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Research—Basic Empirical Research

The impact of the active components of functional analytic psychotherapy on idiographic target behaviors ☆

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ABSTRACT

Basic behavioral principles (e.g., reinforcement) are compelling candidates for research isolating and evaluating psychotherapy mechanisms of change in contextual behavioral science. Functional Analytic Psychotherapy (FAP) is a contextual behavioral treatment approach that teaches therapists to employ behavioral principles, including the evocation of and contingent responding with reinforcement to client behavior live in session, as its hypothesized mechanism of change. FAP also facilitates generalization of in-session improvements to out-of-session contexts. This study evaluated the effect of the active components of FAP – evoking behavior, contingently responding to behavior, and generalizing improvement – on individual target variables of four clients in an A/A+B design. Relationship building aspects of FAP occurred in the A phase; active components were added in the A+B phase. All clients showed changes in target variables after the phase shift per visual inspection, with largely consistent results using simulation modeling analysis. One client dropped out of treatment after the phase shift. Results provide support for FAP's active components as causing the desired changes and move the research closer to isolating specific behavioral principles as the mechanism of change in FAP. Limitations and cautions are discussed.

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1. Introduction

There is a compelling need for empirical investigations to isolate mechanisms of change in psychotherapy (Davison, 1998; Rosen & Davison, 2003) and such research is a priority to contextual behavioral science (Hayes, Levin, Plumb-Vilardaga, Villatte, & Pistorello, 2013). The identification of mechanisms should improve treatments as components unrelated to the mechanism can be dropped and those closely related to the mechanism can be refined and emphasized. In third-wave efforts to build effective treatments around empirically supported mechanisms, traditional behavioral principles that have an established history of translation from the laboratory to the clinic in the first wave of behavioral therapy may serve as a useful starting point (Hayes, 2004).

Behavioral principles such as stimulus control and reinforcement have guided interventions in this fashion for decades: well-timed stimuli that evoke and reinforce targeted behavior will predictably shape targeted behavior and increase their frequency. Controlled single subject investigations have proven of great worth in identifying the value of such applied behavioral interventions in a variety of settings (Kazdin, 2001). In this traditional research, researchers first define a specific target behavior (such as a child with autism responding appropriately to requests), evoke it, apply reinforcement, and then demonstrate that change in the target behavior occurred contingent on the application of reinforcement (Miltenberger, 2001).

Despite the success of these interventions in a variety of settings, the direct use of these principles as change agents in adult, outpatient populations has not been clearly established. This lack of research is not surprising. Controlled single-subject investigations that have guided this research in other areas have obtained a host of methodological problems when attempted in the adult, outpatient environment, such as difficulties with measuring frequency of occurrences of the targeted behavior in the both the client's daily life and in session (Follette & Bonow, 2009; Maitland & Gaynor, 2012). Measurement of client and therapist behavior in session has been difficult due to difficulties defining

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the proper units of analysis in the verbal turn-by-turn context of psychotherapy, requiring elaborate coding schemes (Follette & Bonow, 2009).

One third wave approach that focuses on the application of behavioral principles, consistent with other third-wave approaches, is Functional Analytic Psychotherapy (FAP; Kohlenberg & Tsai, 1991; Tsai et al., 2008). FAP seeks to identify, evoke, and change client clinically relevant behaviors (CRBs) as they occur in-session. FAP focuses on CRB1s, in-session occurrences of daily life problems, and CRB2s, corresponding in-session improvements in problematic repertoires, both defined collaboratively with the client as per his/her presenting issues. Given a close, meaningful therapeutic relationship, therapist behavior that evokes CRBs, naturally blocks, ignores, or punishes CRB1s, and naturally reinforces CRB2s should lead to decreases in the frequency of CRB1s and increases in the frequency of CRB2s in session. These in-session behavioral changes over time should generalize to out-of-session environments (Follette, Naugle, & Callaghan, 1996). CRB3s, also important to FAP, will not be discussed herein.

