Case Formulation and Design of Behavioral Treatment Programs

Matching Treatment Mechanisms to Causal Variables for Behavior Problems

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Summary: We review the rationale for behavioral clinical case formulations and emphasize the role of the functional analysis in the design of individualized treatments. Standardized treatments may not be optimally effective for clients who have multiple behavior problems. These problems can affect each other in complex ways and each behavior problem can be influenced by multiple, interacting causal variables. The mechanisms of action of standardized treatments may not always address the most important causal variables for a client’s behavior problems. The functional analysis integrates judgments about the client’s behavior problems, important causal variables, and functional relations among variables. The functional analysis aids treatment decisions by helping the clinician estimate the relative magnitude of effect of each causal variable on the client’s behavior problems, so that the most effective treatments can be selected. The parameters of, and issues associated with, a functional analysis and Functional Analytic Clinical Case Models (FACCM) are illustrated with a clinical case. The task of selecting the best treatment for a client is complicated because treatments differ in their level of specificity and have unequally weighted mechanisms of action. Further, a treatment’s mechanism of action is often unknown.

Some of the most difficult clinical decisions involve the design of individualized behavioral treatments. An important aid to the design of individualized treatments is the clinical case formulation. The clinical case formulation is an integration of multiple judgments about the client’s behavior problems and goals, causal variables, and variables that affect treatment outcome. The clinical case formulation provides a template to assist the clinician in deciding which behavior problems are most important and should be the focus of treatment efforts, which variables most strongly affect those problems and treatment outcome, what additional information would be helpful in making treatment decisions, and which treatments most closely match the unique characteristics of the client (see overview in Haynes, 1998; Haynes & O’Brien, 2000; Westmeyer, 2003). Clinical case formulations are particularly important in behavior therapy because of the multiple treatment methods that can be applied to the same behavior problem.

Several models of behavioral case formulation have been proposed (e.g., Haynes, 1998; Koerner & Linehan, 1997; Nezu, Nezu, Peacock, & Girwood, 2002; Persons & Tompkins, 1997). These case formulation models differ in their components, their recommended methods of derivation, and their emphases (see the overviews of behavioral clinical case formulation in Haynes & O’Brien, 2000, and specific examples in Eells, 1997, and Hersen & Porzelius, 2002). However, all reflect the important role of case formulation in the design of behavioral treatments and the importance of valid assessment data.
We describe several issues in behavioral case formulation and individual treatment design. We review aspects of the functional analysis and the relationship between a treatment’s mechanism of action and the causes of the client’s behavior problems. We suggest that a principal determinant of treatment selection is the estimated relative magnitude of effect on the client’s behavior problems (or treatment goals) associated with focusing treatment on each of the multiple causal variables affecting those behavior problems. We further suggest that the estimated magnitude of treatment effects is a partial function of the degree to which the mechanisms of action associated with each treatment modify the most important causal variables for the client’s behavior problems.

Behavioral case formulation and the selection of the most effective treatment strategy are often complicated by several factors (see literature reviews in Hersen & Ammerman, 2000; Millon, Blaney, & Davis, 1999). First, the mechanisms of action of treatments have often not been identified. Consequently, it can be difficult to estimate the degree to which a potential treatment addresses the most important variables affecting a client’s behavior problem.

Second, clients often have multiple, functionally related behavior problems and a behavior problem can be affected by multiple causal variables. The causal variables associated with a behavior problem can also differ in their importance (i.e., their strength of effect on the behavior problem), modifiability, and directionality (e.g., unidirectional vs. bidirectional). Third, causal variables can differ across clients with the same behavior problem. Fourth, there are often multiple behavioral treatments applicable to a behavior problem.

The most effective treatment strategy for a client’s behavior problem partially depends on the degree to which potential treatment mechanisms of action address the most important causal variables for the client. We suggest that the functional analysis and Functional Analytic Clinical Case Models (FACCM) can help the clinician summarize important functional relations for a client and to estimate the relative magnitude of effects of focusing treatment on each causal variable.

