



Clinician Perspectives on Process-Based Therapy

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Process-based therapy (PBT) is an approach to psychological assessment and treatment focused on matching treatment components to particular people's needs and context. For PBT to have a meaningful impact on mental health care, clinician input is needed to support treatment development, dissemination, and implementation efforts. The present study aimed to (a) understand current perspectives on PBT among clinicians and (b) seek clinician feedback that may encourage accessibility and/or adoption of PBT. We used a cross-sectional online survey to examine clinicians' familiarity with and perspectives on PBT and its associated framework, the extended evolutionary metamodel (EEMM). In our sample of 150 clinicians, 57.3% had heard of PBT and 41.3% had heard of the EEMM. Participants broadly agreed on how to conceptualize treatment components using the EEMM. In addition, feedback from clinicians suggested that the EEMM may underemphasize certain aspects of functioning (e.g., interpersonal relationships), even if they are technically represented by the EEMM (e.g., sociocultural level). Overall, there was general agreement with respect to how the EEMM was used as an organizing framework, however, training may be needed to increase interclinician reliability in more specific areas. Limitations include using an older version of the EEMM in our survey (current at the time of use) and limited representation of clinicians outside a cognitive-behavioral orientation and working outside the United States.

Clinical Impact Statement

Most clinicians in our sample had heard of process-based therapy and were able to use a process-based framework to organize treatment methods after receiving a brief primer on the framework. A process-based approach to therapy may be useful for case conceptualization and treatment planning across theoretical orientations, facilitating communication among mental health providers.

Keywords: process-based therapy, extended evolutionary metamodel, clinician, survey

This article was published Online First August 7, 2025.

Jeffrey Zimmerman served as action editor.

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Study materials and data are available at <https://osf.io/cuk8s>. This study was preregistered at <https://osf.io/wf2ta> (Ong, Lee, et al., 2024). The authors have no conflicts of interest to disclose.

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Process-based therapy (PBT) has been described as a novel approach to psychotherapy that uses empirically supported methods—regardless of theoretical orientation—to meet contextually bound individual needs (Hofmann & Hayes, 2019). Broadly, PBT forgoes intervention packages or manuals designed to address discrete diagnostic categories in favor of *treatment kernels*—intervention components that leverage evidence-based mechanisms of change to target key patterns of responding maintaining presenting concerns. To provide a common language that can bridge similar constructs with theoretically distinct origins, PBT proposes the extended evolutionary metamodel (EEMM; Hayes et al., 2020). The EEMM (rhymes with “dream”) is an organizing framework visually represented by a grid with two parts: (a) dimensions (affect, cognition, attention, self, motivation, overt behavior) and levels (biophysiological, sociocultural) and (b) principles of variation, selection, retention, and context drawn from evolution science. Variation may entail teaching clients’ new skills to generate alternate ways of responding. Selection may include an analysis of the benefits and consequences of a specific type of responding. Assigning a worksheet to practice a new skill between sessions may serve as retention and a therapist may elicit examples of adaptive responding in specific situations to address context. Another interpretation of context is the circumstance of the client. That is, what are the environmental factors affecting their functioning?

The dimensions and levels in the EEMM partially overlap with the seven modalities posited in multimodal therapy, which also strives to provide a parsimonious framework for psychological assessment and treatment: behavior, affect, sensation (overlaps with the physiological part of the biophysiological level), imagery (overlaps with cognition and self via “self-image”), cognition, interpersonal relationships, and “drugs” representing neurophysiological-biochemical processes (Lazarus, 2005). The substantial overlap between both models is promising as it suggests convergence between independent conceptualizations of human functioning and utility of either model across orientations, though the EEMM more explicitly acknowledges the role of attention and culture (e.g., cultural identities, social norms). Another approach with goals similar to PBT is integrative

therapy, a specific form of psychotherapy that integrates two or more schools of psychotherapy within a coherent theoretical framework and emphasizes clinical utility over theoretical allegiance (Stricker & Gold, 2008). Specifically, PBT is most similar to the theoretical integration and assimilative integration modes of psychotherapy integration, though lines between different modes have become increasingly diffuse (Stricker & Gold, 2008). In a way, PBT is a cross between multimodal therapy and integrative psychotherapy, as it provides structure via the EEMM—similar to multimodal therapy—while encouraging theoretical and technical flexibility within the bounds of a coherent framework (e.g., preanalytic assumptions are allowed to differ)—similar to integrative psychotherapy. Moreover, PBT incorporates evolutionary principles of change, providing another foundational component to prevent untethered theorizing. Given how it builds on existing integrative movements, the potential of PBT to revitalize stagnant psychological interventions and address isolated knowledge bases—while encouraging flexibility within structure—is promising (e.g., Cristea et al., 2017; Cuijpers, 2017; Loerinc et al., 2015; Springer et al., 2018). However, literature on the implementation of PBT is in its nascency, primarily reflecting best practices applied to individual cases (e.g., Ong et al., 2022).

PBT is also susceptible to the problem faced by many “gold standard” evidence-based treatments: poor translation from research to practice. Historically, interventions with strong empirical support have not always disseminated widely into clinical practice, meaning that success rates in randomized clinical trials (RCTs) may not always apply to clients in therapy (Goldfried & Wolfe, 1996). The reasons for this are multifaceted, with intervention, clinician, and systemic factors as well as dissemination techniques contributing to the limited and/or slow adoption of effective practices (e.g., Andrews & Titov, 2009; Foa et al., 2013). For example, many RCTs describe session-by-session protocols with little information on when and how to adjust interventions based on individual characteristics and contextual factors. In many RCTs, individuals with certain comorbidities are excluded entirely (Tully et al., 2014), further limiting the relevance of empirically informed guidelines for treatment modification and augmentation. Yet the literature suggests that flexibility (e.g., variable session

frequency, modality, client needs addressed) is a paramount characteristic of interventions well-suited for implementation and dissemination (Cassello-Robbins et al., 2022; Crabb et al., 2012).

Another reason for this research–practice gap could be that treatment research has not sufficiently considered the perspectives of providers. The field has largely favored a top-down approach to dissemination, encouraging providers to use “RCT-validated” treatment packages, followed by post hoc examinations of provider use and evaluations of acceptability and barriers to disseminations (e.g., Addis et al., 1999; Jensen-Doss et al., 2009). This approach has been largely ineffective, with studies on the limited adoption of manualized interventions, for example, suggesting that even providers who believed manuals may be useful felt overall negatively toward them, with differences in use based on factors like theoretical orientation (Johnson et al., 2016). Conversely, the literature suggests that involving stakeholders in early stages of treatment development and refinement using a bottom-up approach may be more effective (Millstein et al., 2021; Proctor et al., 2011). At this stage, we know little about whether practicing clinicians and supervisors know about PBT or believe it would be effective and feasible.