The therapeutic implementation of FAP's mechanism of change was originally described in terms of five therapeutic rules: (1) watch for CRBs, (2) evoke CRBs, (3) naturally reinforce CRB2s, (4) notice your effect on the client, and (5) provide statements of functional relationships (Kohlenberg & Tsai, 1991). Recently Rule 3 has been expanded to include contingent responding to all CRBs and Rule 5 has been expanded to encourage a wider variety of generalization strategies such as the provision of homework assignments based on in-session interactions (Tsai et al., 2008). In essence, these rules suggest a therapeutic process in which CRBs are assessed, observed, and evoked through the therapeutic relationship (Rules 1 and 2); as they occur in-session they are contingently responded to by the therapist (Rules 3 and 4); and finally functional interpretations of salient in-session interactions and homework assignments related to the interactions promote generalization of behavior changes to out-of-session interactions (Rule 5) (Tsai et al., 2008; Weeks, Kanter, Bonow, Landes, & Busch, 2011). While all five rules are seen as important to FAP, implementation of Rule 3 – natural, contingent responding to CRBs – is the key to FAP's proposed mechanism of change. It is also noted that Rule 3 cannot occur successfully according to FAP without a strong therapeutic relationship, or more specifically in behavioral terms, without the therapist established as a meaningful, salient source of reinforcement for the client (Follette et al., 1996).

Initial research on FAP's mechanism of change has utilized the single-subject methodology that has proven value in other settings but modified it to address some of the methodological problems inherent in the translation to adult, outpatient populations. Specifically, Kanter et al. (2006) provided the first attempt to isolate and evaluate FAP's mechanism of change. They utilized an A/A+B design in which the A phase was cognitive therapy for depression (CT) and the A+B phase included the application of all five FAP rules along with CT after clients reached a stable baseline on target behaviors. Several methodological compromises with respect to traditional single-subject research here were that the target behaviors were defined in the client's language rather than functional behavioral terms, the target behaviors were tracked via client self-report (diary cards) rather than direct observation, and the in-session observation of client and therapist behavior in this report was minimal. Using this methodology, Kanter et al. reported one successful case, who demonstrated a clear and stable decrease in several targeted interpersonal problems after the initiation of FAP, and one unsuccessful case, who dropped out of treatment shortly after the initiation of FAP.

A follow-up analysis of therapy sessions from Kanter et al. (2006) provided detailed turn-by-turn coding of therapist and client behavior in session to look closely at if FAP's mechanism occurred in the successful case (Busch et al., 2009). Results suggested that contingent responding to CRBs occurred at high frequency during the FAP phase but not the CT phase in the successful case, providing initial support for FAP's mechanism.

The current study attempted to further isolate FAP's mechanism from other active therapeutic variables and demonstrate the effect of the active components of FAP (evoking CRBs, contingently responding to CRBs, and promoting generalization of behavior changes) on out-of-session target behaviors in four clients. Specifically, a significant limitation of Kanter et al. (2006) was that *all* of FAP was initiated in the A+B phase, so the effect of FAP's proposed mechanism and active components was not distinguished from other important aspects of FAP such as a focus on the therapeutic relationship. The current study, like Kanter and colleagues, also utilized an A/A+B design. In the current study, as part of ongoing, longer-term therapy, four clients received the relationship building aspects of FAP during the A phase along with other non-FAP related therapy techniques. The relationship building aspects include the therapist interacting naturally with the client, being present in the moment with the client, and being warm and genuine with the client. In the A+B phase active evoking, contingent responding, and promotion of generalization were added to effect change on an individually defined CRB for each client. Thus, the A+B phase can be seen as testing whether the active components of FAP as an integrated set produce change in target variables over and above any changes produced by the general FAP therapeutic relationship. This represents an improvement over previous single-subject FAP research which did not control for the possible effects of the strong FAP therapeutic relationship.

As in Kanter et al. (2006), clients in the current study were diagnosed with major depression and presented with significant interpersonal problems, including co-morbid personality disorders. For each client, a specific behavior from the case conceptualization was identified and targeted with the FAP techniques. Clients tracked the frequency of the behavior in their daily lives using diary cards as in Kanter and colleagues. A modified non-concurrent multiple baseline design across subjects was employed, in which the A+B phase was implemented as baseline stability on the target behavior (determined via visual inspection of the plotted data) was achieved on a client-by-client basis. Although this design is less desirable than the standard approach it is acceptable when a standard multiple baseline design is impractical (Barlow & Hersen, 1984). Because we were interested in isolating the effects of FAP's active components on targeted variables in adult outpatients with significant problems as part of ongoing therapy (which extended beyond the research protocol reported on herein), we present results for the target variables but do not report on overall client outcomes. The relationship between FAP's active components and overall outcomes in FAP is explored in the discussion.

2. Method

2.1. Participants

Clients were adult individuals treated at a university Psychology Department training clinic.

Inclusion criteria consisted of: (1) current primary DSM-IV diagnosis of Major Depressive Disorder, (2) current DSM-IV diagnosis of any personality disorder (including Depressive Personality Disorder), (3) age 18 or higher, (4) a score of 16 or greater on the 17-item Hamilton Rating Scale for Depression (Hamilton, 1960), (5) a score of 20 or greater on the Beck Depression Inventory (Beck, Ward, Mock, & Erbaugh, 1961), (6) not currently receiving

psychotherapy, and (7) no initiation or change in dosage of any psychotropic medication 8 weeks preceding participation.

