017). Rakovshik et al., (2016) conducted a similar RCT in which they compared internet-based training with a consultation worksheet, internet-based training with CBT supervision, and a delayed-training control condition. The consultation worksheet asked questions about CBT treatment approaches for the case and whether the therapist had the necessary skills to implement the planned interventions. Those in the consultation worksheet condition turned in these worksheets, but did not discuss them with a supervisor, whereas those in the supervision condition received supervision based on this worksheet. Similar to Ruzek, Rosen, et al., (2014), participants who received supervision had better CBT competence (based on observer ratings of recorded therapy sessions) than participants in both other conditions. Consistent with the research on in-person training, online training alone is not sufficient to improve CBT competence in practice.

Other studies examined additional enhancements to web-based training besides consultation. For example, Cooper et al., (2017) conducted an RCT of web-centered training for CBT for eating disorders (based on Fairburn et al., 2017). In one condition, participants completed the training independently and in the other condition, they

received support by a non-specialist (i.e., not an expert in CBT) worker who encouraged the participants to remain adherent to the online program (i.e., review all materials in a timely manner). There were no condition differences on competence in the intervention following training. Ehrenreich-May et al., (2016) conducted an RCT comparing approaches to train clinicians in CBT for anxiety and panic. Conditions included manual-alone; online training and manual; and online training, manual, and a learning community that incorporated weekly conference calls and online discussions via Twitter for eight weeks. Participants who were engaged in the learning community had the highest clinical proficiency ratings based on role play performance, but this effect was not maintained at 2- and 3-month follow-up. Harned and colleagues (2014) also conducted an RCT to train therapists in exposure therapy for anxiety that incorporated a learning community, but it was entirely web-based. They compared three conditions: online training alone; online training plus a motivational enhancement; and online training, motivational enhancement and a web-based learning community. They found that all conditions had increased self-efficacy and self-reported clinical use of exposure, but the condition that included the learning community had higher knowledge (at post-training, 6-week, and 12-week follow-up), better attitudes (at post-training and 6-week follow-up), and higher clinical proficiency (at 12-week follow-up) than the condition that only received online training. In addition, the clinical proficiency of participants who were engaged in the learning community was less affected by some barriers (e.g., not having anxious clients at post-training) and more enhanced by some facilitators (e.g., higher knowledge at post-training; Harned et al. 2013). The motivational enhancement component did not improve attitudes relative to the online training alone condition in this study, which is in contrast to a



previous similar study conducted by Harned et al., (2011). This discrepancy may be attributed to the fact that the motivational enhancement (focused on improving attitudes toward exposures) took place in person in Harned and colleagues' (2011) study and took place online in Harned and colleagues' (2014) study.

### **Limitations of Studies Reviewed**

Findings indicate that online training is an effective method for training clinicians in EBPs. However, there are variants of online training and there remain unanswered questions about the ideal approach to online training. Some of these issues parallel limitations to the literature for in-person trainings. For example, the length of training varied widely (e.g., 2 hours; Harned et al., 2011, to 20 hours; Rakovshik et al., 2016), which makes direct comparison of studies difficult and results in a lack of clarity about optimal length of training. Some studies are limited methodologically by only using within-subject designs (e.g., Persons et al. 2016; Fairburn et al. 2017; Kobak et al. 2017; Kobak et al. 2013). There were also only two studies that made direct comparisons between online training and in-person training (Dimeff et al. 2015; Mallonee et al. 2018). All of the studies examining online training demonstrated some positive effects, which is certainly valuable, but additional work is needed to determine the relative benefits, especially given that satisfaction for in-person trainings is generally rated more highly.

Another limitation of the research on online trainings is that the follow-up periods were relatively short. The longest follow-ups were one year (Persons et al. 2016) and 6 months after training (Cooper et al. 2017), but the majority were only 3 months (Dimeff et al. 2015; Ehrenreich-May 2016; Harned et al. 2013; Harned et al. 2014), and several studies had no follow-up (e.g., Fairburn et al. 2017; Mallonee et al. 2018; Rakovshik et

al. 2013; Ruzek, Rosen, et al. 2014; Rakovshik et al. 2016). Even with these relatively short follow-up periods, several studies showed that some gains were not maintained at follow-up (e.g., Ehrenreich-May et al. 2016; Persons et al. 2016), suggesting that developing methods to increase or maintain gains from training remains important for future research.

Finally, several studies used standardized patient role plays to measure clinical skill (e.g., Rakovshik et al. 2013; Ruzek, Rosen, et al. 2014), and one study used actual observation of therapy sessions (Rakovshik et al. 2016). Kobak et al., (2013; 2017) used standardized patients as a tool for training in addition to using it as a method for measuring skill. Although measures of clinical skill were relatively strong in several studies, measures of clinical use were limited by reliance on therapist self-report.

Future studies would benefit from comparing online training with consultation to in-person training with consultation, including longer follow-ups, and comparing synchronous to asynchronous training. In addition, there are versions of online trainings, such as having an avatar that interacts in a virtual world, using social media platforms (e.g., Twitter) as an adjunct to the training, and completing virtual role plays in real time with other attendees. Variants to online training warrant further examination.