Researchers have begun to hypothesize which aspects of PBT may be barriers to successful implementation and dissemination. For example, Teachman (2019) identified (a) difficulties associated with jargon-riddled, inaccessible resources (i.e., academic journal articles) that may be necessary for providers to stay up-to-date on research and intervention strategies; (b) limited research on treatment personalization and idiographic network models for intervention selection; and (c) lack of clinical practice guidelines to replace the current recommendations rooted in diagnoses from the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2022). Asmundson et al. (2022) also questioned the feasibility of personalized treatment given an already strained system with too few adequately trained providers. Like Teachman, Asmundson et al. noted the need for accessible continuing education and training resources to ensure researchers and clinicians are up-to-date on empirically supported models and practices. Some have also suggested that the methods used in PBT, like person-specific networks, have the potential to

be misused (e.g., overinterpreted) by clinicians and call for specific elements of therapist training and patients’ informed consent to address the limitations and early stages of research on PBT (Teachman, 2019; von Klipstein et al., 2020). Scholars developing tools to minimize the burden of personalization on clinicians have also underscored the need for research on clinicians’ perspectives on PBT and practices to ensure that the tools they are developing are adequately addressing clinicians’ needs (Lutz & Schwartz, 2021). At the time of writing, PBT as an evolution science-informed therapeutic model exists more so in theory (e.g., Ciarrochi et al., 2024; Hayes et al., 2020) than in practice. Research on its dissemination and implementation is lacking and no studies have been conducted on its uptake among clinicians in the community, which means we do not know (a) whether/how much practicing clinicians know about PBT and (b) what feedback clinicians might have for PBT. Yet, taking into account clinician input is crucial for supporting scalability of interventions (Southam-Gerow et al., 2012). Ultimately, effective treatments with poor adoption will have limited impact on people seeking treatment.

Because PBT’s debut in the literature tracks back less than a decade, we believe it is not too late for PBT researchers and developers to integrate clinician input into their work. As such, this study aimed to (a) understand current perspectives on PBT among clinicians and (b) seek clinician feedback that may encourage accessibility and/or adoption of PBT. With these objectives in mind, we examined how and what providers think about PBT by conducting a cross-sectional online survey of active clinicians and supervisors to (a) assess familiarity with and perspectives on PBT and its underlying model (EEMM), (b) assess how clinicians might use PBT theory to organize treatment components (following a brief primer on PBT), and (c) gather feedback on how PBT and its underlying framework could be improved.

Method

Procedure

Study procedures were approved by a university institutional review board. Participants were recruited from professional listservs (Association for Behavioral and Cognitive Therapies, Association

for Contextual Behavioral Science, Association of Psychology Training Clinics, Counselor Education and Supervision Network, Ohio Psychological Association), social media (Twitter [at the time of posting], Meta ads, r/therapists subreddit), and email lists for the American Mental Health Counselors Association (2,000 recipients) and National Association of Social Workers (2,500 recipients). In addition, the study flyer was distributed to our contacts in psychology departments, mental health graduate programs, and psychological treatment programs/clinics.

People who clicked the study link in the flyer were directed to a page with information about the study and three screening questions. To be eligible for the study, participants had to be (a) at least 18 years old, (b) a therapist and/or clinical supervisor with active clients, and (c) able to complete the survey in English. Clinicians who had not heard of or were less familiar with PBT were included to increase representation of our sample. Furthermore, the perspectives of clinicians who are just learning about PBT are particularly relevant to dissemination and implementation. Those who self-reported meeting these eligibility criteria were presented with an informed consent document. Participants had to provide informed consent before proceeding to the survey. In addition, participants were asked questions to assess understanding of the informed consent form. If questions were answered incorrectly, participants were given corrective information on study procedures before proceeding to the survey.

The survey comprised four components: (a) questions about the clinician (e.g., position, therapeutic orientation, populations they work with, demographics); (b) questions about their familiarity with PBT; (c) information on PBT and the EEMM; and (d) questions to assess clinician perspectives on PBT and materials presented in the survey. The latter component had three parts. First, participants were asked to classify a predetermined list of treatment components into their corresponding EEMM dimension(s) and level(s). For example, participants were asked to indicate which dimension(s) and level(s) they would associate with “activity scheduling” or “guided imagery.” Second, participants were asked to freely list treatment components they use in therapy for each EEMM dimension and level. Third, we asked for open-ended feedback on the EEMM with the following questions: “What dimension would you want to add to the EEMM,

if any?” “What level would you want to add to the EEMM, if any?” And “What treatment components do you think are poorly captured by the EEMM, if any?” A copy of the survey can be found on our study OSF page at <https://osf.io/cuk8s/>.

Three attention check items were included at various points in the survey to detect inattentive responders. Participants could skip any question they did not wish to answer. At the end of the survey, participants who completed at least 80% of survey items and answered the attention check items correctly were directed to a separate survey where they could provide their email address to enter a raffle for one of 50 US\$20 Amazon gift cards. Survey responses were not linked to email addresses.

Data Preparation

Among the 167 participants who consented to participate in the study, 17 were removed due to suspicious/careless responding. Five answered at least one attention check item incorrectly, 10 did not indicate their job title, one entered an unrelated job title (“Engineering”), and one reported their highest education level attained as a high school diploma (which seems like an unlikely qualification for anyone actively working with mental health clients). The remaining 150 participants were used in subsequent analyses.

Statistical Analyses

All analyses were conducted using R (R Core Team, 2024), R Studio (Posit Team, 2024), and the following packages: *tidyverse* (Wickham et al., 2019), *jmv* (Selker et al., 2025), and *wordcloud* (Fellows, 2018). The associated R code can be found on our study OSF page at <https://osf.io/cuk8s/>. Descriptive statistics were used to summarize sample demographics and characteristics. Responses to categorical questions were summarized by summing the total number of answers in each category and visualized with a heatmap.

Coding Open-Ended Responses

Responses to open-ended questions were coded based on categories developed from the data, with minimal interpretation from researchers to most

accurately represent participant responses. Specifically, categories were created as text data were reviewed and derived directly from the text, without categories defined a priori. As much as possible, categories corresponded to the original text (e.g., a response of “acceptance” went into an “acceptance” category). Common reasons for grouping responses with different text included redundancy in the responses, such as grouping “assertiveness skills training” with “assertiveness training,” and synonymous terms, such as “unsure,” “not sure,” and “I don’t know.” Where text responses were ambiguous, new categories were created retaining the original text to minimize researcher bias. For instance, “stimulus” was put into a category labeled “stimulus” rather than assumed to be related to “stimulus control.”

