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The role of functional assessment in third wave behavioral interventions: foundations and future directions for a fourth wave

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Functional assessment remains an essential aspect of behavior therapy and is the foundation of many contemporary behavioral interventions. In this paper, we articulate the role of functional analysis in third wave behavior therapies and assessment approaches that attempt to accomplish functional assessment in clinical practice. In addition, the compromises in functional assessment and associated costs to the integrity of behavior therapy and functional approaches are discussed with respect to a focus on randomized control trials (RCTs) and diagnostic categories. We propose that a fourth wave of behavior therapy is possible to anticipate, one that focuses on functional assessment and utilizes aspects of available contemporary behavior therapies as treatment strategies integrated into a coherent Contextual Behavioral Intervention.

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Contemporary functional assessment

Functional analysis

Functional analysis is the cornerstone of contextual behavior therapy and is a hypothesis testing process where supposed causal variables are actively manipulated in order to evaluate whether they effect change in behavior. It focuses on the specification of the target behavior as well as the antecedents and consequences of those behaviors. More precisely, functional analysis is the identification of discriminative stimuli that precede and signal a behavior of interest (antecedents) and the stimulus events that follow the behavior (consequences) that affect the likelihood of that event occurring in the future. These consequences, reinforcers or punishers, are understood by their actual effect on the behavior (i.e. their function), not on their topography or the intent of the person applying them. This functional conceptualization of behavior is a defining feature of a functional contextual approach; behaviors are established and maintained based on environmental variables (i.e. antecedents and consequences).

A conceptualization based on a functional analysis is unique to each client and identifies important, causal, and alterable variables fundamental to that specific client's difficulties [1•]. The nature of this approach is idiographic; it is focused on the individual of interest and what particular variables give rise to and sustain his or her suffering (i.e. problematic or ineffective behaviors) given his or her learning history and current environment. A functional analysis has direct ties to treatment; the corresponding intervention uses behavioral principles to alter the variables identified in the conceptualization. Thus, treatment is not centered on a predefined problem list (e.g. a diagnosis), and the approach or type of intervention the client receives is not presupposed. Instead, the treatment is tailored to each client based on the results of the functional analysis. Thus, the assessment and treatment processes are fully integrated.

A functional analysis results in grouping variables that share similar properties, known as functional classes. Antecedents, behaviors, or consequences may be identified that function in similar ways, and those classes become central to a client's case conceptualization or formulation. For example, in psychotherapy, a client may engage in a variety of behaviors that all serve the function of escaping from difficult emotional experiences. That client may drink alcohol, make a joke when another person notices she looks sad, and self-injure, all of which are followed by the reduction of her negative affect. These behaviors are negatively reinforced by (temporarily) stopping those difficult feelings and would constitute a functional class.

Importantly, a functional analysis is data-driven. The accuracy of the analysis is determined by manipulating the identified variables and showing that this impacts behavior (given the client's treatment goals). If a clinician has identified the correct antecedents or consequences, then altering them should produce some type of behavior change. If the behavior does not change, it is likely the clinician has not identified those variables correctly or has missed some other key factors. Thus, a functional analysis is an iterative process that ends when the target behavior has changed in the desired way. Data tracking in the form

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of single case designs [e.g. 2] provides information about the accuracy of the analysis as well as the efficacy of the intervention. By gathering data from individual clients treated using an intervention based on a functional analysis, the clinician can determine whether the data support the use of that treatment as well as the assessment process. Moreover, several clinicians can gather data to demonstrate the effectiveness of that type of treatment approach for multiple clients, offering further support for this strategy of idiographic assessment and behavioral case conceptualization. The efficacy of using functional analyses has empirical support both at the level of bench science and animal research as well as applied use with human populations [e.g. 3,4].

