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Predictors of clinician use of exposure therapy in community mental health settings

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Abstract

Exposure therapy is recognized as the key component of cognitive-behavioral treatment for anxiety. However, exposure is the least used evidence-based treatment in community mental health settings and is the most challenging technique for clinicians to adopt within the context of effectiveness and implementation trials. Little work has examined clinician and organizational characteristics that predict use of exposure, which is important for identifying implementation strategies that may increase its use. In a large sample of community health clinicians ($N = 335$) across 31 clinical practice sites, this study characterized clinician and organizational predictors of exposure use and relaxation for anxiety. Mixed effects regression analyses indicated that both clinician attitudes and an organization's implementation climate may be important levers for interventions seeking to increase clinician exposure use. Greater clinician use of relaxation strategies was also associated with less exposure use. Results point to important implications for implementing cognitive-behavioral therapy for anxiety, including de-emphasizing relaxation and attending to organizational climate.

Keywords

anxiety; youth; cognitive-behavioral therapy; dissemination and implementation

1. Introduction

Anxiety disorders are the most common psychiatric conditions in youth (Merikangas et al., 2010). They are impairing (Rapee, Schniering, & Hudson, 2009), chronic (Ginsburg et al., 2014), and have a number of sequelae if left untreated (Neal & Edelman, 2003). Cognitive-behavioral therapy (CBT) is a proven and efficacious treatment for anxiety demonstrating

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durable effects over time (Benjamin, Harrison, Settiani, Brodman, & Kendall, 2013; Ginsburg et al., 2014; Higa-McMillan, Francis, Rith-Najarian, & Chorpita, 2016). Use of exposure, or confronting fear stimuli within the context of CBT, is the key ingredient of intervention leading to improved outcomes (Kendall et al., 2006; Peris et al., 2015). Despite scientific recognition that exposure is critical to the success of CBT for anxiety, recent estimates suggest that only 10–30 percent of clinicians endorse using exposure therapy in routine clinical care (Becker, Zayfert, & Anderson, 2004; Borntrager, Chorpita, Higa-McMillan, Daleiden, & Starace, 2013; Trask, Fawley-King, Garland, & Aarons, 2016; Whiteside, Deacon, Benito, & Stewart, 2016; Wolitzky-Taylor, Zimmermann, Arch, De Guzman, & Lagomasino, 2015). To date, most studies examining exposure use in the context of routine clinical care have largely focused on documenting the rates of exposure use with adult clients with anxiety or post-traumatic stress disorder (PTSD); the few studies with youth populations suggest comparably low rates of exposure use for anxious youth (Higa-McMillan, Kotte, Jackson, & Daleiden, 2016; Whiteside et al., 2016). However, little is known about clinician and organizational factors associated with clinician use of exposure in community mental health. Identifying characteristics associated with greater exposure use has important implications for designing effective implementation strategies to increase clinician exposure use. As such, this paper extends prior work by examining clinician and organizational predictors of exposure use for youth clients in community mental health settings.

The presence of a significant research to practice gap for psychotherapy is not new (Weisz, Donenberg, Han, & Weiss, 1995); however, uptake of exposure lags behind other evidence-based practice strategies for youth (Higa-McMillan et al., 2016). Said to suffer from a significant “public relations problem” (Richard & Gloster, 2007), exposure is one of the least used evidence-based interventions in routine clinical care (e.g., Borntrager et al., 2013; Trask et al., 2016) and is rated the most difficult CBT strategy to implement in community settings (Chu et al., 2015). In contrast, studies suggest that when clinicians report using CBT for anxiety following implementation efforts, clinicians often opt for treatment components such as progressive muscle relaxation or deep breathing over exposure (Becker, Becker, & Ginsburg, 2012; Chu et al., 2015; Edmunds et al., 2014). Relaxation is a common component in early cognitive behavioral protocols for anxiety (e.g., Kendall & Hedtke, 2006). However, as the science underlying the efficacy of exposures has expanded, experts have recognized that relaxation may be less than effective for anxiety and/or even contraindicated in the context of exposure therapy (Blakey & Abramowitz, 2016). Thus, it appears that the most evidence-based intervention, exposure, is the least used for treating anxiety disorders whereas the least evidence-based intervention, relaxation, is used most often. This shift underscores the importance of furthering the field’s understanding of barriers to the use of exposure.

