Targeting clinician concerns about exposure therapy: A pilot study comparing standard vs. enhanced training

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ABSTRACT

Owing to concerns about the safety and tolerability of exposure therapy, many clinicians deliver the treatment in an overly cautious manner, which may limit its effectiveness. Although didactic training in exposure reduces clinician concerns about the treatment to a moderate extent, improved training strategies are needed to minimize these concerns and improve exposure delivery. The present study compared the effectiveness of a standard (i.e., didactic) exposure therapy training model to an "enhanced" training paradigm encompassing strategies derived from social-cognitive theory on attitude change. Clinicians ($N = 49$) were assigned to one of the two training approaches. Relative to standard training, clinicians who received enhanced training showed: (a) significantly greater reductions in concerns about exposure from pre- to post-training, and (b) superior self-reported delivery of the treatment. Reduction in concerns during training mediated the effects of training condition on clinicians' self-reported exposure delivery. These findings underscore the importance of addressing clinician concerns about exposure therapy in training contexts.

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A large body of evidence supports the effectiveness of exposure therapy in the treatment of anxiety and related disorders (e.g., Olatunji, Cisler, & Deacon, 2010). Given the considerable prevalence of these disorders and their associated functional impairment and economic burden on society, there is a high priority on effectively disseminating exposure to clinicians who treat anxiety (McHugh & Barlow, 2010). Unfortunately, many clinicians appear concerned about exposure being harmful and/or intolerable to clients, which acts as a critical barrier to its dissemination (Deacon & Farrell, 2013). A recent survey of more than 600 mental health professionals revealed that these concerns are common among practitioners from various mental health disciplines, including clinicians who routinely use exposure in their clinical practice (Deacon, Farrell, et al., 2013; Deacon, Kemp, et al., 2013; Deacon, Lickel, et al., 2013).

The clinical implications of clinician concerns about exposure are significant. Previous research has shown these concerns are related to clinicians' underutilization of exposure in clinical

practice (e.g., Becker, Zayfert, & Anderson, 2004). Furthermore, among exposure therapists, these concerns are associated with an overly cautious manner of delivering the treatment (e.g., premature termination of exposure; Deacon, Farrell et al., 2013; Harned, Dimeff, Woodcock, & Contreras, 2013) that differs significantly from the recommended prolonged and intense delivery of exposure (e.g., Abramowitz, Deacon, & Whiteside, 2011). A recent study showed that an analogue sample of exposure therapists with experimentally-induced concerns about the treatment exhibited more aspects of cautious delivery (e.g., choosing minimally distressing exposure tasks, more use of anxiety-reduction techniques) than therapists who were not exposed to these concerns (Farrell, Deacon, Kemp, Dixon, & Sy, 2013).

If clinicians who have significant concerns about exposure implement it with excessive caution, the overall effectiveness of the treatment is likely undermined. Applications of learning theory to exposure therapy suggest that effectiveness is maximized when clients develop strong inhibitory associations (i.e., associating feared stimuli with perceptions of safety and tolerability; Craske, Treanor, Conway, Zbozinek, & Vervliet, 2014). Inhibitory associations are strengthened through several critical processes in exposure,

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including violating clients' expectations for harm, eliminating use of safety behaviors, and facilitating learned tolerance of anxiety (Abramowitz & Arch, 2014). Clinicians who deliver exposure with excessive caution may unwittingly weaken clients' inhibitory associations, thereby attenuating treatment effectiveness. Indeed, recent research has demonstrated that less intensive delivery (e.g., frequent use of anxiety-reducing strategies) yields poorer outcomes compared to more intense delivery of exposure (Benito, Conelea, Garcia, & Freeman, 2012; Deacon, Kemp et al., 2013).