Common Interventions. Text data were imported to create a corpus for each domain (i.e., each EEMM dimension or level). Then, corpora were cleaned according to the following guidelines (for more details on how responses were cleaned, please see our data cleaning R code on the OSF at <https://osf.io/cuk8s/>):

- a. Original language was maintained as much as possible, erring on including more categories (e.g., “interpersonal communication” and “interpersonal effectiveness” were regarded as separate as the former is more generic than the latter, which is a specific module in dialectical behavior therapy).
- b. Clearly synonymous or overlapping terms were grouped where possible (e.g., “thought challenging” and “cognitive challenging”). When terms were grouped, the broadest applicable term was used to label the group (e.g., “physical activity” and “physical exercise” were grouped under “physical activity”).
- c. Level of specificity of interventions was maintained (e.g., “values” and “values card sort” were distinct) to highlight treatment components used by clinicians.
- d. Extraneous words that did not significantly change the meaning of an intervention were removed to facilitate grouping (e.g., “grounding exercises” and “grounding techniques” were grouped as “grounding”). Modifiers that may be reasonably assumed to be true even when unspecified were

also ignored (e.g., “mindful meditation” was grouped with “meditation” as it is unlikely that meditation would not be mindful and “flexible perspective taking” was grouped with “perspective taking” as it is also unlikely that a clinician would encourage inflexible perspective taking).

- e. Where typos were clear, they were corrected (e.g., “cognitive delusion” to “cognitive defusion”; “sleep hygienie” to “sleep hygiene”).
- f. British spelling was converted to U.S. spelling for consistency (e.g., “behavioural activation” to “behavioral activation”).
- g. Where forward slashes were used, multiple terms were retained to adhere to guideline (a) and maximize accurate representation of responses (e.g., “acceptance/willingness” was coded as “acceptance” and “willingness” separately).
- h. Where responses were vague and meaning could not be easily inferred (usually a noun or verb was missing), they were left as is (e.g., “somatic,” “barriers to BA,” “stimulus,” “systems”). Asterisks were used to denote these responses in all corresponding output.

Following corpus cleaning, frequencies were calculated for each unique response. Due to the wide range of responses provided, word clouds were used to summarize data for each EEMM dimension and level. Word clouds are visual representations of text data where the size of each term corresponds to its frequency in the text data. For example, if “acceptance” occurred 10 times and “reframing” occurred five times, then “acceptance” would show up as twice the size of “reframing” in the word cloud. Frequencies of responses were used to generate word clouds using the *wordcloud* function in the *wordcloud* package. The *wordcloud* function uses the frequencies of terms to create a word cloud that sizes terms in proportion to their frequency of occurrence (Fellows, 2018). Word clouds have been used to effectively visualize qualitative data in other areas, including early menopause (Yeganeh et al., 2020), arthritis (Yielder et al., 2025), and adolescent substance use and depression (Wang et al., 2016).

EEMM Feedback. Due to a smaller range of responses relative to common interventions used,

cleaning EEMM feedback entailed coding responses into overarching categories using dummy-coded variables. Where a response did not clearly fit into an established category, a new category was created to capture that response, similar to coding responses for common interventions used. Following guideline (a) above, we erred on creating more categories to minimize conflating important information. For example, “internal family systems” and “systems work” were counted separately as “systems work” could refer to a different intervention (e.g., family systems therapy). To see how each response was coded, please refer to our deidentified raw data and codes on OSF at <https://osf.io/cuk8s/>. Tallies were calculated for each unique response.

Results

Participant Characteristics

The sample consisted of 150 self-reported clinicians (see Table 1 for details). The mean age of participants was 40.91 years old ($SD = 13.36$). The majority identified as women (62.7%), straight (74.7%), white (82.0%), and from the United States (81.3%). The most frequently endorsed therapeutic orientations were acceptance and commitment therapy (ACT; 62.7%), cognitive behavioral therapy (CBT; 59.3%), mindfulness-based therapies (34.0%), and exposure therapy (33.3%; participants could select more than one option). The number of participants who reported being a member of the Association for Contextual Behavioral Science, which has a PBT special interest group, was 48.0%. The majority of participants reported having either a master’s (43.3%) or doctoral (38.7%) degree. Eight participants (5.3%) reported a bachelor’s degree as their highest obtained degree, which could indicate that they were student trainees in a graduate program providing clinical services under supervision.

Familiarity With PBT

Most had heard of PBT (57.3%) as defined by Hofmann and Hayes (2019), with an additional 12.0% saying that they were unsure, but less than half had heard of the EEMM (41.3%; see Table 1 for details). Participants who had heard of PBT

were asked follow-up questions rated on a 0–100 scale. Items and mean scores were (a) “How familiar are you with process-based therapy (PBT)?” (50.69 [$SD = 30.41$], median = 51.0); (b) “How much does PBT inform your case conceptualizations (e.g., network models)?” (40.93 [$SD = 33.44$], median = 37.5); (c) “How much do you use PBT in your clinical practice?” (40.48 [$SD = 32.32$], median = 39.0); and (d) “How often do you use the Process-Based Assessment Tool (PBAT)¹ with your clients?” (12.15 [$SD = 24.58$], median = 1.0). On average, participants who had heard of PBT reported moderate familiarity and use of PBT. Most participants reported never or very rarely using the PBAT with their clients with 73.1% rating the item below 5 on a 100-point scale.

Classifying Treatment Components Using the EEMM

When asked to classify a predetermined list of treatment components into the EEMM dimensions and levels, participant provided a wide range of responses (see Figure 1). To clarify patterns based on majority consensus, we report on treatment component and dimension/level pairings (e.g., acceptance → *affect*, meditation → *attention*) that had ≥ 90 responses, indicating $\geq 60\%$ agreement among participants. Among the EEMM dimensions, *affect*, *attention*, *cognition*, and *self* each had five treatment components with ≥ 90 responses. *Motivation* had two: promoting exercise behavior and clarifying values. *Overt behavior* had 10. With regard to the EEMM levels, there was significant agreement among participants: nearly all (25 of the 26 categories) of the treatment components were classified as the *individual* level. Nine were identified as *biophysiological* and four *sociocultural* using the same 90-response cutoff.

There were few treatment components with $>80\%$ agreement, represented by cells with numbers below 30 (agreement that this dimension/level *did not fit* the treatment component) or above 120 (agreement that this dimension/level *fit* the treatment component). For example, cognitive reappraisal had the highest consensus with

¹ The PBAT is a therapeutic assessment tool consisting of an item pool that maps onto PBT principles, such as variation, selection, and retention, and spans the EEMM dimensions and levels (Ciarrochi et al., 2022).