Prior implementation efforts to increase the use of CBT for anxiety have led to long-term clinician use of CBT strategies such as relaxation, but have done little to increase the rates of exposure (Chu et al., 2015; Edmunds et al., 2014). As this suggests that future implementation efforts may benefit from directly targeting clinician use of exposure, identifying factors specifically associated with greater likelihood of therapist use of exposure is important to developing effective implementation strategies aimed at increasing clinician

exposure use. Implementation models posit factors impacting evidence-based practice (EBP) use at multiple levels (e.g., clinician, organizational levels; (Aarons, Sommerfeld, & Walrath-Greene, 2009; Damschroder et al., 2009). Consistent with this, prior work examining facilitators of EBP use more broadly have found both clinician factors, such as more positive attitudes toward EBP, and organizational variables, such as organizational culture and climate, to be associated with greater EBP use (Aarons, 2004; Beidas et al., 2015; Brookman-Frazee, Haine, Baker-Ericzen, Zoffness, & Garland, 2010). When barriers to exposure have been examined, data indicate that barriers to clinician use of exposure similarly arise across these multiple levels, and include negative clinician attitudes (Deacon et al., 2013), a lack of time to prepare for exposures (Farrell, Deacon, Dixon, & Lickel, 2013), little access to needed materials, and few trained supervisors (Ringle et al., 2015).

With respect to linking these cited barriers to clinician behavior, several studies have linked more negative clinician attitudes were associated with lower likelihood of exposure use for youth (Deacon et al., 2013; Whiteside et al., 2016). However, little work has examined whether these factors correlate with clinician use of exposure in community mental health settings. Additionally, no published studies have examined whether organizational context variables, such as organizational cultures and climates that value or emphasize evidence-based practice, are linked to clinician exposure use for youth. Some work drawn from a research trial aimed at disseminating exposure therapy suggests that clinician factors, rather than organizational factors, are primary barriers to exposure use for adults (Harned, Dimeff, Woodcock, & Contreras, 2013). However, the larger implementation literature suggests that organizational variables, such as organizational culture and climate, may be primary drivers of clinician EBP use (Beidas et al., 2015). Identifying organizational and clinician variables associated with clinician use of exposure will be key for designing targeted and comprehensive implementation strategies.

The primary aim of this study was to identify clinician and organizational level predictors of exposure use for anxiety disorders in youth community mental health settings. Clinician level predictors included attitudes toward and knowledge of evidence-based practice. We also included clinician years of experience, which predicts EBP use in other samples (e.g., Aarons, 2004; Becker, Smith, & Jensen-Doss, 2013). In addition, we examined whether clinicians who had participated in an evidence-based practice initiative that included some aspect of training in exposure (i.e., the Beck Community initiative [Creed, Wolk, Feinberg, Evans, & Beck, 2016], the Philadelphia Alliance for Child Trauma Services [Beidas et al., 2016], and Prolonged Exposure [Foa et al., 2005]) were more likely to use exposure for anxiety relative to those clinicians who did not participate. As lack of preparation time has been a cited barrier to exposure (e.g., (Ringle et al., 2015), we also examined clinician caseload size. We anticipated that positive attitudes, greater knowledge, fewer years of experience, a lower caseload, and participation in an EBP initiative would be associated with greater use of exposure for anxiety. Based on work suggesting clinician preference for relaxation over exposure in anxiety treatment (Becker et al., 2012; Chu et al., 2015), we also examined the extent to which clinicians used relaxation for anxiety treatment as a predictor of exposure use, anticipating that relaxation would be used more frequently for youth anxiety than exposure and that clinicians who used relaxation more frequently would use exposure less often.

With respect to organizational predictors, we examined organization size (number of therapists) as well as commonly studied constructs of organizational climate (proficiency and rigidity; Williams & Glisson, 2013), organizational culture (functionality; (Williams & Glisson, 2014), and implementation climate (Weiner, Belden, Bergmire, & Johnston, 2011). We anticipated that more proficient organizational climates, more functional organizational cultures, and higher implementation climate would be associated with greater exposure use. We also anticipated that more resistant organizational cultures would be associated with less exposure use.

2. Methods

2.1 Participants

Participants were 335 community mental health clinicians in the city of Philadelphia working across 31 community mental health agencies. Participants were an average of 38.8 years old ($SD = 11.7$), largely female (77.9%) and of heterogeneous ethnic background (20.3% White, 28.4% Hispanic/Latino; 10.7% African American, 19.1% Pacific Islander, 1.8% Asian, 11.0% Multiracial, and 5.1% Other; 12 individuals did not report on their ethnicity). Average years of full-time professional experience across the sample was 9.4 years ($SD = 8.2$) and clinicians had worked an average of 3.1 years ($SD = 4.0$) at their agency of employment.