## **Train-the-Trainer**

### **Description of Studies**

There were three “train-the-trainer” studies (Table A4). This approach involves training supervisors (or select therapists) who in turn train other staff in their organization. The first study (Cross, Cerulli, Richards, He, & Herrmann, 2010) was a Type 3 study that used a naturalistic design and did not have a comparison group. The

focus of this study was on training mental health providers in disaster mental health treatment. Outcome measures were specifically developed for this study and included a measure of knowledge and a measure of perception of transfer of training based on the Learning Transfer System Inventory (Holton, Bates, & Ruona, 2001). Measures were administered pre- and post-training, and an assessment of number of trainings completed was gathered at 12-month follow-up. Another study (Murray et al., 2018) trained staff members to train treatment foster parents and was a Type 2 RCT because it was underpowered. In addition to baseline and 6-month follow-ups, a small subset (12%) of participants completed a 12-month follow-up. A subset of study outcome measures were psychometrically tested, including the EBPAS to measure attitudes and the Trusting Relationships Questionnaire (Mustillo, Dorsey, & Farmer, 2005). Unfortunately, other measures were specific to this study (non-standardized). The last study (Nakamura et al., 2014) was a Type 3 study that used a within-subject multiple baseline design and included four supervisor-therapist dyads. Therapist and supervisor role plays were coded using behavioral observation coding systems based on the psychometrically-tested Therapy Process Observational Coding System for Child Psychotherapy Strategies Scale (TPOCS-S; Bryce D McLeod & Weisz, 2010).

### **Summary of Findings**

Cross and colleagues (2010) trained therapists in disaster mental health using a three-day train-the-trainer workshop followed by 12 months of technical assistance. The “first-generation” therapists ( $n = 134$ ) who received training were then instructed to train additional “second generation” therapists in their respective counties in New York state. Knowledge for the first-generation therapists significantly improved following training.

First-generation therapists also completed a measure of perception of factors that may impede the transfer of training to other therapists. Participants who identified fewer barriers to transferring training were more likely to conduct subsequent training programs with second-generation therapists. In addition, women, as well as therapists with more prior training in disaster mental health trained significantly more therapists. At 12-month follow-up, 59.7% of participants ( $n = 80$ ) trained at least one second-generation therapist, resulting in a total of 559 second-generation therapists being trained.

Murray et al., (2018) focused on foster care agencies, including staff members and treatment foster parents. Staff members (i.e., supervisors and high-level administrators) received training in an evidence-based approach in treatment foster care. Then, the staff members trained the agency's treatment parents. Agencies were randomized to an intervention or control condition. Treatment parents in the intervention condition received consultation twice per month that was more structured and included feedback on audiotapes of in-home observations. Compared to the control condition, treatment parents in the intervention condition were reported by their supervisors to have a better understanding of the interventions taught. Other condition comparisons were not significant.

Nakamura et al.'s (2014) pilot study included four supervisors trained by master trainers to use CBT strategies for disruptive behavior (problem-solving) and anxiety (exposure). Supervisors were provided with guidance on how to use active learning strategies to teach the skills and were asked to train one supervisee each. Nakamura et al. (2014) conducted observational coding of supervisors' teaching and therapists' ability to implement the skills based on role plays conducted over the course of the study. They

found that supervisors improved in their teaching (i.e., teaching style; content) and trainees improved in their performance of the strategies after training. However, they also found that self-reported ratings of skill mastery were inflated relative to the observational coding.

### **Limitations of Studies Reviewed**

Herschell and colleagues' prior review (2010) noted that, although potentially cost-efficient, there were few data to support the use of the train-the-trainer method. The three studies that were conducted since Herschell's review provide some evidence for this method, but all three studies have notable limitations and none qualified as a Type 1 study. The studies conducted by Nakamura et al. (2014) and Murray et al. (2018) were conducted within a small number of agencies, which limits generalizability. Another limitation is sample size; Nakamura et al., (2014) included only four therapist-supervisor dyads and Murray et al., (2018) had insufficient power to conduct planned analyses and did not account for nesting of variables. Cross and colleagues' (2010) study included a relatively large number of therapists who were trained across the state of New York ( $N = 134$  first-generation trainees), but had a naturalistic design and a limited number of assessment measures.

The train-the-trainer studies share limitations with other training approaches. For example, follow-up length was absent (Nakamura et al. 2014) or limited in scope (only 12% of participants for Murray et al. 2018; only one assessment measure for Cross et al. 2010); thus, sustainability of this training approach is unknown. In addition, client outcomes were not measured in any of these studies. Client outcomes may be particularly important in a train-the-trainer model, where the knowledge passed on to therapists may

not be as comprehensive as the training provided to supervisors, which could in turn affect client outcomes. The specific amount of consultation provided to supervisors and to trainees also warrants further examination.

## **Intensive Training**

### **Description of Studies**

Eight studies evaluated intensive training, which involves at least 20 hours of training, as well as two or more additional training components (see Table A5). These studies were part of different initiatives, including an RCT to evaluate the implementation of Alternative for Families: A Cognitive-Behavioral Therapy (AF-CBT; Kolko et al., 2012), a statewide implementation of Parent-Child Interaction Therapy (PCIT; Jackson, Herschell, Schaffner, Turiano, & McNeil, 2017), an evaluation of United Kingdom-wide training in dialectical behavior therapy (Swales, Taylor, & Hibbs, 2012), an examination of adoption of DBT in community clinics in the United States (Navarro-Haro et al., 2018), and the Beck Initiative for training in Cognitive Therapy (as described in Creed, Stirman, and Evans, 2014; Creed et al., 2013; Creed, Wolk, Feinberg, Evans, & Beck, 2016; German et al., 2017; Stirman et al., 2017). The Beck Initiative provides certification to therapists who complete all program requirements, which include 22 hours of training, at least 85% of weekly consultation calls for 6 months, submission of 15 audio recordings of sessions (rated by trained raters using the Cognitive Therapy Rating Scale (Young & Beck, 1980), completion of program evaluations, involvement in internal consultation groups, and recertification every 2 years (Creed et al., 2014).