Training clinicians in a manner that minimizes their concerns about exposure will likely result in more competent delivery, ultimately yielding better outcomes for anxious clients (Zoellner et al., 2011). Thus, there is a critical need to identify effective strategies for minimizing clinician concerns about exposure. However, few studies have assessed such techniques. One study showed that didactic training in the theory and practice of exposure resulted in only moderately reduced concerns about the treatment, and this reduction was significantly smaller among clinicians already using exposure in their practice as compared to exposure-naïve clinicians (Deacon, Farrell et al., 2013). Similar results were found in a study of didactic exposure therapy training for eating disorder clinicians (Waller, D'Souza Walsh, & Wright, 2016). Two other studies suggest that augmenting didactic training with motivational enhancement strategies holds promise in improving clinician attitudes toward and delivery of exposure (Harned et al., 2013, 2014). However, participation in these studies was both time-intensive and predominantly web-based, and it may be that some clinicians prefer more short-term, traditional training formats that allow for greater interaction with trainers and other attendees. Thus, further research is needed to explore the effectiveness of alternative means of improving training in exposure therapy.

In previous work, several strategies for improving training in exposure derived from social-cognitive literature on attitude change have been proposed (for a comprehensive review, see Farrell, Deacon, Dixon, & Lickel, 2013). Based on previous work showing that some individuals' attitudes are more influenced by empirical evidence whereas others' are more influenced by emotion-based appeals, Farrell, Deacon, Dixon, et al. (2013); Farrell, Deacon, Kemp, et al. (2013) proposed that clinicians should be presented with a balance of: (a) summaries of empirical literature refuting common concerns about exposure, and (b) emotion-based appeals (e.g., case examples) attesting to the safety and tolerability of exposure. In addition to this balance of empirical and affective appeals aiming to accomplish attitude change on an *explicit* level, social-cognitive literature advocates strategies for attitudinal change on an *implicit* level; thus, Farrell, Deacon, Dixon, et al. (2013); Farrell, Deacon, Kemp, et al. (2013) also proposed use of simulated exposure exercises for clinicians to facilitate associative pairing between exposure therapy and notions of safety and tolerability. To preliminarily assess whether these proposed strategies reduce clinician concerns about exposure and improve its delivery above and beyond traditional didactic exposure training, the present study aimed to compare an "enhanced" form of exposure training to "standard," didactic training.

An expert presenter on exposure therapy (BJD) conducted six separate training workshops on the theory and practice of exposure. Whereas three of the workshops contained standard training methods (i.e., didactic instruction) known to moderately reduce clinician concerns about exposure (Deacon, Farrell et al., 2013), the other three workshops included the enhanced training strategies put forth by Farrell, Deacon, Dixon, et al. (2013); Farrell, Deacon, Kemp, et al. (2013). Clinicians' concerns about exposure therapy were assessed both prior to and immediately following the workshop. Additionally, a self-report measure of clinician delivery of exposure was completed at post-workshop. We hypothesized that, relative to clinicians receiving standard training, clinicians who received enhanced training would show greater reductions in concerns about exposure from pre- to post-workshop. We also hypothesized that clinicians receiving enhanced training would evidence superior self-reported exposure delivery. Finally, we hypothesized that reductions in clinician concerns about exposure from pre- to post-workshop would significantly mediate the relationship between training condition and self-reported delivery of exposure.

1. Method

1.1. Participants

Participants ($N = 49$) were mental health clinicians attending an 8-h workshop on the theory and practice of exposure therapy for anxiety. The sample age ranged from 31 to 73 years ($M = 51.5$, $SD = 10.5$). The majority of participants were women ($n = 32$, 65.3%) and Caucasian ($n = 46$, 93.9%). Nearly all reported earning either a Master's degree ($n = 37$, 75.5%) or Ph.D. ($n = 9$, 18.4%). On average, the sample had 18.7 years of experience ($SD = 9.6$) in clinical practice. Participants endorsed the following theoretical orientations: cognitive-behavioral ($n = 32$, 65.3%), family/systems ($n = 7$, 14.3%), humanistic/client-centered ($n = 5$, 10.2%), psychodynamic ($n = 3$, 6.1%), interpersonal ($n = 1$, 2.0%), and "other" ($n = 1$, 2.0%).