2.2 Procedures

All procedures were approved by the City of Philadelphia and University of Pennsylvania institutional review boards. Data were drawn from two waves of data collection as part of a larger study examining the impact of EBP clinical initiatives within the community mental health system in Philadelphia (CITATION REDACTED FOR BLIND REVIEW). A total of 335 clinicians across 31 clinical organizations participated across the two waves (Wave 1 clinician $n = 130$, organization $n = 22$; Wave 2 clinician $n = 247$, organization $n = 28$). At each wave, clinicians completed a series of questionnaires during a 1-time, 2-hour meeting at each organization. Forty-two clinicians participated in both waves 1 and 2; for these participants, we only used the data gathered in wave 1 to provide a cross-sectional snapshot of clinician exposure use.

2.3 Measures

The Therapist Procedures Checklist – Family Revised (TPC-FR; Weersing, Weisz, & Donenberg, 2002) is a 62-item self-report checklist measuring use of therapy strategies from four domains: cognitive, behavioral, family, and psychodynamic. Clinicians indicated the various techniques they used with a representative client on their active caseload, and the client's primary diagnosis. For the purposes of this study, representative clients were classified as having an anxiety disorder if therapists reported that they had a DSM-IV anxiety (e.g., generalized anxiety disorder), obsessive-compulsive, or PTSD diagnosis. Items are rated on a 6 point Likert scale, with higher scores indicative of greater technique utilization. The TPC-FR has demonstrated excellent psychometric properties (Kolko, Cohen, Mannarino, Baumann, & Knudsen, 2009; Weersing et al., 2002). In this study, only the items assessing therapist use of exposure ("using systematic desensitization with imagined or real

exposure to feared objects or situations”) and relaxation (“teaching the child relaxation as a coping method”) were used.

The Knowledge of Evidence-Based Service Questionnaire (KEBSQ; (Stumpf, Higa-McMillan, & Chorpita, 2009) indexed clinician knowledge of EBP. The KEBSQ consists of 40-items and produces a total knowledge score, with higher scores indicative of more knowledge of evidence-based services for youth. Psychometric data suggests temporal stability, discriminant validity, and sensitivity to training (Stumpf et al., 2009). In this study, we used the KEBSQ item pertaining specifically to knowledge of exposure as an EBP for anxiety, which provides information on whether clinicians endorsed exposure as practice derived from the evidence-base for anxiety and whether they misidentified exposure as derived from the evidence-base for depression, disruptive behavior disorders and/or attention-deficit/hyperactivity disorder (i.e., commission error; Okamura, Nakamura, Mueller, Hayashi, & McMillan, 2016).

The Evidence-Based Practice Attitude Scale (EBPAS; (Aarons, 2004) broadly indexed clinician attitudes toward EBP use. The EBPAS consists of 15-items that yield four subscales: appeal (is EBP intuitively appealing), requirements (would EBP be used if required by organization, supervisor, or state), openness (openness to innovation in general), and divergence (perceived divergence between EBP and current practices - the view that EBP is not as clinically useful and less important than clinical experience). Items are rated on a five-point Likert-scale with higher scores indicating more positive attitudes, with the exception of the divergence subscale, where higher scores are indicative of more negative attitudes. The EBPAS has national norms, demonstrated validity and good internal consistency with subscale alphas ranging from .67–.91. (Aarons et al., 2010; Aarons & Sawitzky, 2006)

The Organizational Social Context Measurement System (OSC; Glisson, Green, & Williams, 2012; Glisson et al., 2008) includes 105 items measuring six dimensions of organizational culture and climate in mental health and social services organizations (Glisson, et al., 2008). Organizational climate refers to shared perceptions of the psychological impact of their work environment on their well-being and functioning in their organization. Organizational culture is defined as the shared expectations that drive the way work is done in an organization. The organizational culture and climate scales are profiled using T-scores, with a mean of 50 and a standard deviation of 10, established from a normative sample of 100 mental health organizations nationally (Glisson et al., 2008). Organizational scores are calculated by aggregating items across clinician respondents within each organization. For this study, we included two subscales assessing organizational culture: proficiency (i.e., cultures in which clinicians prioritize the well-being of clients and place emphasis on clinicians being up to date with the latest evidence) and rigidity (i.e., cultures in which clinicians are expected to show little interest in new ways to provide services and suppress efforts for change). We included one subscale assessing organizational climate: functionality (i.e., climates in which clinicians can get their job done effectively and have a well-defined understanding of how they fit into the organization). These have been identified as key organizational constructs linked to EBP use (Williams & Glisson, 2014).