Among studies of intensive training, only one was a Type 1 study (Kolko et al. 2012). This study included randomization to training in AF-CBT using a learning

community model or training as usual (TAU). It also involved four follow-up assessments up to 18-months after training. In addition to 32 hours of training over one month, intensive training included biweekly consultation calls and booster training 6- or 12-months after the initial training. Two studies were Type 2, both of which were part of the Beck Initiative. These studies (German et al. 2017; Stirman et al. 2017) involved condition comparisons with sufficient sample sizes for planned analyses, but neither included randomization to a condition. The remaining five studies were Type 3 (Creed et al. 2013; Creed, Frankel, et al. 2016; Jackson et al. 2017; Navarro-Haro et al. 2018; Swales et al. 2012). Two of these (Creed et al. 2013; Creed, Frankel et al. 2016) involved within-group comparisons. Navarro-Haro and colleagues' (2018) study was a within-subject assessment at pre- and post-training for DBT. The therapist training was intensive (DBT Intensive Training Model; DBT-ITM; Landes & Linehan, 2012) and included two 5-day workshops separated by 6-months, as well as homework for the 6 months between the trainings, and a suicide crisis role-play during this time. One Type 3 study (Swales et al., 2012) involved using a survival analysis to determine the time at which DBT programs were no longer sustainable (after receiving the DBT-ITM). Finally, Jackson and colleagues' (2017) Type 3 study used a within-subjects design to examine outcomes of a 40-hour training followed by biweekly consultation calls, video-review of therapy sessions, and a 6-month advanced booster training. Of note, Jackson and colleagues' (2017) study was part of a larger study comparing three training models, and the training model described in this study (cascading training model) was only one of the three models. Although this model is similar to a train-the-trainer approach, outcomes

reported in this study only included the senior clinicians trained directly by study staff and not the clinicians trained by the senior clinicians.

Sample sizes ranged from 25 (Creed et al. 2013) to 212 therapists (Navarro-Haro et al. 2018). In terms of outcome measures, the Beck Initiative studies (Creed et al. 2013; Creed, Frankel, et al. 2017; German et al. 2017; Stirman et al. 2017) all included measures of therapist skill based on observations of therapy session recordings, as did Jackson and colleagues' (2017) study. Knowledge was measured in several studies by multiple-choice quizzes specific to the intervention (Kolko et al. 2012; German et al. 2017; Creed et al. 2013; Jackson et al. 2017). Other outcome measures included attitudes toward EBPs, satisfaction, barriers to implementation, and practices or techniques used.

### **Summary of Findings**

The intensive training approaches have robust evidence for their ability to improve therapist knowledge and skill, but are cost and resource intensive because of the amount of expert time required. For example, Kolko and colleagues (2012) randomized participants to attend workshops and consultation calls or attend training as usual per agency standards (TAU). Although the former condition required more resources (i.e., expert time), those who attended the trainings and workshops had significantly greater improvements in knowledge and self-reported use of the treatment (AF-CBT) 6 months after the training, which was generally maintained at 12- and 18-month follow-ups.

In another example, The DBT-ITM involves 10 full days of training (two 5-day workshops separated by 6 months). The training outcomes reported by Swales et al., (2012) and Navarro-Haro et al. (2018) suggest that it is an effective method to increase the number of DBT modes used and to increase the number of clients treated with DBT.



Navarro-Haro reported that 75% of teams trained adopted all DBT modes, which is similar to the outcomes reported by Swales et al (2012). In contrast to most other studies that have demonstrated high rates of adoption after training, formal consultation was not provided. Instead, the team-based training is designed to facilitate reliance on a DBT consultation team within a given agency, which may help to reduce organizational barriers to implementation and increase clinician motivation to deliver the intervention (Swales et al. 2012; Navarro-Haro et al. 2018). In Navarro-Haro and colleagues' (2018) study, teams with more prior experience delivering DBT adopted more modes and treated more clients. Teams who self-identified as requiring more training and guidance during the second half of the training adopted fewer modes after training, suggesting that they may have needed further training. A survival analysis (Swales et al, 2012) examined the sustainability of DBT-ITM and found that DBT programs were most likely to be discontinued in the second and fifth years after training and that lack of organizational support and staff turnover were the greatest implementation challenges.

Although the DBT-ITM training did not include formal consultation, all other intensive training studies did. Jackson et al., (2017) found that greater consultation call attendance predicted higher post-training skill at implementing PCIT, which interacted with PCIT caseload. That is, therapists who had more cases with whom they could apply newly-learned skills *and* attended a greater number of consultation calls experienced the greatest skill benefits from the training. The Beck Initiative also included consultation calls and studies examined outcomes in school (Creed et al., 2013) and community (Creed et al., 2016) settings. Both studies found that there was a significant increase in therapists' competency in delivering cognitive therapy at the 6-month follow-up and that

over 70% of therapists achieved the competency threshold by this final assessment. Stirman and colleagues (2017) specifically compared two consultation call formats for participants in the Beck Initiative training. One condition received individual feedback from expert consultants who reviewed full audio-recorded therapy sessions. The other condition received group consultation in which short segments of tape were reviewed in group consultation with the expert consultant. At the end of consultation, there were no condition differences in cognitive therapy competence. At 2-year follow-up, participants in the individual feedback condition who had high competence scores at post-consultation had a decrease in competence, but those in the group feedback condition had increases in competence. This finding suggests that group consultation is effective and also reduces the amount of expert consultation time required. However, turnover was reported as a major barrier, with nearly half of therapists being ineligible for recertification at the two-year follow-up.