Clinical Case Description and Functional Analysis

Mr. Stockert was a 50-year-old married man referred for outpatient behavioral assessment because of intractable back pain. The pain had continued for six months, following a job-related accident, despite two surgeries, described as “successful” by the orthopedic surgeon. There was no indication of organic pathology.

Assessment

Two assessment sessions and a case conference occurred within a 10-day period. The first 1.5 h assessment session involved an explanation of the assessment process, the development of a supportive relationship with Mr. Stockert, and an unstructured interview with Mr. Stockert about his pain and other behavior problems. This assessment session also involved a discussion with Mr. Stockert about his treatment goals, self-report questionnaires on depression and pain, an interview to identify causal factors that might be maintaining Mr. Stockert’s behavior problems, and the initiation of five days of self-monitoring of pain and sleep (identified as a problem during the interview) (see Special Section on Self-Monitoring in Psychological Assessment, 1999, 411–497). The information from these multiple methods of assessment aided in the construction of an initial functional analysis, illustrated by a FACCM (Haynes & O’Brien, 2001) to summarize initial judgments about the client’s behavior problems, causal variables, their functional relations, and to guide subsequent assessment strategies (see initial FACCM in Haynes, Thatcher, Kaholokula, & Nelson, 2001).

Mr. and Mrs. Stockert attended the second assessment session, five days later. This 1.5 h session involved interviews to further specify the variables and the functional relations hypothesized in the first assessment session. This assessment session involved conjoint and individual interviews and questionnaires to gather additional information on their marital distress (identified as a problem in the first session), and an interview to review self-monitored data to help specify other behavior problems, causal variables, and their functional relations. The session also included a 15 min analog observation of Mr. and Mrs. Stockert as they discussed a major problem (“financial problems”; see discussions of marital assessment in Heyman, 2001; Floyd, Haynes, & Kelly, 1997). The functional analysis was modified to reflect the new information obtained in the second assessment session.

Following the second assessment session, the assessor organized a multidisciplinary case conference of staff members who had additional information about Mr. Stockert. Mr. Stockert’s psychiatrist, occupational therapist, physical therapist, and the assessor attended the
A third functional analysis was developed following this conference; the FACCM is illustrated in Figure 1.

**Functional Analysis**

Mr. Stockert reported that he had experienced moderate to severe neck and back pain (his most important concerns) 2–3 times a day, for 1–3 h for each episode. Medication was not helpful, and his pain diminished only when he lay down. He also experienced frequent nighttime awakenings since the accident and reported that he was unable to return to work. His behavior during the interview (e.g., rate of speech, tone of voice), his responses on a depression questionnaire, and his recent decreases in enjoyable activities suggested that he was moderately depressed.

He reported that he and his wife argued frequently about money and his failure to help with the children and with household tasks. Both scored in the “highly distressed” range on a marital adjustment questionnaire, with many sources of disagreement (e.g., financial issues, sex, raising children) and few shared enjoyable activities. Mrs. Stockert was also concerned that, for the first time, she might have to work outside the home. Blaming, criticism, anger, and a paucity of positive comments characterized their discussion during the analog observation.

Mr. Stockert said that he often lay awake and worried after going to bed and usually fell asleep after about an hour; he awakened 2–3 times per night due to pain. He said that because of the pain and poor sleep he was tired and unable to work or do much else during the day. Data from interviews and self-monitoring suggested that the likelihood and severity of pain episodes were higher dur-
The importance of a behavior problem can reflect the risk of harm to others (e.g., physical aggression against staff members), risk of harm to the client (e.g., self-injury), aversiveness to others (e.g., oppositional behavior by children at home), and self-reported subjective importance (e.g., the degree of distress associated with back pain or marital conflict).