Functional analysis and contemporary behavior therapy

Unfortunately, translating functional analysis to outpatient psychotherapy for complex behaviors is not easy and has not been widely adopted [5,6•]. These barriers are related to the difficulty in both standardizing a functional analysis in an outpatient setting and identifying treatment targets that include functional classes (rather than specific topographies such as self-injury). To meet the reliability standards required for testing and dissemination, as outlined in the empirically supported treatment (EST) literature [7–9], efforts to incorporate a functional approach to assessment have mainly focused on self-report measures. There is evidence that indirect functional assessments, which identify hypothetical causal variables but do not attempt to directly manipulate them, can serve the same purpose as functional analysis [10]. Thus, it seems plausible that functional assessments via self-report may successfully identify causal and maintaining variables that are related to a client's distress. Examples of current functional assessment approaches appear in Table 1.

Critical review of contemporary functional assessment

How well these assessments produce results similar to a functional analysis depends on whether they capture unique variables relevant to individuals (i.e. are idiographic) and whether they demonstrate treatment utility [21].

All of these functional assessments represent a compromise between the purely idiographic nature of functional analysis and nomothetic approaches based on nosological systems such as the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) [22–26]. In fact, the DSM has been criticized for failing to identify causal and maintaining variables, thus limiting its treatment utility [27,28]. Importantly, although the assessment approaches in Table 1 were developed from functional frameworks, the treatment utility of these approaches needs to be demonstrated empirically.

Demonstrating treatment utility implies using different treatment approaches for different clients based on differential outcomes of the assessment process. It is difficult to know how this would be practiced when using the Acceptant Action Questionnaire (AAQ) or the Behavior Activation for Depression Scale (BADS); both of these were developed for use with a specific treatment approach and only assess one functional class relevant to that approach. Beginning with a specific intervention and predetermining that a client is a fit for that approach is contrary to the spirit of functional assessment. For example, an Acceptance and Commitment Therapy (ACT) therapist will largely see client problems in terms of psychological inflexibility and escape or avoidance of psychological events. This may lead to missed opportunities to assess key causal or maintaining variables for a particular client's behaviors. Instead, the therapist may assume the client's repertoire of inflexibility and escape responses to aversive stimuli is the cause of that distress. This type of predetermination misses the opportunity for the therapist to actually evaluate what problems the client has (which may very well include those presupposed), and to specify what variables give rise to and maintain those problems.

The Functional Idiographic Assessment Template (FIAT) system was also developed within a specific intervention paradigm (i.e. Functional Analytic Psychotherapy), but both the FIAT and the Functional Assessment of Depression (FAD) assess multiple functional pathways related to

Table 1

Examples of current functional assessment approaches.

Assessment	Functional target assessed	Corresponding treatment approach
Acceptance and Action Questionnaire (AAQ) [11,12]	Psychological inflexibility	Acceptance and Commitment Therapy (ACT) [13]
Behavior Activation for Depression Scale (BADS) [14•]	Avoidance and activation	Behavior Activation (BA) [15]
The Functional Assessment of Depression (FAD) [16•]	Multiple causal or maintaining variables of distress	N/A
The Functional Idiographic Assessment Template system (FIAT) [17•,18•]	Multiple functional classes relevant to interpersonal repertoires	Functional Analytic Psychotherapy (FAP) [19,20]

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distress. It would be possible to test the utility of either of these assessments in matching individuals to a specific intervention, but the actual utility of these has yet to be firmly established. Moreover, the utility of any of these assessment approaches is constrained by current evaluation and dissemination standards.

Challenges of proliferation of treatments and losing functional assessment

Before continuing this critique, it is important to clearly note that the rise of the third wave behavior therapies has added much to the advancement of the science of psychology and the application of behavioral principles to human suffering. The contemporary behavior therapies have brought behavioral interventions into the modern era, increasing interest in them, and providing some promising evidence for their use [29•]. Further, many of these behavior therapies promote the use of functional analysis. The following critiques apply to the way these treatments have been disseminated and how this threatens a functional approach to assessment. The argument presented is not that all clinicians will fall into these traps, simply that these problems exist and are a threat to the integrity of modern behavioral assessment and treatment. These problems have arisen from the context of empirically supported treatments (ESTs) and the dominance of the DSM system in which contemporary behavior therapies have evolved.