Table 1
Sample Characteristics

Variable	<i>n (M)</i>	<i>% (SD)</i>
Demographics		
Age	40.91	13.36
Gender		
Agender	4	2.7
Gender fluid	2	1.3
Gender queer	1	0.7
Man	47	31.3
Nonbinary	7	4.7
Woman	94	62.7
Not listed/other	2	1.3
Transgender		
Yes	3	2.0
No	146	97.3
Prefer not to answer	1	0.7
Sexual orientation		
Asexual or aromantic	3	2.0
Bisexual	17	11.3
Demisexual	3	2.0
Gay	4	2.7
Lesbian	2	1.3
Pansexual	3	2.0
Queer	11	7.3
Sexually fluid	4	2.7
Straight	112	74.7
Other sexual identity or orientation	1	0.7
I prefer not to answer	3	2.0
Ethnicity		
Arab, Middle Eastern, or North African	10	6.7
Asian or Asian American	9	6.0
Black or African American	10	6.7
Hispanic or Latine	14	9.3
Native American or Alaska native	4	2.7
Native Hawaiian or other Pacific Islander	2	1.3
White or European American	123	82.0
Some other race, ethnicity, or origin	7	4.7
Prefer not to answer	4	2.7
Race		
Asian	9	6.0
Black	9	6.0
Indigenous, aboriginal, or first nations	1	0.7
Hispanic or Latine	7	4.7
Middle Eastern	5	3.3
White	123	82.0
Not listed/other	5	3.3
Prefer not to answer	5	3.3
Country of origin		
Argentina	1	0.7
Australia	5	3.3
Chile	1	0.7
Cyprus	1	0.7
Ecuador	1	0.7
Germany	1	0.7
India	1	0.7
Iran	2	1.3
Ireland	1	0.7
Israel	1	0.7
Italy	4	2.6
New Zealand	1	0.7

(table continues)

Table 1 (*continued*)

Variable	<i>n</i> (<i>M</i>)	% (<i>SD</i>)
Romania	1	0.7
Singapore	3	2.0
Trinidad and Tobago	1	0.7
Turkey	2	1.3
United Kingdom	1	0.7
United States of America	122	81.3
Education		
Bachelor's degree (e.g., BA, BS)	8	5.3
Master's degree (e.g., MA, MBA, Med, MEng, MA, MSW)	65	43.3
Doctoral degree (e.g., EdD, PhD)	58	38.7
Professional degree (e.g., DDS, DVM, JD, MD, PharmD, PsyD)	12	8.0
Specialist degree (e.g., EdS)	3	2.0
Not listed/other	4	2.6
Professional background		
Primary work setting		
Academic medical center	9	6.0
Academic university/college	39	26.0
Clinical practice	77	51.3
Nonprofit sector	10	6.7
Nonspecialized hospital	3	2.0
Psychiatric hospital	5	3.3
Veteran's administration hospital	2	1.3
Not listed/other	1	0.7
Career stage		
Graduate student	28	18.7
Early career (<10 years from doctorate or terminal degree)	56	37.3
Midcareer (10–25 years from doctorate or terminal degree)	43	28.7
Late career (>25 years from doctorate or terminal degree)	18	12.0
Prefer to self-describe	5	3.3
Years active in clinical practice	11.2	10.7
Hours of direct client contact per week on average	15.6	10.0
Hours of clinical supervision per week on average	3.3	5.7
Hours of research activity per week on average	5.7	8.9
Primary therapeutic orientation (select all that apply)		
Acceptance and commitment therapy	94	62.7
Behavioral activation	45	30.0
Cognitive behavioral therapy	89	59.3
Cognitive processing therapy	20	13.3
Cognitive therapy	21	14.0
Compassion-focused therapy	27	18.0
Dialectical behavior therapy	42	28.0
Emotion regulation therapy	14	9.3
Exposure therapy (e.g., prolonged exposure therapy, exposure and response prevention)	50	33.3
Functional analytic psychotherapy	14	9.3
Interpersonal therapy	13	8.7
Mindfulness-based therapies	51	34.0
Motivational interviewing	42	28.0
Psychodynamic therapy	23	15.3
Schema therapy	4	2.7
Prefer to self-describe	22	14.7
Association for Contextual Behavioral Science member		
Yes	72	48.0
No	78	52.0
Client/patient populations		
Primary age group (select all that apply)		
Children (<12 years old)	38	25.3
Adolescents (13–17 years old)	63	42
Adults (18–64 years old)	137	91.3
Older adults (≥65 years old)	38	25.3

(*table continues*)

Table 1 (*continued*)

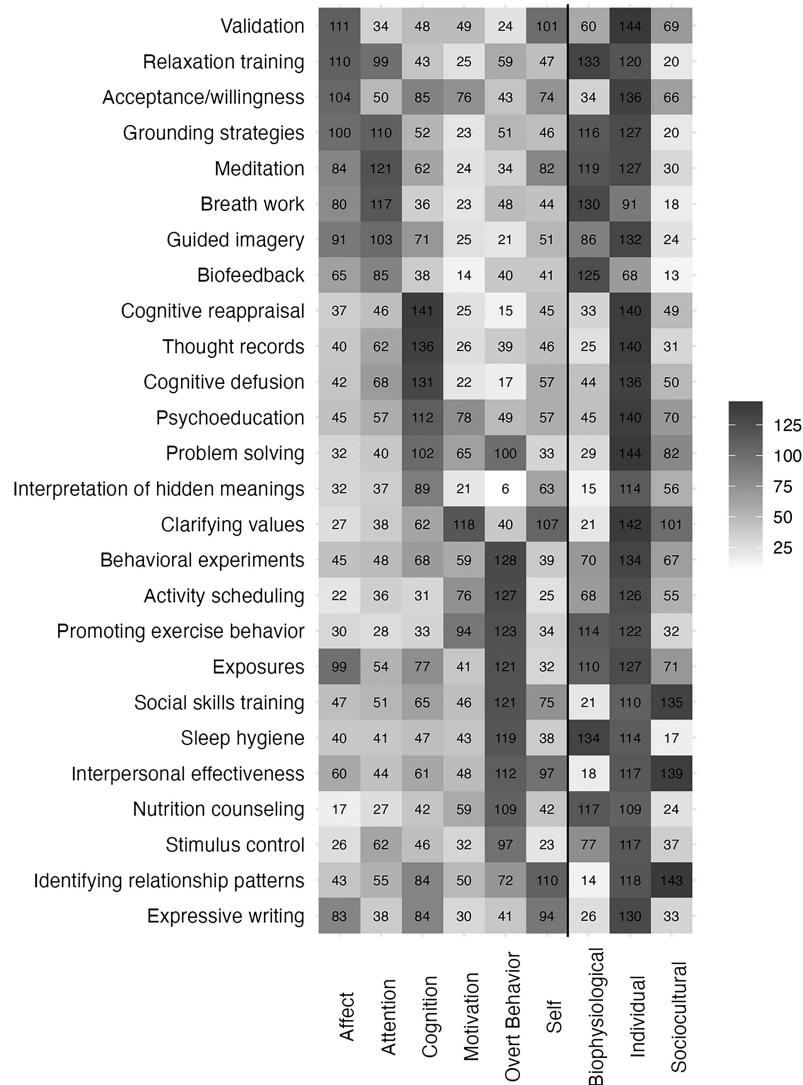
Variable	<i>n</i> (<i>M</i>)	% (<i>SD</i>)
Primary presenting problems (select all that apply)		
Attention-deficit/hyperactivity disorder	63	42.0
Anger management	44	29.3
Anxiety	139	92.7
Autism spectrum disorder	32	21.3
Body-focused repetitive behaviors	23	15.3
Developmental disability	13	8.7
Eating disorders	29	19.3
Grief/loss	66	44.0
Impulse control problems	29	19.3
Interpersonal/relationship problems	106	70.7
Mood problems (e.g., depression, mania)	130	86.7
Obsessive-compulsive and related disorders (e.g., obsessive-compulsive disorder, hoarding)	52	34.7
Personality dysfunction (e.g., borderline personality disorder)	51	34.0
Psychosis	18	12.0
Substance use problems	39	26.0
Trauma	96	64.0
Not listed/other	5	3.3
Level of care (select all that apply)		
Outpatient	134	89.3
Intensive outpatient	16	10.7
Partial hospitalization	18	12.0
Residential	13	8.7
Inpatient	11	7.3
Familiarity with PBT		
Have you heard of PBT before?		
Yes	86	57.3
No	46	30.7
Not sure	18	12.0
Have you heard of the EEMM before?		
Yes	62	41.3
No	80	53.3
Not sure	8	5.3
What materials have you used to learn about PBT? (select all that apply)		
Attended conference presentation	32	21.3
Attended workshops	34	22.7
Listened to podcasts	36	24.0
Read journal articles	57	38.0
Read listserv discussions	32	21.3
Read <i>Learning PBT</i>	42	28.0
Read <i>Process-Based CBT</i>	41	27.3
Talked to others about it (e.g., colleagues, students)	70	46.7
Not listed/other	11	7.3