A modification to the Beck Initiative was examined by German and colleagues (2017). They compared the traditional in-person workshops with expert-led consultation to a web-based training followed by peer-led consultation. This study again found promising evidence for needing fewer resources from experts, as both conditions demonstrated comparable knowledge gains and improvements in cognitive therapy competency. The difference between conditions was that those who received the web-based training with peer-led consultation were significantly less likely to complete the training than those who received in-person training. However, web-based training required only 8% of the resources of the in-person training, and there are several strategies that may improve engagement and completion of a web-based training (e.g.,

joining the training with a cohort of trainees, pay increases for EBP certification).

Researchers have acknowledged the high cost of intensive training and have begun to examine how to maintain high rates of implementation and sustainability while reducing costs.

### **Limitations of Studies Reviewed**

Consistent with other training methods, limitations related to outcome measurement persist. For example, some studies relied exclusively on self-reports (Kolko et al. 2012) and others (Jackson et al. 2017) used measures that lack adequate psychometrics. The Beck Initiative studies (Creed et al. 2013; Creed et al. 2016; German et al. 2017; Stirman et al. 2017) are unique in their use of an observational measure of therapy sessions (the CTS; Young & Beck, 1980), which is the gold-standard assessment of therapists' competence.

The variability in the timing and length of training also merits attention. The approaches were consistent in being intensive, but there were several configurations for the timing of the multi-day workshops. Kolko et al., (2012) had four full-day workshops once a week for a month, whereas Navarro-Haro et al., (2018) and Swales et al. (2012) had two separate blocks of five day workshops approximately six months apart. Other intensive trainings (Jackson et al., 2017) had an initial 40 hours of training over several days and an advanced booster training 6 months later. The Beck Initiative studies (Creed et al. 2013; Creed et al. 2016; German et al. 2017; Stirman et al. 2017) did not space out the trainings but included substantial consultation and feedback that was spread out over time. Given that massed and spaced trainings may differ, there is need for research on the

extent to which spacing of intensive training may enhance training outcomes and/or improve consolidation of learning.

Finally, the intensive training studies are notable for their longer follow-up periods (i.e., many had at least a one-year follow-up). This extended contact involves booster training, consultation, and/or tape review. That said, studies of sustainability will benefit from even longer follow-up assessments. Swales and colleagues' (2012) follow-up found that programs were most likely to fail shortly after the end of training activities (two years after initial training) and five years after initial training, which underscores the importance of follow-up assessments that continue after final contact with trainers. Evidence of the sustainability of the outcomes of training would benefit from a *minimum* of a two-year follow-up.

### **Discussion**

The present review of recent studies confirms and extends findings from previous reviews (Herschell et al. 2010; Rakovshik et al. 2010; Beidas & Kendall, 2010). First, therapist knowledge and attitudes toward EBPs improve after attending a workshop. In addition, the gains are more likely to translate into increased use of the intervention and improved fidelity to the intervention if therapists are supported by consultation after training. Because research clearly indicates that neither workshops alone nor manuals alone are sufficient to change therapist behavior, these modalities alone do not require further examination.

There are mixed findings regarding therapist-level variables, such as whether having previous experience with the intervention leads to more or less change in knowledge and attitudes after training. However, among therapists who attended

workshops followed by consultation, more positive attitudes toward EBPs generally predicted better training outcomes (e.g., adherence, skill, use of the intervention). The mechanism of this relationship merits being the focus of future research. For example, was it due to more practice with actual clients? Was it due to more motivation to learn?

Some of the limitations and future directions noted in the previous reviews were addressed in recent studies. For example, several recent studies included an investigation of the role of consultation after training, resulting in additional evidence supporting the notion that ongoing consultation is an active ingredient for the translation of newly-learned skills into practice. Another limitation of previous studies was that few measured client outcomes, even though improving client outcomes is the ultimate goal. Among recent studies, four specifically examined client treatments outcomes (Simons et al. 2010; Brookman-Frazee et al. 2012; Kobak et al. 2017; Lu et al. 2012), and all four used standardized measures with known psychometric properties. Relative to the 2010 reviews, there were also improvements in measurement of therapist competence and skill, as many studies used direct observation of therapy sessions, which were assessed using standardized measures (e.g., the CTS; Young & Beck, 1980). The use of observation rather than therapist self-report of competence/skill is imperative given increasing evidence that therapist self-report of skill tends to be inflated (e.g., Nakamura et al. 2014).

Another previously-noted limitation that has been addressed is the direct comparison of different training methods (e.g., comparing online training to in-person training; Mallonee et al. 2018; Dimeff et al. 2015). Results from these comparisons suggests that the examined modalities for training may be comparably effective.

Specifically, online training appears promising as a time- and cost-saving alternative to in-person training. Results generally indicate that online training increases therapist knowledge and skill and is a modality that therapists are willing to use. Although satisfaction for online training was rated lower than in-person training in most studies, satisfaction ratings were still relatively high. Much like in-person training, online training alone is not sufficient to increase competence in practice, but it does lead to improvements in competence when coupled with consultation. There is also evidence that engagement in an online learning community may contribute to improvements in outcomes (e.g., competence, knowledge, attitudes).

Although examined in only a few studies, there is preliminary evidence to support the suggestion to match the complexity and type of skill to the modality of training. For example, Dimeff and colleagues (2015) reported that motivation after training to use chain analysis, which is a fairly complex skill, was greater for those who attended in-person training than online training. However, more straightforward skills (e.g., progress monitoring; Persons et al. 2016) may be equally effectively taught online. Whether it is a complex or relatively simple skill, there also may be differences in outcomes for synchronous (i.e., real-time) versus asynchronous (i.e., self-paced) online training, which have not been directly compared. The proliferation of studies investigating online training has continued to raise questions, but also represents a meaningful increase in our knowledge about the effectiveness of online training.