First, in order to create internally valid interventions and achieve consistency across therapists in randomized controlled trials (RCTs), treatment developers focused on specific mechanisms of action or behavioral principles (e.g. ACT targets experiential avoidance, Behavioral Activation targets increasing response contingent positive reinforcement). While this makes perfect sense in the context of those trials, it eliminated the need for a therapist to assess client behaviors because the treatment was preselected. The assessment was forgone in favor of predetermining the use of that intervention. That is, therapists applied an intervention as it was written in a manual, before or in lieu of a functional assessment. This is not without value, but it lies in opposition to a functional approach that begins with the client as he or she presents problem behaviors and attempts to specify behavior and the contextual variables that give rise to and maintain that behavior. This makes it unlikely a therapist will try to understand the unique problems of an individual in context and instead will fit the client to the treatment.

Moreover, an emphasis on treatment packages runs the risk of building allegiance to those treatments rather than remaining focused on the functional assessment. Allegiance to any treatment is understandable in many respects, and there are data to suggest it impacts client outcomes in a favorable way [30]. That said, thinking primarily in terms of the therapy we want to use works against the tradition of behavioral treatments; it pulls the clinician away from conducting an individual, functional assessment of the problem in favor of starting with a preferred intervention.

Second, the RCT data in support of the contemporary behavioral treatments often center on DSM-defined disorders or other topographically defined problem sets (e.g. Dialectical Behavior Therapy (DBT) for binge eating [31]; FAP for depression [32]; ACT for substance use disorder [33]). This is understandable as funding and other factors dictate how these treatments are studied. Further, using diagnostic terminology is not inherently problematic, but it does pose additional risks that draw the clinician away from using a functional analysis of the individual client. A diagnosis is a set of symptoms that are general descriptors of suffering but do not, by definition, speak to the issues of any one person. Data from an RCT can support the efficacy of a treatment as it is provided for a particular disorder, a general set of problems, and the clinician will seek to apply that treatment to clients that meet criteria for that disorder. In essence, we risk matching the treatment to the disorder, not the client. This is in contrast to beginning with the client, understanding his or her problems functionally, and then using empirically supported principles to intervene.

The future and a fourth wave of behavior therapy

Without denigrating any of the third wave treatments, it is possible to see the emergence of a fourth wave of behavior therapy. This wave would emphasize the key role of functional assessment in targeting client problems and choosing which strategies from the existing behavioral treatments to apply to a particular client. This relegates the current third wave treatments to a set of interventions for client problems that can be integrated into one coherent, individualized intervention guided by a functional assessment. This is in contrast to more typically using ACT, FAP, DBT, or Behavioral Activation as standalone interventions and would require a therapist to consider multiple hypotheses for contextual variables surrounding different types of suffering.

A working term to describe this principle-based approach is Contextual Behavioral Intervention (CBI). CBI is founded on the principle that the assessment of an individual client is necessary to define the intervention. If the client is struggling with interpersonal difficulties (e.g. a repertoire that prevents him or her from connecting with others) then aspects of a FAP type of intervention may be useful. That same client may have challenges with experiencing emotional distress making it likely that using components from ACT will be beneficial to treat this client. This does not dismiss the possibility or even probability that there will be specialists in psychotherapy that have appreciable skill in treating certain forms of human suffering (e.g. interpersonal intimacy) who

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primarily use one therapy. Referring a client to a therapist who would provide the most effective treatment, based on a functional assessment, would not only be appropriate but would likely emerge as a standard of practice.

In many ways, CBI would allow all of the proverbial ships to rise. Therapists could become more focused in their work and apply strategies for client problems in which they are trained. In addition, given the data for a lack of reliability and validity of the new DSM [34], therapists can move away from less useful nosological language to specify client behaviors of interest. By utilizing functional analytic strategies to set target behaviors, the clinician can track those behaviors over time using single case design strategies and engage in a high level of accountability, a central part of evidence based practice [35–37].

Creating an approach to understand and treat human suffering that is grounded in behavioral principles, driven by functional assessment, and utilizes available contemporary behavioral treatment technologies, may allow a clinician to become a beacon of contemporary clinical science and therapy. The next wave of behavior therapy can integrate existing approaches to begin with the client, not the disorder, nor the treatment, but a functional assessment of that unique person. More than that, this wave will make room for the development of new strategies to alleviate suffering as our psychological problems evolve with human kind.

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