Note. *N* = 150. CBT = Cognitive behavioral therapy; PBT = process-based therapy; EEMM = extended evolutionary metamodel.

141 (94.0%) participants classifying it in the *cognition* dimension and ≤53 (35.3%) classifying it in other dimensions. Other treatment components with higher agreement included behavioral experiments (*overt behavior*), breathwork (*biophysiological*), cognitive defusion (*cognition*), identifying relationship patterns (*sociocultural*), meditation (*attention*), nutrition counseling (*biophysiological*), relaxation

training (*biophysiological*), sleep hygiene (*biophysiological*), and thought records (*cognition*). Treatment components with relatively lower agreement included acceptance/willingness (range = 43–104, excluding *individual* level), expressive writing (range = 26–94, excluding *individual* level), guided imagery (range = 21–103, excluding *individual* level), problem solving (range = 29–102, excluding *individual* level), and

Figure 1
Classification of Predetermined Treatment Components in the EEMM



Note. The number in each cell represents the frequency of responses to the prompt: “Please indicate which dimension(s)/level(s) you think the following treatment components belong to.” Participants are presented with a list of treatment components and asked to classify each one. They could select more than one option. The total number of possible responses per cell was 150. Numbers <30 or >120 indicate >80% agreement. EEMM = extended evolutionary metamodel.

psychoeducation (range = 45–112, excluding *individual* level).

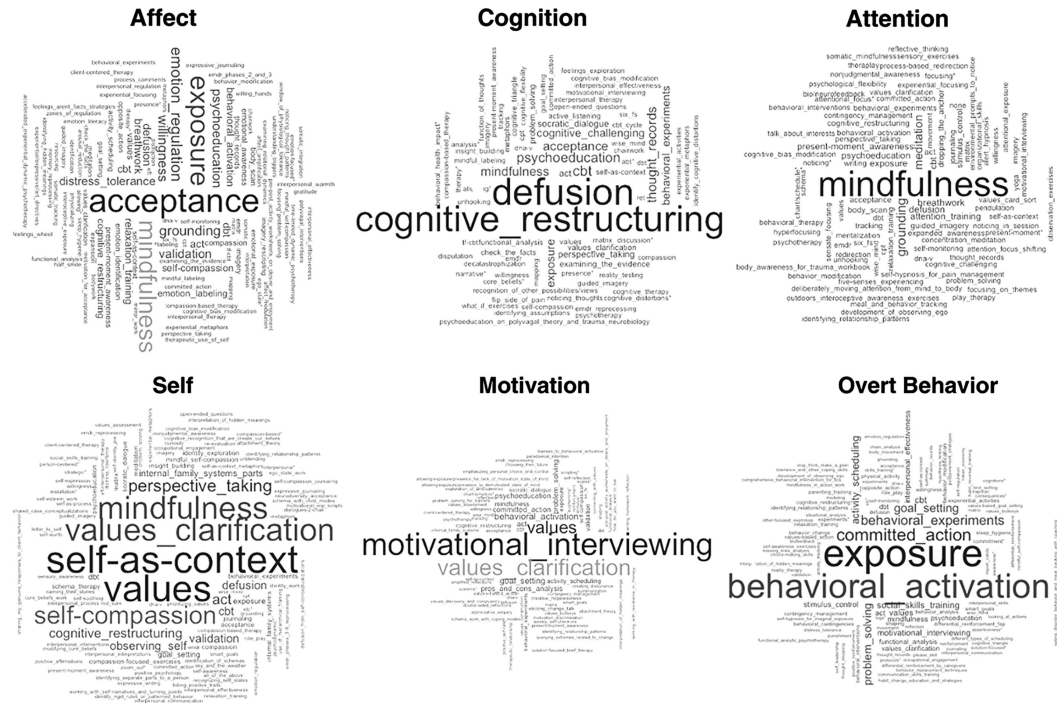
Common Interventions

Word clouds representing commonly used treatment components identified by participants

for each EEMM dimension and level are presented in Figures 2 and 3. Terms and their corresponding frequencies (data used to create word clouds) can be found on the study OSF page at <https://osf.io/cuk8s/>. In the *affect* dimension, the top three responses were acceptance ($n = 43$), exposure ($n = 33$), and mindfulness ($n = 30$) out

Figure 2

Word Clouds for Treatment Components Identified by Participants by EEMM Dimension



Note. Higher resolution color images and frequency tables used to create word clouds can be found on the study OSF page at <https://osf.io/cuk8s/>. Word clouds are combined here to reduce the number of individual figures. The size of each term corresponds to the frequency with which it is mentioned in response to the prompt, “Treatment component(s) I commonly use to target (DIMENSION) include.” Responses represent treatment components identified by participants as belonging to the respective EEMM dimensions. EEMM = extended evolutionary metamodel.

of 112 unique responses. For *cognition*, they were defusion ($n = 60$), cognitive restructuring ($n = 58$), and CBT ($n = 15$) out of 81 unique responses. For *attention*, they were mindfulness ($n = 86$), grounding ($n = 18$), and meditation ($n = 14$) out of 93 unique responses. For *motivation*, they were motivational interviewing ($n = 55$), values clarification ($n = 38$), and values ($n = 27$) out of 82 unique responses. Note that values and values clarification were differentiated; responses included in values were more general (e.g., “values work,” “values discussion”) and could have entailed defining values generally as opposed to identifying a client’s personal values; see guideline (c) above. For *self*, the top three responses were self-as-context ($n = 26$), values ($n = 25$), and values clarification ($n = 21$) tied with mindfulness ($n = 21$) out of 118 unique responses. For *overt behavior*, they were exposure ($n = 47$), behavioral

activation ($n = 41$), and committed action ($n = 18$) out of 116 unique responses.