The Implementation Climate Scale (ICS; Ehrhart, Aarons, & Farahnak, 2014) is an 18-item self-report measure of implementation climate, defined as employees' shared perceptions that the adoption, implementation, and use of EBP is expected, rewarded, and supported by the organization. Scores are aggregated within each organization to create organizational climate scores. The ICS assesses multiple factors that contribute to successful implementation 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 (Ehrhart et al., 2014). Items are rated on a zero (Not at all) to four (Very great extent) scale. Higher scores indicate more positive implementation climates suggesting the organization values and is supportive of EBP. Psychometric evaluation suggests good reliability and validity (Ehrhart et al., 2014).

2.4 Data Analysis Plan

Descriptive statistics characterized the rates with which exposures and relaxation were used for clients with anxiety disorders across the sample, as well as the percentage of therapists who accurately identified exposure as an EBP for anxiety disorders. Mixed-effects regression models with random intercepts were used to predict the extent to which clinicians endorsed using exposure while accounting for the nested data structure (clinicians within organizations). Predictor analyses were run for the subset of clinicians who reported on clients with a primary anxiety disorder ($n = 54$). The first models examined clinician level predictors: attitudes toward EBP, knowledge of EBP, years of experience, caseload size, and whether the clinician had participated in an EBP initiative. In a second model, organizational predictors were added alongside the clinician predictors and included, organization size (number of clinicians), the proficiency, rigidity, and functionality subscales of the OSC, and implementation climate. Exposure use was examined both as a continuous variable (extent to which therapist used exposure as rated on the TPC-FR) and a binary variable denoting routine use of exposure therapy (i.e., endorsed using exposure often or most of the time over the course of treatment). Finally, a set of analyses examined predictors of therapist use of relaxation with anxious clients. SAS Version 9.4 was used to analyze the mixed effects regression (using PROC MIXED) and logistic regression models (using PROC GLIMMIX). Given the complexity of some of the models and small sample sizes for some subgroup analyses to reduce our ability to detect smaller effect sizes, we report on results that are both statistically significant ($p < .05$), as well as those that trended toward significance ($p < .10$). Post-hoc analyses examined the extent to which exposure was used for non-anxiety disorders.

3. Results

Table 1 shows characteristics of the dependent and independent variables for the full sample and the subsample reporting on clients with anxiety. Across the full sample, 54 clinicians out of the 335 (16.1 %) reported that their representative client had a DSM IV-TR anxiety disorder. Approximately 61% ($n = 33$) of the representative anxious youth had a diagnosis of PTSD and 1 youth had an obsessive compulsive disorder; diagnosis; the remaining youth had a mix of unspecified and generalized anxiety disorders. Sixty-one percent of these clinicians participated in an EBP initiative ($n = 33$). Within this subset, 37% of clinicians (n

= 20) endorsed using routine exposures with their clients; 40.7% ($n = 22$) reported rarely to never using exposure. In contrast, 74.1% of clinicians ($n = 40$) reported using relaxation routinely with their anxious clients. Most clinicians (92.6%; $n = 50$) endorsed the use of exposure as an EBP for exposure on the KEBSQ, which was comparable to the rate seen across the full sample (86%, $n = 288$).

3.1 Exposure Use

When clinician characteristics were examined as predictors alone (see Table 2), no clinician characteristics were associated with greater exposure use. When exposure was examined continuously, greater clinician openness on the EBPAS was associated with routinely using exposure ($OR = 3.72$, 95% CI = .96, 14.40, $p = .06$). Higher scores on the EBPAS requirements (would use EBP if it were required) subscale was associated with clinicians never using exposure for youth anxiety disorders ($OR = 2.52$, 95% CI = 1.00–6.29, $p = .05$).

When organizational predictors were added to the models (see Table 3), higher implementation climate was marginally associated with greater use of exposure when exposure was examined continuously ($b = 1.52$, $SE = .92$, $p = .08$). When examining predictors of routine exposure use, EBPAS openness scores were no longer significant, and no clinician or organizational variables predicted use. In the model testing predictors of clinicians never using exposure, higher scores on the EBPAS requirements subscale remained a significant predictor after organizational predictors were added to the model ($OR = 3.27$, 95% CI = 1.00–10.69, $p = .05$). Clinician caseload emerged as marginally significant, such that higher clinician caseloads were associated with greater odds of never using exposure ($OR = 1.11$, 95% CI = .86–1.43, $p = .09$).

3.2 Use of Relaxation

Greater clinician use of relaxation was also marginally associated with lower likelihood to routinely use exposures ($OR = 2.18$, 95% CI = .91–5.22, $p = .08$). With respect to predictors of the use of relaxation as a treatment for youth anxiety, higher scores on the EBPAS openness subscale were associated with greater use of relaxation ($b = .38$, $p = .03$); this relationship also remained significant after including organizational characteristics in the model (see Table 4).