Despite advances, several persistent limitations remain. First, there are issues related to measurement. Many studies used measures developed for their specific study, and this is not recommended, especially when the measure was not evaluated

psychometrically. Use of different measures prevents direct comparison across studies and reduces confidence in the interpretation of the findings. Second, many studies relied solely on therapists' own reports of outcomes, which is especially troublesome for constructs known to be unreliable when assessed as self-reports (e.g., adherence, skill, use of the intervention). To their credit, several studies addressed this limitation by using role plays and standardized clients. Third, many studies suffered from a lack of multi-method measurement. The strongest studies are those that include therapist-reports, direct observations, and client-reports, as well as data on changes in therapist behavior and client symptoms following training.

Another persistent limitation is the lack of clarity regarding the expected outcome of training. We know how to impact therapist knowledge about EBPs, but knowledge gain is not sufficient. The goal is to increase therapist use of EBPs, with the ultimate goal being to favorably impact client outcomes, presumably via therapist fidelity to EBPs. In order to maintain fidelity, Dorsey and colleagues (2013) pointed out that the gold-standard supervision approach in efficacy trials includes skill building (e.g., behavioral rehearsals), session review (e.g., via tape review), fidelity monitoring, and symptom outcome measurement. However, the degree to which these strategies are feasible or successful in community settings is largely unknown. There is evidence that fidelity monitoring can be a protective factor for staff turnover in community settings (Gregory A Aarons, Sommerfeld, Hecht, Silovsky, & Chaffin, 2009), but that alone may not be sufficient. There is the need to exercise a degree of "flexibility within fidelity" (Kendall, Gosch, Furr, & Sood, 2008), but too much flexibility may "break" fidelity (Kendall & Frank, 2018). Similarly, the degree of fidelity versus adaptation (Stirman et al., 2015)

required to “successfully” deliver an intervention in community settings needs to be studied. Chu and colleagues’ (2015) found that, several years after receiving training as part of an effectiveness trial, therapists reported using only part of the original intervention (i.e., low fidelity). Is it better for therapists to use some elements of the intervention rather than none? Would it be preferable for a therapist to use a few elements of an intervention with high fidelity or many elements with relatively low fidelity? Is it better to use an intervention with high fidelity and low frequency or with low fidelity and high frequency? These questions are often ignored when training therapists, but they are considerations to weigh when designing a training. Partially related to this, some trainers have created a process for certification of therapists following training (e.g., Creed et al. 2014). Though a reasonable notion, research is needed to examine whether a certification process is an ideal threshold of therapist competency or skill, especially in the long term.

A broader theoretical framework continues to be neglected in most therapist training studies; that is, what is the theoretical framework in which the training is positioned? Beidas and Kendall (2010) argue for this, yet few studies have done so. Training “in isolation” can have an effect on therapist knowledge, and perhaps an effect on skill, but longer-term therapist behavior change requires broader intervention across several levels (Beidas & Kendall, 2010; Forsetlund et al., 2009). For example, as noted previously, the Consolidated Framework for Implementation Research (CFIR: Damschroder et al. 2009) is broadly applicable across various types of EBPs and patient-care settings. Many factors across each of the CFIR domains will affect whether a therapist who attends a training is likely to use it in clinical practice. For example, inner



setting characteristics, such as organizational climate and culture, supervisory support, reinforcement for use of EBPs, and staff turnover can impact whether an EBP is delivered. Client characteristics (e.g., resistance, inconsistent attendance, lack of motivation) can also affect a therapist's willingness to use a newly-learned intervention. The effectiveness of future trainings will surely benefit from acknowledging and examining factors such as these.

Related to the call for consideration of broader implementation contexts, two training methods appear ideally positioned to effect change at the organizational level. One approach is the train-the-trainer model, which was only examined in three studies since 2010. Although promising, research is needed on the extent to which it addresses financial and organizational barriers that impact the effectiveness of training. Herschell and colleagues (2010) noted that having supervisors train therapists may result in a “watered down” (Demchak & Browder, 1990) version of the original intervention. This again has to do with fidelity: is a watered-down version that is widely disseminated better than a full model that is narrowly disseminated? Train-the-trainer models reduce the amount of “expert” time needed for training and consultation, provide support for an intervention within an organization, and may allow for continued training of new providers following turnover. That said, there are other strategies to address these barriers such as improving consultation (Stirman et al., 2013) or focusing training efforts toward middle managers (Birken et al., 2018; Birken, Lee, & Weiner, 2012).

The second promising approach for fostering organizational-level change is intensive training (i.e., 20+ workshop hours with two or more additional training elements), which has been shown to increase therapist proficiency and use of the

intervention in practice. In addition to the larger “dose” of training, success using this approach may be attributed to the fact that training multiple therapists from within the same agency (e.g., Creed et al. 2014; Havarro-Naro et al. 2018) may engender organizational support. Many intensive approaches require (or encourage) group consultation, which may also improve implementation climate if group consultation occurs within an organization. However, potential limitations include the high amount of resources, uncertainty about long-term sustainability, and investment in staff who may turnover. Some evidence indicates that more cost-effective approaches, such as web-based intensive training and peer-led consultation, may lead to similar outcomes, but this requires further research. Both (a) train-the-trainer and (b) intensive training methods have the greatest promise and merit being studied within the context of a broader implementation framework.

### **Recommendations and Future Directions**

In addition to suggestions noted previously, findings from the current review suggest the following questions for future research:

1. How should trainee outcomes be measured? Efforts are needed to improve measures of fidelity, skill, and use of the intervention. More studies need to address the sustainability of training using observations and coding of actual sessions. In addition, accurate and briefer measures of therapist fidelity and skill should be developed (Beidas et al. 2016; Herschell et al. 2015).
2. What is the long-term sustainability of different training approaches? For example, comparisons may include online versus train-the-trainer, asynchronous

versus synchronous online training, one day versus five days, and variations to the length/frequency/modality of consultation calls.