The FACCM of Mr. Stockert illustrates several aspects of the functional analysis (for alternative views of the functional analysis see Repp & Horner, 2000). First, Mr. Stockert reported multiple behavior problems (e.g., depressed mood, sleep problems; identified with boxes). His various behavior problems differed in importance (indicated by the width of the box line), and in the strengths and direction of their causal interrelations. For example, sleep problems were judged to moderately affect physical activity, which was judged to strongly affect his pain responses (strength and direction of effect are indicated by the width of the line and direction of arrow).

The FACCM also illustrates multiple causal variables (e.g., financial difficulties, presleep worry; identified with circles) and differences in modifiability of causal variables (indicated by the width of the circle lines). Differences in the strength of causal relations with Mr. Stockert’s behavior problems and among causal variables are also illustrated. For example, presleep worry strongly affected Mr. Stockert’s insomnia and was, in turn, strongly affected by marital arguments and thoughts of worthlessness. The FACCM also illustrates an original, unmodifiable causal variable (job injury).

The primary goal of this functional analysis was to help the clinician decide which initial treatment focus would have the greatest benefit for Mr. Stockert. As with many clients, the best treatment focus was difficult to figure out with Mr. Stockert because he had multiple behavior problems and multiple interacting causal variables affecting those behavior problems. Because each treatment focus takes time and resources (e.g., teaching marital communication skills to Mr. and Mrs. Stockert could take 6–10 sessions), not all causal variables can be addressed simultaneously. The clinician must decide which initial treatment focus (e.g., presleep worry, beliefs, and attributions) would result in the greatest magnitude of effect. Guidelines for making this decision are outlined in the next section.

Estimating the Magnitude of Treatment Effects

Decisions about which causal variables should be targeted in treatment affect the magnitude of treatment effects because causal variables differ in their modifiability, the number and direction of paths through which they affect the client’s behavior problems, and their strength of functional relations with behavior problems. We can illustrate these differential magnitudes of effects if we assign numbers to the variables in a FACCM and solve for the causal paths. The relative magnitude of effect of a causal variable (reflected in the solution to the vector graphics in a FACCM) is a multiplicative function of several clinician-estimated values (see Haynes, 2000; Haynes & O’Brien, 2000, for an extended discussion):

1. The estimated importance of the behavior problems and their sequelae. The magnitude of effect of a treatment is affected by the importance of the behavior problem. For Mr. Stockert, a treatment that reduced his pain response would have a greater effect than a treatment that increased his sexual activity. We can assign “10” to represent more important problems and “5” to problems that are about half as important. The absolute numbers are not meaningful and cannot be associated with a solute behavior change (e.g., the amount of reduction in the rate of self-injurious behaviors) but the relations among numbers reflect the estimated relative importance of behavior problems for a client.

2. The causal relations among behavior problems. As illustrated in Figure 1, a treatment that reduced Mr. Stockert’s pain responses would have the added effects of improving his relationships with his children and reducing his use of pain medication.

3. The estimated strength of relations between causal variables and behavior problem, and between causal variables. Note that in Figure 1, a treatment that reduced the couple’s marital arguments would have a larger magnitude of effect than a treatment that reduced Mrs. Stockert’s negative attributions about her husband. The causal paths from “Negative Attributions” are fewer and weaker than those from “Arguments.” A path coefficient (e.g., .2, .4, .8 in Figure 1) represents the relative degree to which change in one variable is associated with change in the connected variable. We can think of path coefficients as ratio-scale values: A path coefficient of .8 suggests twice as strong a relationship as a path coefficient of .4.