3.3 Post-hoc analyses

Seventeen percent of clinicians ($n = 45$) who did not report their client had an anxiety disorder endorsed using exposure with their non-anxious clients. Follow-up analyses indicated that the diagnostic makeup of non-anxious youth who received exposure consisted of predominantly externalizing disorders (73.3%, $n = 33$); additional diagnoses included other internalizing disorders such as depression (13.3%, $n = 6$) and other diagnoses such as autism spectrum disorders (13.3%, $n = 6$). Post-hoc analyses examined whether any clinician or organizational predictors differentiated clinicians who used exposures for anxiety versus for disorders for which exposure is not typically implemented. Results indicated that greater perceptions that EBP is not clinically useful on the EBPAS divergence subscale was associated with greater likelihood of exposure use with non-anxious clients ($OR = 11.39$, 95% CI = 1.12–115.73, $p = .04$); however, this finding was no longer significant after

accounting for organizational variables. No organizational characteristics differentiated use of exposure for anxious and non-anxious clients.

We also examined whether commission errors on the KEBSQ (i.e., endorsed exposure as an EBP for disruptive behavior disorder, ADHD, or depression) predicted use of exposures for other disorders. Across the full sample, 9.9% ($n = 33$), 9.3% ($n = 31$), and 17.0% ($n = 57$) of clinicians endorsed exposure as an EBP for disruptive behavior disorders, attention-deficit hyperactivity disorder, and depression respectively. Forty percent ($n = 18$) of those clinicians reporting use of exposure for non-anxiety disorders made KEBSQ commission errors on the exposure item; in contrast, only 25% ($n = 5$) of the sample reporting use of exposure for anxiety made commission errors. However, commission errors were not statistically associated with exposure use for non-anxiety diagnoses ($OR = 1.57$, 95% CI = .34 – 7.00, $p = .55$).

4. Discussion

Results support the robustness of the finding that exposure is rarely used within the context of routine clinical care settings and that relaxation strategies are more greatly favored among community mental health clinicians. Furthermore, findings also suggested that a portion of therapists may be using exposure with non-anxious clients, which may be due to a knowledge gap regarding the nature of the evidence base for exposure therapy. Predictor analyses suggested that both clinician level and organizational characteristics of community mental health centers impact clinician use of exposure. As such, future implementation efforts targeting clinician use of exposure would do well to target both organizational and clinician factors, as well as directly deemphasize relaxation strategies for the treatment of anxiety.

With respect to clinician predictors, greater clinician openness to EBP was associated with both more exposure use and greater use of relaxation for anxiety disorders, consistent with prior work linking clinician attitudes to EBP with broad EBP use. However, clinicians who endorsed willingness to use EBP if it was required were more likely to never use exposures with their clients. It is possible that if EBP is broadly required, clinicians may use EBP elements they prefer (e.g., relaxation) but avoid exposure, although additional work is needed to more directly test this hypothesis. Findings also partially supported the hypothesis that higher caseloads would relate to less exposure use, which is consistent with the notion that a busier schedule may impede clinician preparation time needed for an exposure session. Developing clinician support tools to reduce the preparation time needed for exposure may therefore be a useful strategy to increase exposure use. Contrary to hypothesis, clinician participation in an EBP initiative was not related to clinician exposure use. While rates of exposure use in this sample were consistent with prior studies of clinician exposure use in the context of targeted CBT for anxiety implementation efforts (e.g., Chu et al., 2015), none of these initiatives directly targeted anxiety disorders and emphasis placed on exposures was variable across the initiatives.

Relatively few organizational predictors were identified. Higher implementation climate was marginally associated with increased exposure use, suggesting that implementation efforts

targeting exposure may benefit from organizational interventions aimed at enhancing implementation climate (e.g., Glisson, Dukes, & Green, 2006). No other organizational constructs related to exposure use. It is worth noting that organizational culture and climate variables assessed in this study were broad constructs; examining organizational constructs more specific to exposure (e.g., policies allowing clients to be seen outside clinic rooms, flexible session times, team-oriented environment that facilitates confederate recruitment for exposures) may more strongly relate to clinician practice. Future CBT implementation efforts for anxiety may benefit from adapting organizational measures to reflect constructs theorized to be relevant to exposure.