3. What specific strategies should be used during training? Many studies lack a detailed description of the training processes and content, but training strategies may have a meaningful impact on participant engagement, motivation, and learning. For example, studies mention using “experiential” training, but do not clarify what that means or how such a strategy differs from what others refer to as active learning strategies. Rakovshik et al. (2010) noted that we know a lot about methods of behavior change, but that that knowledge has not been well-applied to training therapists. Most research on therapist training gives little attention to the specific ways in which participants are engaged.
4. What training approaches are the most cost-effective? Such work requires taking into account expert time, measuring fidelity and client outcomes, staff turnover, and sustainability. It is likely that how well a training “works” may be highly correlated with how much it costs.

Table A1. *Workshop Only*

<b>Author</b>	<b>Nathan &amp; Gorman Classification</b>	<b>Sample Size</b>	<b>Training Topic</b>	<b>Amount of Training</b>	<b>Comparison Groups</b>	<b>Follow-Up</b>	<b>Role of Consultation</b>	<b>Outcome Measure Domains</b>
Chin et al. 2018	3	<i>N</i> = 53 community clinicians	Prolonged exposure for PTSD	8 hours	None	None	None	A, Int
Deacon, Farrell et al. 2013	3	<i>N</i> = 162 community mental health professionals	Exposure therapy for anxiety disorders	7 hours	None	None	None	A
Farrell et al. 2016	2	<i>N</i> = 49 mental health clinicians	Exposure therapy for anxiety disorders	8 hours	2: Standard vs. Enhanced training	None	None	A, K
Hadjiistavropoulos et al. 2012	3	<i>N</i> = 20 clinical psychology graduate students	CBT for depression and anxiety	8 hours	None	None	None	K, A, C, Sat
Leffler et al. 2013	3	<i>N</i> = 28 professional clinicians and psychology trainees	Multi-Family Psychoeducation Psychotherapy for mood disorders	4, 5, or 7 hours	None	None	Received feedback while facilitating group; 30 min consultation after group	C
Lim et al. 2012	3	<i>N</i> = 268 public sector youth mental health providers	Internalizing and externalizing disorders	Not specified	None	None	None	K, A
Lopez et al. 2011	3	<i>N</i> = 59 community mental health providers	Behavioral parent training for youth with externalizing disorders	2 days	None	6 month	None	A, I, P

<b>Author</b>	<b>Nathan &amp; Gorman Classification</b>	<b>Sample Size</b>	<b>Training Topic</b>	<b>Amount of Training</b>	<b>Comparison Groups</b>	<b>Follow-Up</b>	<b>Role of Consultation</b>	<b>Outcome Measure Domains</b>
Palfrey et al. 2018	3	<i>N</i> = 102 mental health providers	Trauma-informed care	1 day	None	None	None	C, A, I
Richards et al. 2011	3	<i>N</i> = 73 mental health clinicians	Acceptance and Commitment Therapy	1 day	None	1 year	None	K, P, PF
Waller et al. 2016	3	<i>N</i> = 34 clinicians	Exposure therapy for eating disorders	1.5 hours	None	None	None	A

A = Attitudes, C = Confidence (Self-Efficacy), Cl = Clinical Outcome, F = Treatment Fidelity or adherence, I = Implementation Difficulty or Barrier – Anticipated or Actual; Int = Intentions K = Knowledge, M = Job Morale, P = Practices or techniques used, S = Skills/competence, Sat = satisfaction/acceptability, T = therapeutic interaction/rapport/working alliance; PF = Psychological Flexibility

Table A2. *Workshop and Consultation*

Author	Nathan & Gorman Classification	Sample Size	Training Topic	Amount of Training	Comparison Groups	Follow-Up	Role of Consultation	Outcome Measure Domains
Beidas et al. 2012a	1	<i>N</i> = 115 community clinicians	CBT for child anxiety	6 hours	3; Routine, Computerized, & Augmented training	3 months	Weekly for 3 months	F, K, S, Sat.
Brookman-Frazee et al. 2012	3	<i>N</i> = 13 therapist/family dyads	Individualized Mental Health Intervention for Children with ASD	6 hours	None	None	1 hour 2x per month for 5 months	A, F, K, P, S, Sat., CI
Chu et al. 2015	3	<i>N</i> = 23 mental health clinicians	CBT for child anxiety and depression	6 hours	None	3-5 years	Weekly supervision (originally)	A, P
Eftekhari et al. 2013	3	<i>n</i> = 804 clinicians; <i>n</i> = 1931 veterans	Prolonged exposure for PTSD	4 days	None	None	Weekly individual and group consultation; audiotape review	CI
Eftekhari et al. 2015	3	<i>n</i> = 1105 clinicians; <i>n</i> = 3133 veterans	Prolonged exposure for PTSD	4 days	None	None	Weekly individual and group consultation; audiotape review	A, CI, C
Hamblen et al. 2010	3	<i>N</i> = 111 psychologists, LPCs, and social workers	CBT for post-disaster distress	2 days	None	None	Biweekly consultation	A, F, K
Henggeler et al. 2013	2	<i>N</i> = 161 therapists	Contingency Management for substance abuse	1 day	3: Workshop/Resources (WS+); WS+ computer-assisted training (CAT); WS+/CAT + supervisory support	1 year	Biweekly review of barriers to implementation	F, K, P