1.2. Measures

1.2.1. Therapist beliefs about exposure scale (TBES)

The TBES (Deacon, Farrell et al., 2013) is a 21-item questionnaire assessing clinician concerns about exposure therapy. Participants use a 0 (*disagree strongly*) to 4 (*agree strongly*) scale to indicate their agreement with statements illustrating potential concerns about exposure (e.g., "Exposure therapy often causes clients' anxiety symptoms to worsen"). Total scores on the TBES range from 0 to 84. Higher scores indicate greater concern about exposure. The TBES has demonstrated excellent internal consistency ($\alpha = 0.95$) and six-month test-retest reliability ($r = 0.89$). In the present study, the TBES was administered both before and after the workshop, and it showed good internal consistency (pre-workshop $\alpha = 0.85$, post-workshop $\alpha = 0.91$).

1.2.2. Exposure therapy case vignette (ETCV)

The ETCV (Deacon, Farrell et al., 2013) is a self-report version of a previously validated behavioral measure of exposure therapy delivery (see Farrell, Deacon, Dixon, et al., 2013; Farrell, Deacon, Kemp, et al., 2013). Participants are presented with a case vignette depicting a client fearful of contamination and are asked to make delivery-related decisions at four time points throughout a hypothetical exposure session. At each time point, participants receive information about the client, including a current rating of the client's subjective distress (0–100), observable anxiety symptoms (e.g., shaking, sweating), and a verbal report ("This is awful. I just know I'm going to get sick. I'm feeling lightheaded and I don't know if I should keep going.") Participants use a 0 (*very unlikely*) to 4 (*very likely*) scale to indicate their likelihood of engaging in a several potential actions.

The range of potential actions assesses both theoretically optimal (e.g., "Encourage the client to remain in contact with the object") and suboptimal (e.g., "Reassure the client that she will not get sick from the object") strategies for delivering exposure. Based on previous factor analytic work (Deacon, Farrell et al., 2013), responses across the four time points are aggregated to form three subscales characterizing distinct styles of exposure delivery. The 12-item Distress Reduction subscale includes actions designed to minimize distress (e.g., "Instruct the client to use arousal reduction strategies"). The 9-item Safety Behavior Acquiescence subscale

contains actions that represent granting client requests to use safety behaviors (e.g., "Allow the client to use hand sanitizer"). Finally, the 11-item Intense Delivery subscale includes actions consistent with a prolonged and intense delivery of exposure (e.g., "Increase the intensity of the exposure by having the client come into more contact with the object"). Each of these three subscales has evidenced good internal consistency ($\alpha s \geq 0.84$) and convergent validity (Deacon, Farrell et al., 2013). In the present study, the internal consistencies of these subscales were good ($\alpha s \geq 0.88$).

In addition to examining the three ETCV delivery subscales individually, we aggregated these subscales to create an overall index of exposure therapy delivery. This "Overall Delivery" score was calculated by reverse-coding responses to the Distress Reduction and Safety Behavior Acquiescence subscales and adding these scores to the Intense Delivery subscale score. This approach allowed for a measure of the overall quality of participants' self-reported delivery of exposure, with higher scores indicating better delivery. The Overall Delivery index showed excellent internal consistency ($\alpha = 0.90$).

1.2.3. Knowledge of exposure therapy

We assessed participants' perceived knowledge of exposure therapy using a single item ("How thorough is your understanding of the theory and practice of exposure therapy?") to which participants responded using a scale ranging from 0 (*not at all thorough*) to 100 (*extremely thorough*) and increasing by increments of 5. Participants completed this item at pre- and post-workshop.

1.3. Procedure

Data were collected from attendees at six separate day-long (8-h) exposure therapy training workshops that were sponsored by a non-profit organization specializing in continuing education seminars for mental health professionals. Recruiting advertisements were identical across each of the workshops. Participants' assignment to one of the two study conditions depended upon which workshop they attended. Whereas attendees at the second, fourth, and sixth workshops ($n = 23$) received standard training, attendees at the first, third, and fifth workshops ($n = 26$) received enhanced training.