4. The estimated modifiability of the causal variables. Some causal variables (e.g., how parents respond to their child’s oppositional behavior) are more easily modified than others (e.g., ideas of persecution by a hospitalized patient). Modifiability of a causal vari-

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2 The “importance” of a behavior problem can reflect the risk of harm to others (e.g., physical aggression against staff members), risk of harm to the client (e.g., self-injury), aversiveness to others (e.g., oppositional behavior by children at home), and self-reported subjective importance (e.g., the degree of distress associated with back pain or marital conflict).
variables can be affected by such factors as the availability of effective treatments, resistance to change by others in the client’s environment, cognitive capabilities of the client, expertise of the therapist, negative side-effects of treatment, or other contingencies that affect the behavior problem. Holding other variables equal, focusing treatment efforts on more modifiable variables would have a greater magnitude of effect for the client than would focusing treatment on less modifiable variables. In Figure 1, we can assign “.8” to easily modifiable causal variables, “.4” to moderately modifiable variables, and “.2” to causal variables that are difficult to modify; we assign “0” to original causes that cannot be modified (e.g., the original work injury for Mr. Stockert, acquired brain injury, childhood illness, and trauma).

5. Multiple causal paths. As illustrated in Figure 1, a causal variable can affect more than one behavior problem and can affect a behavior problem through multiple paths. In these cases, the total effect of a variable is the sum of all causal paths.

6. Moderator variables. With difficult-to-modify causal variables, we focus on moderator variables. A moderator variable is one that affects the strength of a causal relation. For example, the degree to which a client who has recently been divorced (an historical event that is rarely reversed) develops depressive symptoms may be moderated by how much emotional support he or she receives from friends and family members. We are interested in the same aspects of moderator variables as with other types of causal variables – their modifiability, strength of effect, and paths of influence.

Referring to the FACCM of Mr. Stockert, the magnitude of effect of Mr. Stockert’s “thoughts of worthlessness” on his sleep problems would be calculated by multiplying the modifiability of “thoughts of worthlessness” (.8) × the strength of relation between “thoughts of worthlessness” and “presleep worry” (.8) × the modifiability of “presleep worry” (.8) × the strength of relationship between “presleep worry” and insomnia (.8) × the importance of insomnia (10) = 4.1. Note again that this estimated effect has meaning only when compared to other magnitude of effect estimates for this client, using the same metric. Using the values shown above and solving for each path, the causal variables with the largest estimated magnitude of treatment effects on Mr. Stockert’s sleep problems were arguments about finances (4.5), financial difficulties (3.9), and presleep worry (3.0).

Additional Concepts and Limitations Associated with the Functional Analysis

There are several issues and limitations associated with the functional analysis, which apply to all models of clinical case formulation (see discussion in Haynes & O’Brien, 2000). These include:

1. Content Validity and Accuracy of a Functional Analysis – the degree to which it accurately identifies the client’s behavior problems, important causal variables, and important functional relations. A functional analysis is likely to have good content validity and be accurate to the degree that it is based on sound assessment strategies (Haynes, Spain, & Oliveira, 1993). Westmeyer (2003) provides an excellent overview of problems in assuming that data that contribute to a clinical case formulation are “objective.” The research by Godoy and Gavino (2003) and Kroes, Veerman, and De Bruyn (2003) illustrate the difficulties of estimating the functional relations that are the main component of behavioral case formulations.

2. Treatment Validity of the Functional Analysis – the degree to which treatments based on the functional analysis lead to better outcomes than those not based on it.

3. Cost-Effectiveness and Clinical Utility of the Functional Analysis and FACCMs – the degree to which the cost of conducting the functional analysis is warranted by improved outcome. The functional analysis is most likely to be cost-effective and clinically useful when the clinical case is complex, causal variables differ across persons with the same behavior problem, valid methods are available for the measurement of the behavior problem, causal variables, and other moderators of intervention outcome, there is an empirically supported intervention strategy to modify the causal variables identified in the functional analysis, a standardized intervention program does not effectively and efficiently address all causal variables for a behavior problem, a standardized intervention program not based on a functional analysis has failed for a client, there are variables identified in nomothetic research as important moderators of intervention outcome, the behavior problems are severe, and some potential treatments have severe side-effects.