Findings also replicated prior work suggesting clinician preference for relaxation over exposure. Furthermore, findings suggested that the more clinicians employed relaxation strategies, the less often they used exposure. This is perhaps because relaxation is an easier intervention to deliver and/or is more comfortable for therapists to deliver relative to exposure, which some view as violating the principle of “do no harm” (Gola, Beidas, Antinoro-Burke, Kratz, & Fingerhut, 2016). This also reflects the tension that takes place when interventions included in published treatment manuals fall out of evidentiary favor, as is the case with relaxation for anxiety. There is emerging recognition in implementation science that designing strategies to de-implement current intervention practices may be as important as those aimed at increasing use of interventions (Niven, Leigh, & Stelfox, 2016). De-implementing current interventions has traditionally been expected to occur naturally throughout the implementation process. However, there is increasing recognition that de-implementing certain interventions may require active effort on the part of those seeking to implement an EBP (Niven et al., 2016; van Bodegom-Vos, Davidoff, & Marang-van de Mheen, 2016). Thus, while CBT training for anxiety should overemphasize exposure use, consistent with recommendations (see Edmunds et al., 2016; Farrell et al., 2013), implementation strategies (e.g., training, consultation) should concomitantly address the role of relaxation (or other contraindicated interventions) in anxiety treatment.

Interestingly, our results also indicated that a substantial portion of therapists endorsed use of exposure for non-anxious clients. We did not have information on client comorbidities, and it is possible that this subgroup of clinicians was using exposure to address anxiety comorbidities. However, findings may suggest that clinicians may be using exposure with clients for whom there is little evidence to suggest they are appropriate. Drawing conclusions about the explanation of this finding is premature based on the current data. However, it is possible that some clinicians may identify intervention strategies they find effective and over-deploy them. Future work should examine potential “misapplications” of EBP interventions to determine the effect this has on treatment outcome. Alternatively, this may be related to social desirability (Izmirian & Nakamura, 2015) or perhaps a lack of understanding of what exposure should look like in clinical practice. Consistent with this, a substantial proportion (40%) of these clinicians endorsed that exposure was an EBP for a non-anxiety disorder. Clinicians who have heard of exposure as an EBP may be more likely to endorse it without fully understanding exposure’s clinical applications for anxiety disorder. Additionally, while knowledge of exposure as an EBP was not related to exposure use, the frequency of these commission errors combined with the high rates with which clinicians used exposure for non-anxiety disorders, highlights the need for knowledge about

exposure to be an important implementation target. Related, it is worth noting that the KEBSQ only assesses clinician awareness of exposure as an EBP for anxiety, and does not assess therapist knowledge of how to deliver exposure therapy nor therapist comfort and perceived competence in exposure delivery; more targeted knowledge measurement may be a more proximal predictor of clinician exposure use and will be important for informing appropriate, targeted implementation strategies and measuring the success of implementation efforts, particularly if success is indexed by clinician self-report of exposure use.

Results should be interpreted in the context of study limitations. While the study sample was large, the number of therapists who reported on techniques used for anxiety disorders was relatively small. While this is consistent with the broader literature showing that youth with anxiety disorders present less frequently to treatment in the community relative to disruptive disorders (Merikangas et al., 2011) and that anxiety diagnoses go undetected when youth with anxiety do present (Hansen, Oerbeck, Skirbekk, & Kristensen, 2016), our ability to detect predictors of clinician exposure use was likely underpowered and the marginal effects found should be interpreted with some caution and replicated in additional samples. Clinician use of exposure therapy in this sample also relied on retrospective self-report of techniques used with a representative case, rather than a comprehensive assessment of exposure use across clinician caseloads. While use of self-report data placed minimal burden on participants, clinician self-report may not always correlate with direct observation (Hurlburt, Garland, Nguyen, & Brookman-Frazee, 2010) and it is possible clinicians may not have understood some of the technical language on the TPC-FR. Future work would benefit from using observational measures that could assess both clinician use of exposure and clinician competence in exposure delivery using recently developed measures (McLeod et al., 2016) and incorporating clinician and organizational constructs more directly related to exposure.

This study is the first to examine both clinician and organizational predictors of clinicians' use of exposure therapy across multiple youth community mental health agencies. Findings contribute to a growing literature suggesting that even among clinicians who have received training in EBP, exposure is significantly underutilized for youth anxiety. This finding is striking, given the strong evidence for the efficacy of exposure therapy for anxiety and reflects the need for more targeted implementation efforts targeted at pediatric anxiety disorders and the use of exposure specifically. Results are consistent with the idea that traditional implementation strategies are insufficient at targeting clinician use of exposure therapy and suggest that both clinician level and organizational characteristics of community mental health centers may be important levers for implementation intervention targeting clinician exposure use. Findings also suggest the utility for future work examining the differential impact of implementation strategies on individual EBP interventions, rather than EBP broadly, to develop targeted intervention aimed at clinician practices.