At the outset of each workshop, participants provided informed consent before completing a demographic questionnaire, the TBES, and the item assessing self-reported knowledge of exposure therapy. The content of the workshops was standardized both for time and the breadth of didactic material that was presented across conditions. Each of the six workshops was conducted by BJD, an expert in exposure-based treatment for anxiety. Following the workshop, participants completed the post-workshop study measures. All study procedures were approved by a university Institutional Review Board.

1.3.1. Standard training (ST)

Training in the ST condition followed the same exposure therapy training methods used by Deacon, Farrell et al. (Study 3; 2013). Didactic information was presented on the nature of anxiety disorders, and participants were given thorough instruction in exposure therapy as a transdiagnostic intervention for pathological anxiety (Abramowitz et al., 2011). Workshop content included: (a) an overview of exposure therapy, (b) a review of its efficacy, (c) a description of cognitive-behavioral maintaining factors in anxiety disorders, (d) applied practice in case conceptualization and treatment planning, (e) descriptions of different variations of exposure (e.g., interoceptive, imaginal), (f) training in developing exposure hierarchies, (g) instruction in "coaching" clients during exposure exercises, and (h) a discussion of the importance of context in fear learning and extinction. Although the presenter briefly introduced clinician concerns about exposure while discussing the creation and completion of exposure exercises, no other mention was made of these concerns. Previous research suggests that workshops delivered in this manner yield an approximate 50% reduction in TBES scores from pre- to post-workshop (Deacon, Farrell et al., 2013).

1.3.2. Enhanced training (ET)

The breadth of the didactic material presented in the ET condition was essentially equivalent to the ST condition.[1] However, there were several novel training components included in the ET condition. The presenter reviewed common clinician concerns about the safety and tolerability of exposure therapy identified in previous research. At times during the workshop, summaries of empirical findings that refute these concerns were presented (see Deacon & Farrell, 2013). For example, the presenter reviewed findings showing that rates of medical complications resulting from interoceptive exposure are extremely low (Deacon, Lickel et al., 2013). Importantly, these summaries of empirical findings were balanced with the presentation of emotion-based appeals described below.

Case presentations and video-based client testimonials were selected as emotion-based appeals due to previous work showing that these strategies are helpful in modifying clinicians' attitudes toward psychological treatment (Kidd et al., 2014; Stewart & Chambless, 2010). These strategies were employed in the ET condition to illustrate the safety and tolerability of exposure therapy *from the perspective of former clients*. Specifically, ET participants viewed segments of videotaped interviews with two former clients from our university-based clinic. These clients had recently completed a successful course of exposure therapy and agreed to provide a testimonial regarding their perceptions of exposure as a safe and tolerable treatment. In addition, the presenter reviewed the course of exposure-based treatment for both clients and presented several video segments of the clients recounting their experience engaging intact in exposure. Broadly, these clients conveyed that although confronting their fears was challenging at times, it was tolerable and acceptable to them, neither experienced any aversive consequences (e.g., symptom exacerbation), and both benefitted significantly from exposure (i.e., reduced symptoms, improved quality of life).

ET participants also engaged in a simulated interoceptive exposure exercise designed to target concerns about the safety and tolerability of anxiety-related sensations (e.g., breathlessness). Participants were instructed to hyperventilate at a rate of two breaths per second by the presenter, who demonstrated correct procedure for the exercise throughout its duration. Participants hyperventilated intensely for 45 s before resting for 15 s and attending to their body sensations. Four additional 60-s hyperventilation trials were subsequently conducted in this manner. Participants were encouraged to maintain their rapid pace of breathing throughout the exercise to make the body sensations as intense as possible. Previous research has shown that hyperventilating in this manner produces intense anxiety-related sensations (Lickel, Nelson, Lickel, & Deacon, 2008). Following the exercise, the presenter engaged participants in a discussion concerning the safety and tolerability of the sensations evoked by the hyperventilation exercise.