4. Pseudo-precision of FACCMs – a FACCM is only a subjectively constructed model of a client. A FACCM, because it includes numerical estimates of variables, can falsely imply that these variables can be measured precisely. Westmeyer (2003) reviews several sources.
of variance that can affect the data underlying a case formulation.

5. The Idiographic Nature of the Functional Analysis—functional analyses are idiographic, individualized clinical case formulations that can differ across clients with the same behavior problems. Nomothetic causal models can inform the clinician about potentially important causal variables, but usually have insufficient content validity for a client because they fail to capture the client’s unique pattern of variables and functional relations (see discussion in Schiepek, 2003; Westmeyer, 2003).

6. The Dynamic Nature of the Functional Analysis—the functional analysis of a client can change over time. Life circumstances for clients can change, the assessor can gain additional information about a client across additional assessment sessions, and the characteristics of various factors affecting behavior problems can also change. Therefore, a functional analysis summarizes the clinician’s best judgments about a client, but only at the time of its construction. Schiepek (2003) discussed ways of visually representing and analyzing dynamic aspects of intraindividual and interindividual functional relations.

7. The Conditional Nature of the Functional Analysis—a functional analysis is valid within a limited domain. For example, the triggers for a client’s depressive episodes can differ between home and work settings.

8. The Functional Analysis Reflects the Assessor’s Knowledge, Prior Beliefs, and Assessment Expertise—the variables and functional relations in a functional analysis are clinical judgments and can be affected by the assessor’s biases and attributes (see discussions of clinical judgment in Garb, 1998; and research by Kroes et al., 2003). Let us presume that when constructing the functional analysis of Mr. Stockert, the assessor was not aware of the potential importance of presleep worry and failed to inquire about it or to include it in the model. If the path from “thoughts of worthlessness” to insomnia was .8 and did not include “presleep worry”), the estimated magnitude of effect of thoughts of worthlessness on insomnia would be 8. With the inclusion of “presleep worry,” the overall magnitude of effect of “thoughts of worthlessness” reduces to 5.1.

**Treatment Mechanisms and The Magnitude of Treatment Effects**

As we suggested in the previous section, the magnitude of treatment outcome will be affected by how well the clinician selects treatments whose mechanisms of action address the causal variables and causal relations most strongly associated with the client’s behavior problems. Treatments whose mechanisms of action target the most important causal variables for a client, those causal variables that have the strongest effects and are the most modifiable, will be more effective than treatments whose mechanisms of action target less important causal variables. Figures 2–5 provide arithmetic illustrations of this supposition. All figures depict the same behavior problem and causal variables, but the strength of the causal

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**Figure 2.** A good match between the causal mechanisms of an intervention and the causal variables affecting the behavior problem of a client (thickness represents strength of relationship). We assign values to the variables and paths: (a) the behavior problem is given a relative value of 10, (b).8 for strong causal relations and .2 for weak causal relations, and (c) .8 for causal variables (assuming that all are equally and easily modifiable). Adding all path solutions, the overall magnitude of effect of this treatment for this client is 10.9.
relations and treatment mechanisms differ across the figures.3

Figures 2 and 3 depict different clients with the same behavior problem who are receiving the same treatment. The clients differ only in the strength of the causal relations. Causal variables 1 and 4 have the strongest impact on the behavior problem for Client 1 (Figure 2). Causal variables 2 and 3 have the strongest impact on the behavior problem for Client 2 (Figure 3). Assigning values for all figures, as indicated in Figure 1 (.8 for strong paths, .2 for weak paths; .8 to the “modifiability” of all causal variables because we presume, for this example, that they are highly and equally modifiable), and “10” for the behavior problem (there are no coefficients between treatments and mechanisms), the treatment effects are 10.9 for Client 1 and 5.12 for Client 2. The greater treat-

3 Figures 2–5 were adapted from Haynes, Kaholokula, and Nelson (2000).
ment effects for Client 1 are due to the closer match between the most powerful mechanisms of the treatment and the causal variables with the strongest causal relations to the client’s behavior problem.