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Highlights

- Exposure therapy is underutilized in the treatment of anxiety disorders in community mental health settings
- This study examined clinician and organizational predictors of clinician exposure use to inform the development of implementation strategies to specifically increase rates of clinician exposure use
- Both clinician and organizational characteristics related to clinician exposure use, suggesting important implications for implementation efforts targeting cognitive-behavioral therapy for anxiety disorders

Table 1

Descriptive statistics for dependent and independent variables

	Full Sample (<i>N</i> = 335)	Subset reporting on clients with anxiety (<i>n</i> = 54)
Dependent Variables		
Exposure Use, <i>M</i> , (<i>SD</i>)	2.10 (1.32)	2.50 (1.49)
Routine Exposure Use, <i>n</i> (%)	69 (20.1%)	20 (37%)
Never Use Exposure, <i>n</i> (%)	162 (48.3%)	22 (40.7%)
Relaxation Use, <i>M</i> , (<i>SD</i>)	3.64 (1.07)	3.93 (.77)
Clinician Predictors		
Years Experience, <i>M</i> , (<i>SD</i>)	9.40 (8.18)	8.53 (8.17)
EBPAS Requirements, <i>M</i> , (<i>SD</i>)	2.79 (4.03)	2.64 (1.10)
EBPAS Appeal, <i>M</i> , (<i>SD</i>)	3.17 (.70)	3.24 (.64)
EBPAS Openness, <i>M</i> , (<i>SD</i>)	3.06 (.71)	3.13 (.71)
EBPAS Divergence, <i>M</i> , (<i>SD</i>)	1.32 (.73)	1.10 (.68)
KEBSQ Anxiety, <i>n</i> (%) endorsed anxiety as EBP	288 (86.0%)	50 (92.6%)
KEBSQ Anxiety, <i>n</i> (%) commission error ^{<i>I</i>}	87 (26.0%)	15 (17.8%)
Caseload, <i>M</i> , (<i>SD</i>)	28.31 (20.52)	27.74 (21.96)
Initiative Participation, <i>n</i> (%)	137 (40.9%)	33 (61.1%)
Organizational Predictors		
OSC Functionality, <i>M</i> , (<i>SD</i>)	61.70 (11.70)	57.10 (11.01)
OSC Proficiency, <i>M</i> , (<i>SD</i>)	51.46 (10.21)	48.49 (8.54)
OSC Rigidity, <i>M</i> , (<i>SD</i>)	59.89 (6.81)	60.20 (7.26)
Total Therapists, <i>M</i> , (<i>SD</i>)	19.62 (15.63)	18.63 (14.11)
Implementation Climate Total, <i>M</i> , (<i>SD</i>)	2.04 (.50)	1.99 (.37)

Note. EBPAS = Evidence-Based Practices Attitude Scale. KEBSQ = Knowledge of Evidence Based Services Questionnaire. OSC = Organizational Social Context.

^{*I*} Commission errors indicate clinicians incorrectly endorsed exposure as an EBP for depression, disruptive behavior disorder, or attention-deficit hyperactivity disorder.

Clinician Predictors of Exposure Use

Table 2

<i>Predictor</i>	Exposure (continuous) ¹		Use		Routine Exposure Use ²		Never Use Exposure ³	
	<i>b</i> (<i>SE</i>)	<i>p</i>	<i>p</i>	<i>OR</i> (95% <i>CI</i>)	<i>p</i>	<i>OR</i> (95% <i>CI</i>)	<i>p</i>	
Years Experience	.01 (.02)	.52		1.06 (.96–1.17)	.22	.97 (.87–1.09)	.62	
EBPAS Requirements	–.26 (.21)	.23		0.69 (.30–1.57)	.36	2.52 (1.00–6.29)	.05	
EBPAS Appeal	.21 (.38)	.58		1.39 (.32–5.96)	.65	.66 (.13–3.24)	.59	
EBPAS Openness	.49 (.33)	.15		3.72 (.96–14.40)	.06	.71 (.18–2.97)	.62	
EBPAS Divergence	–.38 (.32)	.25		0.62 (.19–2.02)	.41	2.02 (.54–7.58)	.28	
KEBSQ Anxiety	.02 (.80)	.98		1.03 (.95–1.11)	.53	.96 (.92–1.01)	.99	
Caseload	.01 (.01)	.46		1.00 (.97–1.04)	.86	1.03 (.04–26.30)	.13	
Initiative Participation	.17 (.44)	.70		1.71 (.35–8.47)	.50	1.01 (.17–6.19)	.99	

Note. Mixed effects regression models predicting use of exposure. EBPAS = Evidence-Based Practices Attitude Scale. KEBSQ = Knowledge of Evidence Based Services Questionnaire.