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[1] We estimate the enhanced training strategies, on average, accounted for 45 min of the total ET workshop. To include these strategies, minor modifications of didactic material were made to uniformly condense within each topic such that the core message remained intact.

2. Results

2.1. Preliminary analyses

The conditions did not differ significantly in age, $t(45) = 0.73$, $p = 0.47$, or years of experience in the mental health profession, $t(46) = 0.61$, $p = 0.55$. Additionally, there were no significant differences between training conditions in gender, χ^2 (1, $n = 49) = 0.35$, $p = 0.56$, ethnicity, χ^2 (4, $n = 49) = 2.91$, $p = 0.23$, theoretical orientation, χ^2 (5, $n = 49) = 3.63$, $p = 0.60$, or highest degree obtained, χ^2 (3, $n = 49) = 1.18$, $p = 0.76$.

2.2. Change in concerns about and knowledge of exposure therapy

Descriptive statistics for all dependent measures at both pre- and post-workshop are presented by condition in Table 1. To assess the effect of training condition on change in clinician concerns about exposure therapy from pre- to post-workshop, we conducted a 2 × 2 factorial analysis of variance (ANOVA) with a two-level, between-subjects effect of training condition (ST vs. ET) and a two-level, within-subjects effect of time (pre- vs. post-workshop). With TBES scores specified as the dependent variable, results showed a non-significant main effect of condition, $F(1, 47) = 1.74$, $p = 0.19$, $\eta_p^2 = 0.04$. However, there was a significant main effect of time, $F(1, 47) = 219.81$, $p < 0.001$, $\eta_p^2 = 0.82$, indicating that TBES scores decreased significantly from pre- to post-workshop across conditions. A significant interaction between condition and time also emerged, $F(1, 47) = 10.54$, $p < 0.01$, $\eta_p^2 = 0.18$. Follow-up analyses were consistent with prediction; whereas TBES scores did not differ significantly between conditions at pre-workshop, $t(47) = 0.49$, $p = 0.63$, $d = 0.13$, TBES scores were significantly lower among ET participants at post-workshop compared to ST participants, $t(47) = 2.69$, $p = 0.01$, $d = 0.76$. Reductions in concerns about exposure during the workshop were independent of whether participants' theoretical orientation was CBT.[2]

A similar 2 × 2 factorial ANOVA was conducted examining change in self-reported knowledge of exposure from pre- to post-workshop. Results showed no significant main of condition, $F(1, 44) = 0.26$, $p = 0.62$, $\eta_p^2 = 0.01$. There was a significant main effect of time, $F(1, 44) = 112.04$, $p < 0.001$, $\eta_p^2 = 0.72$, indicating participant knowledge of exposure increased from pre- to post-workshop across conditions. There was no significant interaction between condition and time, $F(1, 47) = 0.42$, $p = 0.52$, $\eta_p^2 = 0.01$, indicating the extent of participants' knowledge of exposure therapy did not differ by condition. Additionally, knowledge of exposure did not differ by condition at either pre- or post-workshop ($ps > 0.75$). Thus, the observed difference between conditions in the magnitude of reduced concerns about exposure did not appear related to differential accrual of knowledge about the treatment.

2.3. Self-reported delivery of exposure therapy

To assess potential differences by condition in self-reported delivery of exposure, we conducted several independent samples t-tests with ETCV delivery subscales and the Overall Delivery Index as dependent variables. Consistent with prediction, scores on the Safety

[2] At the helpful suggestion of an anonymous reviewer, we examined whether having a CBT theoretical orientation influenced the extent of reduction in clinicians' concerns about exposure. We created a categorical variable to denote whether participants had endorsed CBT as their theoretical orientation and reran the analysis using ANCOVA (CBT = 1 vs. non-CBT = 2 as the covariate). The findings showed an extremely similar pattern of results compared to our original analysis; thus, the effect of training condition on clinicians' concerns about exposure did not appear to vary as a function of theoretical orientation.