Figure 4 depicts the operation of two more narrowly focused treatments. Each treatment involves a single mechanism of action and addresses only one causal variable for the client’s behavior problem—a strong causal relation by Treatment 2 and a weak causal relation by Treatment 3. Using the same values for strong and weak relations as in the previous figures, the treatment effects are 5.1 for Treatment 2 and 1.3 for Treatment 3.

Figure 5 illustrates a treatment with four strong mechanisms of action. The treatment in Figure 5 is the most effective of those presented but its relative cost-effectiveness will depend on: (a) the increased cost (e.g., time, effort) associated with the increased strength of treatment mechanism 2, and (b) the severity of the behavior problem (e.g., greater benefits would be associated with improvements in more severe behavior problems).

From Figures 2–5 we can derive several inferences about the relative magnitudes of effect and cost effectiveness for the four treatments and the importance of matching treatment mechanisms to causal variables. First, holding other variables (e.g., client motivation, negative side effects of treatment) constant, all treatments that address some causal variables for a client’s behavior problems will be effective. Second, the effects of a treatment will be larger to the degree that the most powerful mechanisms of action of the treatment address the most important causal variables for a client’s behavior problems. Third, narrowly focused treatments are likely to be less effective than treatments with multiple mechanisms of action when a client’s behavior problems are affected by multiple causal variables. However, if the causal variables targeted by a narrowly focused treatment have a stronger effect than the other causal variables, the narrowly focused treatment can be more cost effective. The difference in magnitude of effects between two treatments will be a partial function of the relative difference between the treatments in the degree to which they address important causal variables. Finally, treatments that address all important causal variables will always be the most effective if they proportionately address important causal variables. However, they may not be the most cost effective if they disproportionately target less important causal variables.

The Identification of Treatment Mechanisms

In the preceding sections, we suggested that clinicians should first construct a functional analysis and select treatments that address causal variables that have the strongest impact on the behavior problems of a client. However, significant complications attend the task of matching the causal variables and relations identified in a pretreatment functional analysis to the treatments that will have the greatest impact on those causal variables.

First, treatments differ in their level of specificity. Many standardized treatments can affect behavior prob-
lems through *multiple mechanisms of action* (for additional examples of research on the mechanisms of treatment effects, see Carroll, Nich, Frankforter, & Bisighini, 1999). For example, cognitive-behavioral therapy (CBT) with a client who experiences depressive episodes might include components designed to strengthen self-reinforcement, increase the accuracy and thoroughness of interpretive habits, strengthen understanding of how automatic negative thoughts can affect dysphoric mood, and increase the ability to cope with future social-environmental stressors (Beck, 1995).

Second, most standardized treatments have multiple, *unequally weighted mechanisms of action*, as judged by the proportion of time devoted to each treatment component. The weight given to each mechanism is often guided by nomothetically grounded assumptions about the causes of the behavior problem and the most effective mechanisms of treatment. For example, in their discussion of multicomponent behavioral treatment strategies for primary insomnia, Smith and Perlis (2002) “prioritized” stimulus control and sleep restriction components, based on research supporting the causal role of these mechanisms in primary insomnia. Other components in their strategy, such as sleep hygiene and relaxation training, were given less emphasis and allocated fewer treatment sessions.

Third, clinicians often have a limited and uncertain knowledge regarding a treatment’s mechanism of action. This *uncertainty about treatment mechanisms* derives from several sources: (a) discrepancies may exist between purported and actual treatment mechanisms, (b) treatments may have multiple components each with one or more mechanisms of action, (c) a therapist may not be familiar with the treatment mechanism literature, and (d) the mechanisms underlying an effective treatment may not have been identified.