¹SAS PROC MIXED was used to estimate relationship between predictors and exposure use, when exposure was measured continuously. Positive regression coefficients reflect increases in clinician-reported exposure use.

²SAS PROC GLIMMIX was to estimate relationship between predictors and routine exposure use; odds ratios reflect odds of endorsing routinely using exposure.

³SAS PROC GLIMMIX was to estimate relationship between predictors and never using exposure; odds ratios reflect odds of endorsing never using exposure.

Table 3

Clinician & Organizational Predictors of Exposure Use – Combined Model

	Exposure (continuous) ¹	Use	Routine Exposure Use ²		Never Use Exposure ³	
Predictor	b (SE)	p	OR (95% CI)	p	OR (95% CI)	p
Clinician Predictors						
Years of Experience	.02 (.02)	.51	1.10 (.93–1.29)	.25	.94 (.78–1.10)	.40
EBPAS Requirements	-.24 (.22)	.29	.57 (.19–1.74)	.31	3.27 (1.00–10.69)	.05
EBPAS Appeal	.15 (.39)	.69	2.24 (.38–13.28)	.35	.52 (.07–3.90)	.51
EBPAS Openness	.30 (.37)	.42	2.19 (.37–13.10)	.37	1.40 (.22–9.09)	.71
EBPAS Divergence	-.49 (.34)	.18	.37 (.08–1.76)	.19	2.75 (.45–16.80)	.26
KEBSQ Anxiety	.68 (.88)	.45	1.02 (.96–1.08)	.24	.94 (.87–1.01)	.50
Caseload	.02 (.01)	.16	.98 (.76–1.27)	.44	1.11 (.86–1.43)	.09
Initiative Participation	.38 (.47)	.43	1.01 (.77–1.33)	.51	.93 (.70–1.24)	.64
Organizational Predictors						
OSC Functionality	-.01 (.04)	.83	1.11 (.90–1.36)	.87	1.00 (.81–1.22)	.42
OSC Proficiency	<.01 (.05)	.93	1.06 (.96–1.17)	.93	.94 (.83–1.05)	.60
OSC Rigidity	.02 (.03)	.52	14.86 (.16->100)	.30	.03 (<.001–3.08)	.98
Total Therapists	.02 (.02)	.22	11.99 (.17->100)	.24	.21 (.002–24.11)	.26
Implementation Climate Total	1.52 (.92)	.08	2.15 (.20–23.65)	.22	.59 (.06–6.20)	.13

Note. Mixed effects regression models predicting use of exposure. EBPAS = Evidence-Based Practices Attitude Scale. KEBSQ = Knowledge of Evidence Based Services Questionnaire. OSC = Organizational Social Context.

¹SAS PROC MIXED was used to estimate relationship between predictors and exposure use, when exposure was measured continuously. Positive regression coefficients reflect increases in clinician-reported exposure use.

²SAS PROC GLIMMIX was used to estimate relationship between predictors and routine exposure use; odds ratios reflect odds of endorsing routinely using exposure.

³SAS PROC GLIMMIX was used to estimate relationship between predictors and never using exposure; odds ratios reflect odds of endorsing never using exposure.

Table 4

Clinician & Organizational Predictors of Relaxation Use – Combined Model (N = 54)

<i>Predictor</i>	Relaxation Use (continuous)	
	<i>b (SE)</i>	<i>p</i>
Years Experience	-.02 (.01)	.20
EBPAS Requirements	-.06 (.10)	.56
EBPAS Appeal	.03 (.19)	.87
EBPAS Openness	.35 (.18)	.06
EBPAS Divergence	.05 (.17)	.78
KEBSQ Anxiety	.52 (.42)	.23
Caseload	<.01 (.01)	.85
Initiative Participation	.03 (.23)	.90
OSC Functionality	.03 (.02)	.14
OSC Proficiency	-.02 (.02)	.31
OSC Rigidity	<.01 (.01)	.85
Total Therapists	-.01 (.01)	.44
Implementation Climate Total	.51 (.36)	.17

Note. EBPAS = Evidence-Based Practices Attitude Scale. KEBSQ = Knowledge of Evidence Based Services Questionnaire. OSC = Organizational Social Context.

¹SAS PROC MIXED was used to estimate relationship between predictors and exposure use, when relaxation was measured continuously. Positive regression coefficients reflect increases in clinician-reported relaxation use.