Table 1
Descriptive statistics on dependent measures by condition at pre- and post-workshop.

Measure	Standard training (n = 23)		Enhanced training (n = 26)	
	M	SD	M	SD
TBES				
Pre-workshop	33.09	9.26	34.34	8.81
Post-workshop	17.78	10.80	10.46	8.18
Knowledge of exposure				
Pre-workshop	43.04	27.25	45.19	23.47
Post-workshop	77.14	19.66	77.80	11.28
ETCV safety behavior acquiescence				
Post-workshop	7.04	9.22	2.35	2.84
ETCV distress reduction				
Post-workshop	14.57	9.90	9.46	9.53
ETCV intense delivery				
Post-workshop	37.00	8.77	38.46	5.81
ETCV overall delivery index				
Post-workshop	99.39	19.93	110.65	12.37

Note: TBES = Therapist Beliefs about Exposure Scale, ETCV = Exposure Therapy Case Vignette.

Behavior Acquiescence subscale were significantly lower in the ET condition, $t(47) = -2.47$, $p = 0.02$, $d = 0.70$. Additionally, Distress Reduction subscale scores were marginally significantly lower in the ET condition than the ST condition, $t(47) = -1.89$, $p = 0.07$, $d = 0.53$. Counter to prediction, Intense Delivery subscale scores did not differ significantly by condition, $t(47) = 0.70$, $p = 0.49$, $d = 0.19$. However, as predicted, ETCV Overall Delivery scores were significantly greater in the ET condition as compared to the ST condition, $t(47) = 2.41$, $p = 0.02$, $d = 0.68$, indicating superior self-reported delivery of exposure among participants who received enhanced training.
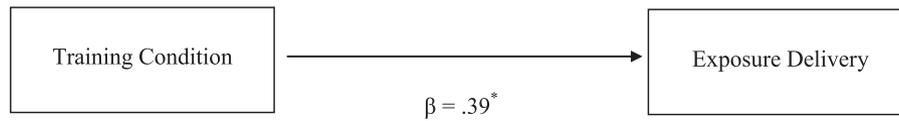
2.4. Mediational analyses

To explore whether the superior self-reported exposure delivery in the ET condition was mediated by the extent of reduction in concerns about exposure, mediational analyses were conducted using SPSS macro and procedures for testing mediation (Preacher & Hayes, 2004). ETCV Overall Delivery scores were used to represent self-reported delivery of exposure therapy and were entered as the outcome variable. Changes in TBES scores from pre- to post-workshop were used to represent reductions in concerns about exposure and were entered as the mediator. Training condition accounted for significant variance in participants' self-reported delivery of exposure therapy ($B = 11.26$, $SE = 4.68$, $p = 0.02$); however, this path became non-significant when reductions in concerns about exposure were entered into the model, $B = 7.43$, $SE = 5.06$, $p = 0.15$. The total indirect path from differences in training condition to self-reported exposure delivery via reduction in concerns about exposure was significant, $B = 9.89$, $SE = 3.72$, $p = 0.01$ (see Fig. 1). Thus, as hypothesized, reductions in clinician concerns about exposure from pre- to post-workshop appeared to mediate the effect of training condition on self-reported delivery of exposure therapy. It should be noted, however, that full mediation cannot be determined by this model due to the lack of temporal precedence between the mediator and outcome variable. The overall regression accounted for 17% of the variance in ETCV Overall Delivery scale scores, $F(2, 46) = 4.59$, $p = 0.02$.
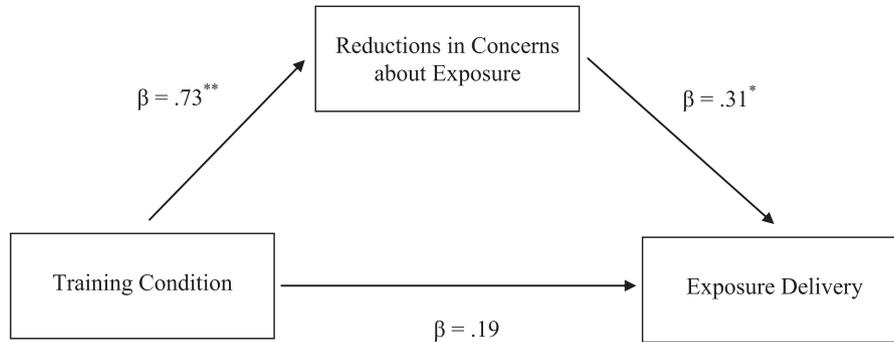
3. Discussion