With respect to the EEMM levels, the top three responses for *biophysiological* were mindfulness ($n = 42$), relaxation training ($n = 29$), and breathwork ($n = 27$) out of 101 unique responses. For the *individual* level, they were all of the above (referring to interventions listed in the preceding categories; $n = 22$), mindfulness ($n = 19$), and exposure ($n = 15$) out of 114 unique responses. For *sociocultural*, they were interpersonal effectiveness ($n = 22$), social skills training ($n = 16$), and exposure ($n = 14$) and values ($n = 14$) tied for third out of 116 unique responses. Across the EEMM, there were 490 unique responses, with the most common responses being mindfulness ($n = 226$), exposure ($n = 141$), defusion ($n = 102$), cognitive restructuring ($n = 98$), values ($n = 93$), and values clarification ($n = 93$). For all domains, we observed

Figure 3*Word Clouds for Treatment Components Identified by Participants by EEMM Level*

Note. Higher resolution color images and frequency tables used to create word clouds can be found on the study OSF page at <https://osf.io/cuk8s/>. Word clouds are combined here to reduce the number of individual figures. The size of each term corresponds to the frequency with which it is mentioned in response to the prompt, "Treatment component(s) I commonly use to target (LEVEL) include." Responses represent treatment components identified by participants as belonging to the respective EEMM levels. EEMM = extended evolutionary metamodel.

a highly skewed pattern with a handful of relatively more common responses and more than half of response options reported by one or two participants. For example, across the EEMM, nine response options were each reported by more than 75 (50%) participants and 367 (74.9%) of the 490 response options were each reported by fewer than three participants.

EEMM Feedback

The frequency of responses to the three feedback prompts on the EEMM are reported in Table 2. For each category, the most common response was none. That is, most responses indicated that they would not add any dimension or level to the EEMM and did not identify any treatment component poorly captured by the EEMM. The second most common response on the dimension prompt was something that could be covered by an existing EEMM dimension or level ($n = 13$), such as physical health (*biophysiological*), physiological reactivity (*biophysiological*), culture (*sociocultural*), self-as-context (*self*), and attention (one of the EEMM dimensions). Uncertainty around how to answer the prompt (e.g., unsure, do not know enough to respond, need to learn more first) was the third most common response for the dimensions prompt ($n = 11$), second most common for the levels prompt ($n = 9$), and second most common for the intervention prompt ($n = 16$).

Of the participants who made suggestions for new dimensions, *interpersonal* (e.g., relationships with others, relationship patterns; $n = 6$) and *perspective-taking* (self vs. other; $n = 3$) were the most common. For levels, *interpersonal* (e.g., something between individual and sociocultural, relational; $n = 6$), *spiritual* (no elaborations or examples were provided; $n = 6$), and *systemic* (e.g., societal issues, institutional; $n = 5$) were the most common. For interventions poorly captured by the EEMM, participants most consistently identified interpersonal interventions (e.g., psychodynamic/relational components, feeling loved/accepted/held from an attachment focus, relationship work; $n = 8$) and the therapeutic relationship (e.g., therapeutic alliance, rapport building; $n = 4$). There was also feedback that the EEMM dimensions and levels should be merged rather than expanded ($n = 3$). Another general piece of feedback was that the *individual* level was too broadly defined ($n = 3$).

Discussion

The aim of the present study was to understand clinicians' general familiarity with and perspectives on PBT, as PBT has been primarily discussed among clinical researchers thus far (e.g., Ciarrochi et al., 2024; Hayes et al., 2020; Ryum & Kazantzis, 2024). Although we were interested in how PBT is perceived across theoretical orientations, most of our sample identified their

Table 2
Feedback on the EEMM

What dimension would you want to add to the EEMM?			What level would you want to add to the EEMM?			What treatment components are poorly captured by the EEMM?		
Category	n		Category	n		Category	n	
None	31		None	35		None	21	
Existing EEMM dimension/level ^a	13		Unsure/do not know	9		Unsure/do not know	16	
Unsure/Do not know	11		Interpersonal	6		Interpersonal interventions	8	
Interpersonal	6		Spiritual	6		Other feedback	6	
Perspective-taking	3		Systemic	5		Therapeutic relationship	4	
Purpose	2		Family/household	3		Meaning making/insight	3	
Spiritual	2		Individual level is too broad	3		Existing EEMM dimension/level ^a	3	
Environmental	2		Existing EEMM dimension/level ^a	3		Vague responses ^b	3	
Safety/threat	2		Ecological/climate	2		Spirituality/faith-based interventions	2	
Treatment component	2		Environmental	2		Culturally responsive care	2	
Should merge dimensions/levels	2		Temporal/generational	2		Family/community-based work	2	
Vague responses ^b	2		Vague responses ^b	2		Systems work	2	
Individual history	1		Existential	1		Behavioral principles	2	
Unconscious	1		Should merge dimensions/levels	1		Interventions focused on interacting with sociocultural environment ^c	2	
Too many dimensions	1		Interactions among levels ^d	1		Expressive techniques	1	
						EMDR	1	
						Guided imagery	1	
						Somatic interventions	1	
						IFS	1	
						Subconscious	1	
						Self-management planning ^e	1	
						Motivational interviewing	1	
						Values (ACT)	1	
						Cognitive restructuring	1	

Note. EMDR = eye movement desensitization and reprocessing; IFS = internal family systems; ACT = acceptance and commitment therapy; EEMM = extended evolutionary metamodel.

^a Existing EEMM dimension/level indicates that the response could be covered by the EEMM (e.g., cognition, attentional). ^b Vague responses were difficult to categorize, usually due to insufficient information (e.g., processing and joint action/interaction in dimensions, self-care and cosmological in levels, whole-person behavior and self-determination theory in interventions). ^c Examples given included social anxiety exposures, behavioral activation, and behavioral experiments. ^d Interactions among levels refer to considering how the EEMM levels influence each other (e.g., sociocultural expectations impacting individual behavior and biophysiological functioning). ^e Mentioned in the context of addiction treatment.

orientation as ACT (63%) and CBT (59%), so the following findings should be interpreted as more representative of CBT-based orientations, rather than practicing clinicians broadly. Of note, two of the leading researchers on PBT feature prominently in the fields of ACT and CBT (Steven Hayes and Stefan Hofmann, respectively), thus we might expect greater familiarity with PBT in our restricted sample compared with a more diverse sample of clinicians.