Author	Nathan & Gorman Classification	Sample Size	Training Topic	Amount of Training	Comparison Groups	Follow-Up	Role of Consultation	Outcome Measure Domains
Lewis & Simons, 2011	3	<i>N</i> = 24 therapists from community agencies	CBT for depression	3 days	None	8 months	Every 3-5 weeks over 8 months	A, I, P
Luoma & Villardaga, 2013	2	<i>N</i> = 22 mental health professionals	Acceptance and Commitment Therapy	2 days	2: training alone; training + 6 sessions phone consultation	3 months	6 30-minute phone consultations	PF, K, Sat.
Lewis & Simons, 2011	3	<i>N</i> = 24 therapists from community agencies	CBT for depression	3 days	None	8 months	Every 3-5 weeks over 8 months	A, I, P
Lyon et al. 2015	3	<i>N</i> = 71 therapists and supervisors	CBT for children and families	3 days	None	3 months	Expert-provided biweekly phone consultation	A, P, S
Pemberton et al. 2017	3	<i>N</i> = 178 mental health professionals	Trauma-Focused CBT	2 days	None	None	12 consultation calls over 1 year	A, C, I, K
Reese et al. 2016	3	<i>N</i> = 161 clinicians	CBT for OCD	3 days	None	None	3 30-minute consultation calls	I, P, S
Ruzek et al. 2016	3	<i>N</i> = 943 licensed mental health clinicians	Prolonged exposure for PTSD	4 days	None	Post-consultation	Weekly individual and group consultation; audiotape review	A, C, Int
Ruzek et al. 2017	3	<i>N</i> = 1034 clinicians	Prolonged exposure for PTSD	4 days	None	Post-consultation; 6 months post-consultation	Weekly individual and group consultation; audiotape review	A, C, Int, P

<b>Author</b>	<b>Nathan &amp; Gorman Classification</b>	<b>Sample Size</b>	<b>Training Topic</b>	<b>Amount of Training</b>	<b>Comparison Groups</b>	<b>Follow-Up</b>	<b>Role of Consultation</b>	<b>Outcome Measure Domains</b>
Simons et al. 2010	3	<i>N</i> = 12 community mental health therapists	CBT for depression	2 days	None	1 year	16 1-hour group phone consultation for 1 year	S, CI
Webster-Stratton et al. 2014	2	<i>N</i> = 56 community mental health therapists	Incredible Years for Conduct Problems	3 days	2: workshop only or workshop + consultation	None	Weekly consultation calls	F

A = Attitudes, C = Confidence (Self-Efficacy), CI = Clinical Outcome, F = Treatment Fidelity or adherence, I = Implementation Difficulty or Barrier – Anticipated or Actual; Int = Intentions K = Knowledge, M = Job Morale, P = Practices or techniques used, S = Skills/competence, Sat = satisfaction/acceptability, T = therapeutic interaction/rapport/working alliance; PF = Psychological Flexibility



Table A3. Online Training

Author	Nathan & Gorman Classification	Sample Size	Training Topic	Amount of Training	Comparison Groups	Follow-Up	Role of Consultation	Outcome Measure Domains
Cooper et al. 2017	1	<i>N</i> = 156 therapists	CBT for eating disorders	~8-9 hours online training	2: independent training; support with non-specialist worker	6 months	Non-specialist workers encouraged participants to complete training	S, K
Dimeff et al. 2015	1	<i>N</i> = 172 license mental health professionals	DBT Core Strategies	Online: ~12 hours In-Person: 12 hours	2: online; in-person	3 months	None	Sat., C, K, S, P
Ehrenreich-May et al. 2016	1	<i>N</i> = 140 community clinicians	CBT for anxiety/panic disorders	7 hours online training	3: text-alone; text + online training; text + online + learning community	3 months	8 weekly calls for learning community	K, S, C, I, P, S
Fairburn et al. 2017	3	<i>N</i> = 102 therapists	CBT for eating disorders	9 hours minimum online training	None	None	Up to 12 30-min. calls	S
Harned et al. 2011	2	<i>N</i> = 46 mental health providers	Exposure therapy for anxiety disorders	~2 hours online training	3: online training; online training + MI; placebo control online training	None	None	K, C, A, Sat., P
Harned et al. 2014	1	<i>N</i> = 181 mental health providers & students in mental health field	Exposure therapy for anxiety disorders	~10 hours online training	3: online training, online + ME; online + ME + online learning community	3 months	Integrated into last 3 weeks of learning community	Sat., K, A, S, P
Kobak et al. 2017	3	<i>N</i> = 70 community clinicians	CBT for anxiety disorders	Online training time not reported; 4 hours live feedback	None	Post live applied training	None	K, Sat., S, Cl

Author	Nathan & Gorman Classification	Sample Size	Training Topic	Amount of Training	Comparison Groups	Follow-Up	Role of Consultation	Outcome Measure Domains
Kobak et al. 2013	3	<i>N</i> = 39 social workers, psychologists, and graduate students	CBT for anxiety disorders	~5.5 hours online training; 3 hours live feedback	None	None	None	K, Sat., S
Mallonee et al. 2017	3	<i>n</i> = 706 mental health professionals (pre) <i>n</i> = 780 (post)	CBT for PTSD, depression, insomnia, pain, suicidality Family Talk prevention intervention for depression	Online training time not reported; 2 days in person 4-hour web-based + 3.5 hours face-to-face 60-minute orientation + 4 1.5 hour online classes	2: in-person; online “3D” training	None	None	K, Sat.
Martin et al. 2016	3	<i>N</i> = 58 clinicians	Family Talk prevention intervention for depression	4-hour web-based + 3.5 hours face-to-face 60-minute orientation + 4 1.5 hour online classes	None	4-months	None	Sat., P
Persons et al. 2016	3	<i>N</i> = 26 clinicians	Progress Monitoring	60-minute orientation + 4 1.5 hour online classes	None	1 year	Listserv	P
Rakovshik et al. 2013	2	<i>N</i> = 63 therapists	CBT	~3 hours online training	2: internet-based training; delayed training control 3: internet-based training with consultation worksheet; internet + supervision; delayed control	None	None	S
Rakovshik et al. 2016	2	<i>N</i> = 61 clinicians	CBT for anxiety	20-hour online CBT training program	3: internet-based training with consultation worksheet; internet + supervision; delayed control 3: web-based training; web-based training + consultation; no-training control	None	3 30-min. individual supervision sessions once per month	S
Ruzek et al. 2014	1	<i>N</i> = 168 clinicians	CBT for PTSD	~4 hours online training	3: web-based training; web-based training + consultation; no-training control	None	6 weekly 45-60 min. group calls	S, K, C, P