Despite the recognized need to disseminate exposure therapy to clinicians in a manner that minimizes concerns about this treatment, there is little empirical guidance as to how this goal may be accomplished. The present study compared the effectiveness a

Note: Unmediated effect of training condition on exposure delivery. [*]$p < .05$

Note: Effect of training condition on exposure delivery mediated by reductions in concerns about exposure. [*]$p < .05$, [**]$p < .001$

Fig. 1. Reductions in concerns about exposure mediate the effect of condition on exposure delivery.

theory-based exposure therapy training model to a standard training model offering didactic instruction in the theory and practice of exposure. Results supported our hypothesis that the enhanced training model would lead to greater reductions in clinician concerns about exposure from pre- to post-workshop. Further, our hypothesis that the enhanced training would yield superior self-reported delivery of exposure was mainly supported; three out of the four scales used to measure exposure delivery showed meaningful differences (medium-to-large effect sizes) favoring the enhanced training. These findings highlight the importance of targeting clinician concerns during exposure therapy training. Experts have suggested that training clinicians to better comprehend the theory underlying exposure therapy, in addition to understanding its "technique," would lead to improved treatment outcomes compared to focusing solely on the technique of exposure (e.g., Abramowitz, 2013). Our findings suggest an additional piece to the training puzzle: facilitating clinician delivery of exposure in an optimal manner may entail targeting and reducing clinicians' concerns about the treatment.

The present findings corroborate previous research showing that exposure therapy delivery improves when clinician concerns about the treatment are addressed during training (Harned et al., 2013, 2014). Whereas Harned and colleagues' efforts at reducing clinician concerns about exposure were derived primarily from motivational enhancement approaches (e.g., Miller & Rollnick, 1991) that produced small-to-moderate effects ($ds = 0.22-0.43$; Harned et al., 2014), the present study utilized techniques rooted in social-cognitive theory of attitude change (e.g., Petty & Cacioppo, 1986) that yielded a larger effect ($d = 0.76$). Despite these differences, our findings together with those of Harned et al. (2013; 2014) imply that use of theoretically-grounded strategies to reduce concerns about exposure therapy may produce superior delivery of the treatment

compared to didactic training alone. Future research should continue to examine the effectiveness of other attitude modification strategies in reducing clinician concerns about exposure in the context of training. To illustrate, individuals' attitudes toward a certain position become strengthened when they defend their position in their own words (Aronson, Fried, & Good, 2002), and this strategy could be feasibly applied to exposure therapy training.

Another important finding from this study was that the observed superiority in self-reported exposure delivery of the enhanced condition over the standard condition was accounted for by the extent of reduction in concerns about the treatment from pre- to post-workshop. That is, enhanced training clinicians who scored higher on a measure of exposure delivery quality appeared to do so because their concerns about the treatment diminished significantly over the course of training. Although the theoretical link between reduced exposure-related concerns and improved treatment delivery has been postulated previously, the present study is the first to our knowledge to provide empirical evidence for this link, albeit in the context of a self-report, vignette-based measure of delivery. An important implication of this finding is that clinicians' attitudes toward exposure may be a "gateway" through which improvements in their delivery of the treatment can be facilitated. Accordingly, those who routinely train and supervise exposure therapists are encouraged to consider implementing training strategies that directly address concerns about the treatment, including the strategies assessed in the present study. It is plausible that the magnitude of reduction in clinicians' concerns about exposure is related to the quality of their exposure delivery. Future research in this area should generate a larger sample to examine whether more substantial reductions in exposure-related concerns are predictive of optimal treatment delivery.