In the current survey, participants were asked how familiar they were with PBT followed by how they would use the EEMM to classify treatment components after a brief primer on PBT and the EEMM (see Qualtrics survey on the OSF page at <https://osf.io/cuk8s/> for details). In our sample, 57% had heard of PBT as defined by Hofmann and Hayes (2019) and 41% had heard of the EEMM, a key feature of the PBT model. As such, most of our sample was unfamiliar with the EEMM when they were asked to use the EEMM to classify treatment components. Participants who had heard of PBT expressed moderate familiarity with and use of it but less reliance on PBT to inform case conceptualization. In addition, use of the PBAT, a measure explicitly linked to PBT, was scant. Thus, it appears that there is more uptake of PBT on the intervention relative to the assessment side. This may not be surprising given that measurement-based care and routine outcome monitoring are generally underutilized in health care settings (Lewis et al., 2019), despite evidence that these practices are beneficial to clients and patients on average (Lambert et al., 2018), suggesting this observed pattern may not be unique to PBT. Nonetheless, when disseminating PBT, underscoring data-informed care and using PBT principles to inform case conceptualization may be crucial to ensure that the assessment aspect of PBT is adequately represented. It is also possible that clinicians are conducting PBT-consistent assessment without calling it as such; asking about the assessments clinicians currently use would have clarified this.

To learn more about how clinicians understand and use the EEMM as an organizing framework, we asked participants to classify treatment components using the EEMM. Overall, we found reasonable levels of agreement ($\geq 60\%$) on at least one primary dimension/level—not counting *individual*—for almost all treatment components, with more variation on the secondary dimensions/levels. For example, acceptance/willingness was

primarily classified as *affect*, with secondary classification as *cognition*, *motivation*, and *self*, whereas validation was primarily seen as belonging to *affect* and *self*, then *cognition*, *motivation*, and *sociocultural*. These findings suggest there was consensus in our sample on the “most obvious” EEMM dimension/level for many treatment components (e.g., breathwork → *biophysiological*, cognitive reappraisal → *cognition*, interpersonal effectiveness → *sociocultural*), despite less than half of our sample having heard of the EEMM at the start of the survey.

However, there was more nuance with respect to how a treatment component related to secondary dimensions/levels. For instance, psychoeducation was primarily seen as *cognition*, but approximately half of our sample also indicated it could be *motivation* or *sociocultural*. Although we did not ask participants to explain their classification rationale, *cognition* could have been selected due to the didactic nature of psychoeducation that often entails providing new information to clients, whereas *motivation* might make sense as psychoeducation can also be used to fill gaps in knowledge that might enhance motivation, such as learning about the negative consequences of certain behaviors or the long-term benefits of engaging in therapy. Similarly, *sociocultural* might have to do with learning more about how one’s problem affects those around them or how their sociocultural context may be contributing to their struggles. These results align with findings on the inconsistent reliability of case formulations (Flinn et al., 2015). For example, in case formulation based on cognitive theory, researchers have found more agreement on the descriptive elements of a case (e.g., presenting problem)—which like the primary dimension/level in our study may be construed as more “obvious”—than on its inferential aspects (e.g., explanatory mechanisms, maintaining factors), which are more heavily shaped by clinical judgment (Bieling & Kuyken, 2003; Kuyken et al., 2005). Indeed, depending on how a clinician delivers or defines a treatment component, their theoretical orientation, and how they understand the EEMM, we might expect considerable variation in which dimensions and/or levels a treatment component is assigned. Because any treatment component can be reasonably mapped onto multiple EEMM dimensions and levels (e.g., cognitive restructuring may be used to develop motivating beliefs and change

perception of self-efficacy), high agreement on secondary dimensions and levels may be difficult to achieve without greater specification of how a treatment component is delivered or training on how to use the EEMM. For instance, reliability may be increased by using a standardized workbook and brief human and artificial intelligence-based training (Ciarrochi et al., 2024). Specifically, Ciarrochi et al. (2024) found that items from psychological scales could be reliably classified (α usually greater than .80) using the EEMM. Future research is needed to examine if training enhances the reliability of treatment component classification, especially among those without prior experience with PBT or the EEMM.

Another finding was that *individual* tended to be used as a catch-all category, which was unsurprising, as all the treatment components we listed could be used in individual therapy. For example, interpretation of hidden meanings—for which a primary dimension was least clearly identifiable ($n = 89$ for *cognition*)—still had 114 (76%) participants indicating it as belonging to the *individual* level. The only two components not primarily classified as *individual* were biofeedback and breathwork, which were considered *biophysiological*. This pattern of use was consistent with qualitative feedback provided in our survey that *individual* is too broad a category ($n = 3$). That is, *individual* might be so overly inclusive as to be imprecise and thus unhelpful for conceptualizing treatment components. Another way to think about this is, what additional benefit is accrued from knowing that a certain treatment component belongs to the *individual* level? That said, the current EEMM visually emphasizes the *biophysiological* (now termed *biology/physiology*) and *sociocultural* (now termed *relationships/culture*) levels, which each take up one row. In contrast, the *individual* (now termed *psychological*) level does not have its own row and is instead shown as encompassing the six dimensions (see Ong, Ciarrochi, et al., 2024), so *psychological* (formerly *individual*) may not be intended to be used as prominently as the other two levels.

Replicating the trend of high consensus within a limited scope, our findings on common interventions identified by participants indicated high agreement for certain interventions within each dimension/level but greater variability outside them, with a skew toward cognitive-behavioral and mindfulness-based components (which could

be due to the ACT/CBT bias in our sample). For example, in the *cognition* dimension, defusion and cognitive restructuring were clear favorites with 60 and 58 responses, respectively, whereas 57 other components, including insight building, reality testing, and disputation, were each only endorsed by one participant. Part of the observed variability could be due to our conservative coding method, where we chose not to make assumptions about what a term meant if it was ambiguous. For instance, core beliefs were not classified under cognitive restructuring, as what was being done with core beliefs was unstated. Similarly, although unhooking is frequently used in the context of defusion from ACT, it also has a more general meaning that may not be synonymous with defusion, so in the absence of further specification, these terms were counted separately. Nonetheless, these terms reflect the variability in language—if not intervention techniques—used, supporting the need for a common language to clarify if the different terms represent the same concepts and vice versa (i.e., jingle and jangle fallacies). The lack of shared terminology can add to confusion about what constructs refer to and, more insidiously, undermine confidence in research findings (Altgassen et al., 2024; Hanfstingl et al., 2024). Accordingly, providing a lingua franca across therapeutic orientations is one of the main goals of the EEMM. For example, therapists could describe bringing about cognitive change by teaching clients to respond to thoughts by observing them—without using therapy-specific terms like defusion or unhooking.