A = Attitudes, C = Confidence (Self-Efficacy), Cl = Clinical Outcome, F = Treatment Fidelity or adherence, I = Implementation Difficulty or Barrier – Anticipated or Actual; Int = Intentions K = Knowledge, M = Job Morale, P = Practices or techniques used, S = Skills/competence, Sat = satisfaction/acceptability, T = therapeutic interaction/rapport/working alliance; PF = Psychological Flexibility

Table A4. Train-the-trainer

Author	Nathan & Gorman Classification	Sample Size	Training Topic	Amount of Training	Comparison Groups	Follow-Up	Role of Consultation	Outcome Measure Domains
Cross et al. 2010	3	<i>n</i> =134 “first generation” trainees <i>n</i> =559 “second generation” trainees	Disaster Mental Health	3-day workshop	None	1 year	Technical support	K, I
Murray et al. 2018	2	<i>n</i> = 88 treatment parents <i>n</i> = 38 supervisors	Together Facing the Challenge approach for treatment in foster care	Supervisors: 3-day workshop	2: usual consultation; enhanced consultation	1 year (only 12% of participants)	<i>Enhanced group:</i> 2x/ month group consultation+ in-home observation; <i>Usual group:</i> monthly consultation only	A, P
Nakamura et al. 2014	3	<i>n</i> = 4 supervisors <i>n</i> = 4 therapists	Modular Approach to Therapy for Children with Anxiety, Depression, Trauma, or Conduct Problems	Supervisors: three 2-day workshops	None	None	None	S

A = Attitudes, C = Confidence (Self-Efficacy), CI = Clinical Outcome, F = Treatment Fidelity or adherence, I = Implementation Difficulty or Barrier – Anticipated or Actual; Int = Intentions K = Knowledge, M = Job Morale, P = Practices or techniques used, S = Skills/competence, Sat = satisfaction/acceptability, T = therapeutic interaction/rapport/working alliance; PF = Psychological Flexibility

Table A5. Intensive Training

Author	Nathan & Gorman Classification	Sample Size	Training Topic	Amount of Training	Comparison Groups	Follow-Up	Role of Consultation	Outcome Measure Domains
Creed et al. 2013	3	<i>N</i> = 25 school-based therapists	Cognitive Therapy	22 hours	None	6 months	Weekly 2-hour meetings for 6 months	S, K, Sat.
Creed, Frankel, et al. 2016	3	<i>N</i> = 321 community mental health therapists	CBT	22 hours	None	6 months	Weekly 2-hour meeting for 6 months	S
German et al. 2017	2	<i>N</i> = 214 clinicians	CBT	22 hours	2: In-person training, expert-led consultation; Web-based training; peer-led consultation	6 months	Weekly 2-hour meetings for 6-months with experts; then with peers only	S, K
Jackson et al. 2017	3	<i>N</i> = 32 clinicians	PCIT	40 hours; advanced 16-hour training 6 months later	None	2 years (from baseline)	Up to 24 1-hour consultation calls over 1 year	S, K, I
Kolko et al. 2012	1	<i>n</i> = 128 practitioners; <i>n</i> = 34 supervisors	Alternative for Families (AF-CBT)	32 hours	2: learning community; training as usual	18-months	10 90-min. biweekly group case consultation	Sat., K, P, A, O
Navarro-Haro et al. 2018	3	<i>N</i> = 412 participants	DBT for borderline personality disorder	2 sets of 5-day workshops (6-months apart)	None	None	Contact with trainers, but no formal consultation <i>Individual</i> : 1 hour individual; <i>Group</i> : 2 hours group	P
Stirman et al. 2017	2	<i>N</i> = 85 clinicians	Cognitive Therapy	22 hours	2: individual consultation; group consultation	2 years (from baseline)	<i>Individual</i> : 1 hour individual; <i>Group</i> : 2 hours group	S

<b>Author</b>	<b>Nathan &amp; Gorman Classification</b>	<b>Sample Size</b>	<b>Training Topic</b>	<b>Amount of Training</b>	<b>Comparison Groups</b>	<b>Follow-Up</b>	<b>Role of Consultation</b>	<b>Outcome Measure Domains</b>
Swales et al. 2012	3	<i>N</i> = 97 DBT programs	DBT for borderline personality disorder	2 sets of 5-day workshops (~6-months apart)	None	5+ years	DBT consultation team only	I

A = Attitudes, C = Confidence (Self-Efficacy), Cl = Clinical Outcome, F = Treatment Fidelity or adherence, I = Implementation Difficulty or Barrier – Anticipated or Actual; Int = Intentions, K = Knowledge, M = Job Morale, P = Practices or techniques used, S = Skills/competence, Sat = satisfaction/acceptability, T = therapeutic interaction/rapport/working alliance; PF = Psychological Flexibility