Notably, despite the significant differences observed between

the two conditions in this study, there were very large main effects from pre- to post-workshop showing reduction in concerns about exposure therapy across condition. These results replicate previous findings showing that training in the theoretical underpinnings and effective delivery of exposure reduces clinicians' negative beliefs about the treatment by approximately 50% (Deacon, Farrell et al., 2013). Though it may be prudent of trainers to implement our enhanced training strategies, the present findings attest to the general importance of improving clinician access to training in exposure therapy (e.g., Woody, Weisz, & McLean, 2005).

The present study has several limitations. All outcomes were assessed via self-report measures, raising concern about the effects potentially being driven by responder bias. The confidence in the findings would improve if the breadth of outcome variables was expanded to include behavioral measures of exposure therapy delivery in future research. Relatedly, our use of the ETCV as a measure of exposure delivery is only hypothetical, and it is possible that participants' actual exposure delivery would differ from their ETCV responses. Future research should examine the effect of alleviating clinician concerns about exposure on actual delivery of the treatment in clinical practice. Also, given our concern about participant frustration at having to complete multiple experimental measures during their exposure training, we elected to assess knowledge of exposure therapy with a single self-report item that may not have adequately characterized the extent of participant knowledge of the treatment. There are also several limitations related to our sample. First, due to the group randomization procedure, it cannot be ruled out that group-level variables (e.g., cohesion among attendees at the same workshop) at least partially accounted for the conditional effects in the study. However, this seems unlikely given the absence of significant differences between conditions on any variables assessed pre-workshop.[3] Because our sample included somewhat older therapists with an average of close to 20 years of experience in mental health, it is unclear if the present findings would generalize to younger, less experienced clinicians. Future research should assess the effectiveness of different theory-based exposure therapy training strategies among younger cohorts, such as trainees in graduate programs. Additionally, although the enhanced training was more effective in decreasing clinician concerns about exposure and improving self-reported delivery of the treatment, it is unclear which components of the training accounted for these effects. Future component analyses may provide clarity regarding which training strategies account for greater reduction in clinician concerns about exposure and superior treatment delivery. A final limitation is that the workshops were conducted by one of the authors (BJD) who was aware of the study hypotheses, which presents a possible confound to the conditional differences. However, participant ratings of the quality of the workshops showed no meaningful differences between conditions,[4] suggesting the likelihood of experimenter bias was acceptably low.

In summary, the present investigation contributes to a growing body of literature emphasizing the importance of minimizing clinician concerns about the safety and tolerability of exposure therapy. Our enhanced training strategies had a positive influence on clinician attitudes toward and self-reported delivery of exposure, suggesting they may hold promise as effective and feasible supplements to didactic exposure training. Further advancements in this growing area have the potential to improve the dissemination and delivery of exposure therapy, thus making this potent intervention more accessible to anxious individuals who need it.

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[3] Recognizing the potential for group-level effects acting as a confound, we reran our analyses using a multi-level model in which participants were nested within workshop groups, which were nested within the study conditions. Although there was no significant effect of workshop group on any of our outcome variables, the model was not sufficiently powered to detect workshop-level effects with our relatively small sample size. Thus, given the pilot nature of the study and for ease of presentation and communication, we elected to report only the influence of training condition on our outcome variables.

[4] The continuing education organization that facilitated the training workshops obtained participant ratings of the quality of the workshops upon their completion. The summary of these ratings was sent to us with only mean scores available (i.e., no participant-level data); thus, inferential tests could not be conducted. However, mean scores for overall workshop quality in each training condition were identical (4.63 on a 0–5 scale).

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