Fourth, treatments purported to rely on a given mechanism for their effectiveness may achieve their effects through other means. For example, eye movements were originally thought to be an important mechanism of action in eye movement desensitization and reprocessing therapy for stress-related disorders. However, recent research (Cahill, Carrigan, & Frueh, 1999) has suggested that its effects may not be due to clients’ eye movements. Discrepancies between purported and validated mechanisms of action suggest that accepting a treatment’s mechanism of action as described in its theoretical rationale is a potentially problematic strategy when selecting treatments to best match the results of a functional analysis.

Fifth, although empirically validated treatments are preferable to unvalidated treatments, *restricting the choice of treatment options to standardized, empirically validated treatments does not resolve the uncertainty of the treatment matching decision*. Establishing the efficacy of a treatment relative to a placebo, or to a control condition in a clinical trial, does not establish the mechanism behind the treatment’s effectiveness. Very few therapies have been subjected to research that has clearly established mechanisms of action. This is in part because the identification of mechanisms of an effective treatment requires a “dismantling” factorial or interrupted time-series research strategy, in which the effects and actions of components of a treatment are subjected to empirical evaluation (Kazdin, 1998).

Multiple components in a treatment package also complicate treatment decisions because it is unclear whether a treatment component would retain its efficacy in the absence of other components. The fact that CBT is an empirically validated treatment for depression says little, either about whether it is likely to affect a particular causal variable, or about the particular treatment components that account for its overall effectiveness.

Another source of uncertainty in matching treatments to causal variables stems from the fact that even if a treatment’s components have an established mechanism of action, there can be other mechanisms of action that have not been identified. To illustrate again with CBT, one behavioral component of CBT for depression typically involves helping the client with prioritizing and organizing his or her daily activities to make them more manageable and rewarding (Beck, 1995). The client-therapist interaction involved in this assistance may affect the client’s mood, above and beyond the change in mood due to increased engagement in pleasant activities. If research addresses only the daily activity component of CBT, the value of the client-therapist interaction in that component, which might contribute to the client’s pleasant social activities, may be underestimated.

**Summary**

Several assumptions underlie the potential effectiveness of idiographic treatments: (a) clients often have multiple behavior problems that can affect each other in complex ways, (b) each behavior problem can be influenced by multiple, interacting causal variables, and (c) standardized treatments differ in the degree to which their mechanisms of action address the most important causal variables for a client’s behavior problems.

The functional analysis, and other models of behavioral clinical case formulation, integrate the clinicians judgments about the client’s behavior problems, important causal variables, and functional relations among variables. The ultimate goal of the functional analysis is to estimate the relative magnitude of effect of each causal
variable so that treatments can be appropriately selected to modify those that are most influential for the client’s behavior problems. The estimated magnitude of effect of a causal variable, and of treatments that focus on that variable, is a function of the importance of behavior problems, causal paths associated with that variable and among behavior problems that it affects, the modifiability of the causal variable, and the strength and direction or causal relations with other variables and behavior problems.

The parameters of a functional analysis can be illustrated with FACCMS. A FACCMM is a vector-graphic model of a functional analysis and illustrates and quantifies all elements of the functional analysis. A FACCMM helps the clinician to communicate about his or her case formulation and to estimate magnitudes of effect associated with each causal variable.

There are several issues associated with the functional analysis: (a) content validity and accuracy, (b) treatment validity, (c) cost-effectiveness and clinical utility, (d) illusory precision, (e) the idiographic nature of the functional analysis, (f) the dynamic and conditional nature of the functional analysis, and (g) the susceptibility to assessor biases.

The task of matching treatments to the unique characteristics of clients is also complicated by several aspects regarding the mechanisms of action of treatments: (a) treatments differ in their level of specificity, (b) most standardized treatments have multiple, unequally weighted mechanisms of action, (c) clinicians often have a limited and uncertain knowledge regarding a treatment’s mechanism of action, (d) treatments purported to rely on a given mechanism for their effectiveness may achieve their effects through other means, (e) it is unclear whether a treatment component would retain its efficacy in the absence of other components, and (f) even if a treatment’s components have an established mechanism of action, there can be other mechanisms of action that have not been identified.

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