Finally, we asked for feedback on ways to improve the EEMM, specifically what dimensions and levels participants would add or which intervention techniques were poorly captured by the EEMM. Most participants did not identify dimensions or levels they would add or interventions poorly captured by the EEMM. However, among participants who provided feedback, their suggestions highlighted areas that may be underemphasized in the EEMM. For instance, two participants suggested adding a *temporal/generation* level to account for intergenerational influences and technological advances. These contextual variables may already be captured in the *sociocultural* level, which is sufficiently expansive to contain everything from political events and climate change to broader technological changes. Considerations of temporal changes may also be covered by the *context* axis in

the EEMM, which we did not include in the present study to streamline the survey. As such, one reason the EEMM was perceived as inadequate might have been that we only asked participants about its dimensions and levels but not *context*, which might have captured these ostensibly omitted areas. Evidence suggests that human raters and ChatGPT 4.0 were able to reliably classify items as part of *context*² and as distinct from dimensions and levels (Ciarrochi et al., 2024). In addition, the lack of precision in the term *sociocultural*—similar to what we noted with *individual*—may also have made it difficult for participants less familiar with the EEMM to know exactly what *sociocultural* encompasses.

Another consideration around utility of the EEMM is that it may not be user-friendly, especially without prior training. Although we observed broad agreement for “obvious” categories, suggesting that the EEMM is still a reliable tool without much background instruction, its utility could be further enhanced with additional training, leading to more reliable identification of secondary dimensions/levels. If the EEMM is to be helpful as a tool, it must be accessible to and relevant to the needs of its intended users (Tabak et al., 2017). At present, it appears that some training on how to use the EEMM is needed prior to deployment, given that the EEMM can be considered a relatively sophisticated tool. The lack of easy accessibility of the EEMM may reflect a top-down approach to dissemination that fails to center clinician perspectives and hampers implementation efforts, which has been a perennial problem in clinical psychology (McHugh & Barlow, 2010; Shafran et al., 2009). This survey was a first step toward understanding perspectives of PBT among clinicians. However, perspectives from orientations outside CBT and further integration of clinicians into the research process (e.g., ongoing consultation with clinicians when developing treatment guidelines, including clinicians as part of the research team to ensure clinician perspectives are represented in study design and treatment development) are warranted.

Clinical Relevance

With respect to clinical implications, our findings suggest that the vision of PBT as a psychological model that can be used by clinicians regardless of orientation is feasible, as most

clinicians in our sample broadly agreed on how to conceptualize common intervention methods with respect to EEMM dimensions and levels, even though the majority of the sample had not heard of the EEMM. Although there are meaningful differences across theoretical orientations, so much so that there are specific journals for various orientations (e.g., *Cognitive and Behavioral Practice*, *Psychodynamic Practice*), it may also be fruitful to focus on commonalities across orientations (Stricker & Gold, 2008). For example, most clinicians work with emotions in some way—either changing the meaning or interpretation of emotions, exploring the role of emotions in the client’s life, or modulating the impact of emotions—even if they use different terms and techniques to achieve similar effects. Using EEMM language (e.g., “changing the perspective of the self” [emphasizing the *self* dimension] rather than “learning self-as-context” [naming the ACT technique]) to describe theoretically diverse interventions could facilitate communication across clinicians and lead to greater clarity around and adoption of helpful methods drawn from various orientations that may have been previously inaccessible to clinicians working within a specific orientation.

The feedback we received on adding dimensions and levels to the EEMM highlights the challenges the EEMM, or any system, faces in fully addressing every aspect of complex human functioning in detail. We received a wide range of responses in terms of what could be added among just 150 clinicians—most of whom identified as ACT and CBT practitioners—so it is impossible to create a model that would satisfy every single clinician. Rather than infinitely add to the EEMM, it may be more practical to encourage users of the EEMM to interpret its dimensions and levels flexibly to suit their needs. In other words, the EEMM could be viewed as a foundational tool

² In the EEMM classification manual used in Ciarrochi et al. (2024), context is defined as follows: “This category encompasses statements that refer to external factors that could influence or be influenced by other dimensions like affect, cognition, attention, motivation, self, and overt behavior. Such factors include, but are not limited to, social relationships (e.g., friendships, family ties, therapeutic relationships), environmental elements (e.g., living conditions, proximity to facilities), and situational components (e.g., workplace setting, cultural norms). Additionally, this category covers significant life events and conditions, such as divorce, trauma, or physical pain, which can have a pervasive impact on multiple dimensions of a person’s experience.”

for case conceptualization and treatment planning, rather than a static model. Clinicians can adapt it by adding or subtracting dimensions and levels to meet their own and their clients' specific needs, much like a cheese pizza before any toppings are added. For example, a clinician who works with families might emphasize the *relationships* level in the current EEMM and use it as is, whereas a clinician who does community-based work with underserved communities might choose to add a *systemic* level to highlight the systemic oppression and institutional barriers faced by their clients. Alternatively, the latter might conceptualize systemic oppression and institutional barriers as part of *context* and more heavily emphasize that part of the EEMM, rather than add a separate level. Ultimately, the function of the EEMM is to improve client well-being (i.e., have treatment utility; Hayes et al., 1987), not to be "right," so there is no one correct way to use the EEMM.

Limitations

At the time of the survey, we had used the existing version of the EEMM, which included the *biophysiological* and *sociocultural* levels. However, the EEMM has been updated since our survey and those levels have been renamed *biology/physiology* and *relationships/culture*, respectively, to increase clarity around their scope. Furthermore, we did not include *context* in our survey, so we did not receive feedback on how *context* complemented the dimensions and levels in the EEMM. Consequently, some of the data we present in this report may not be relevant to the current iteration of the EEMM. For example, six participants suggested including an interpersonal dimension to the EEMM. This might not have been evident from the broadly termed *sociocultural* level, but the current *relationships/culture* level more explicitly covers the interpersonal domain. In addition, we had a relatively homogeneous sample skewed toward people who identified as white, woman, straight, from the United States, and having a graduate degree. Furthermore, most of our sample endorsed an ACT and CBT background, two areas most closely linked to PBT. Thus, it is likely that our findings are not representative of the broader clinician population, especially clinicians from countries outside the United States, with minoritized identities, in training, and with

orientations outside CBT. Having input from a more diverse group of clinicians would likely further clarify limitations of PBT and the EEMM, as they may currently be overfitted to cognitive behavioral and U.S.-centric approaches. Finally, no data were collected about where participants were recruited from. Thus, while we can speculate that many of the participants came from professional listservs, particularly the Association for Contextual Behavioral Sciences, the specific distribution of participants across recruitment sources is unknown.

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Received January 31, 2025

Revision received July 7, 2025

Accepted July 8, 2025 ■