Exclusion criteria consisted of: (1) history of psychosis, (2) subnormal intellectual functioning (suspected IQ below 80), (3) Bipolar Disorder, (4) major, imminent suicide risk requiring hospitalization, and (5) substance dependence within the past 6 months.

Seven clients met inclusion criteria and received some therapy. Two clients dropped out of therapy (one presented psychotic symptoms over the first several sessions and dropped out in Session 4, and one terminated after two sessions after being unable to find day care for her children), and one client was removed from the study due to a sudden increase in depression during Phase A before baseline levels of target behaviors reached stability. Thus, here we report on the four clients who both achieved stable baselines on their target behaviors and were subsequently provided FAP techniques directed toward their target behaviors for at least one session in the FAP phase. These clients are described in more detail in Section 4.

2.2. Procedures

All procedures were approved by the local Institutional Review Board. Recruitment occurred via standard clinic referrals and print advertisements for multiple treatment studies. Individuals entering the study via clinic referral completed standard procedure for prospective clients, including an interview with the intake worker.

Individuals recruited through advertising called a telephone number and an automated voice mail system directed them to the appropriate voice mail box for studies based on answers to questions, where individuals left contact information.

For all possible participants, after the intake interview or over the phone, the intake worker provided a brief description of the requirements of the study and if interested, individuals were scheduled for an initial research assessment that started with an informed consent procedure.

3. Materials

3.1. Diagnostic

Two measures were used for diagnostic ascertainment, the *Structured Clinical Interview for DSM-IV* (SCID-I: First, Spitzer, Gibbon, & Williams, 2002) and the *Structured Clinical Interview for DSM-IV for Axis II* (SCID-II: First, Spitzer, Gibbon, & Williams, 1997). The SCID-I and SCID-II are semi-structured psychiatric interviews designed to yield judgments with respect to DSM-IV Axis I and Axis II disorders, respectively.

3.2. Symptomatic

Two measures of depressive symptoms were used: the *Hamilton Rating Scale for Depression* (HAM-D; Hamilton, 1960) and the *Beck Depression Inventory* (BDI; Beck et al., 1961).

The HAM-D is a clinician-rated standardized scale for measuring depressed mood. It consists of 17 depressive symptoms that are rated on either a three-point (0–2) or five-point (0–4) scale. Total scores of 10–13 suggest mild depressive symptomatology; scores between 14 and 17 suggest mild to moderate depression; and scores greater than 17 indicate severe depressive symptoms. The HAM-D has been shown to have adequate to good internal consistency, test–retest reliability, and interrater reliability (Bagby, Ryder, Schuller, & Marshall, 2004).

The BDI is 21-item self-report measure designed to assess the intensity of depression. Scores range from 0 to 63. Scores of 5–9 indicate no or minimal depression, 10–18 indicate mild to moderate depression, 19–29 indicate moderate to severe depression, and 30–63 indicate severe depression. The BDI has high internal consistency, good test–retest reliability, and high validity (Beck, Steer, & Garbin, 1988; Richter, Werner, Heerlim, Kraus, & Sauer, 1998).

3.3. Idiographic target behaviors

As in Kanter et al. (2006), during each client's initial sessions, the client and therapist collaboratively identified idiographic target behaviors. The client was then provided with a diary card to track the frequency of the target behavior outside of session. Diary cards were reviewed weekly by therapists who provided instruction and clarification to the clients on how to report the occurrence of target behaviors accurately. Operational definitions of occurrences and non-occurrences of the target behavior as it would look in-vivo with the therapist were created and then targeted by therapist contingent responding with the initiation of the FAP phase of therapy (described below). To avoid confusion, the target behaviors the clients tracked in their daily life via diary cards will be referred to as "diary card targets" and the in-vivo instantiations of these behaviors will be referred to as either CRB1s or CRB2s. Diary card targets were defined collaboratively with the client and thus used the client's language rather than technical behavioral language.

3.4. Treatment

Treatment began with a case conceptualization and identification of potential target variables. Therapy in Phase A consisted of techniques that varied from client to client (described below) but always included building a strong therapeutic relationship; being supportive, warm, and enthusiastic about client's progress on outside goals; and following Rule 1 which consisted of the therapist observing and noticing the client's targeted CRBs. During the baseline phase, therapists were told to avoid strategically evoking or contingently responding to any CRB. When CRB were naturally evoked by the therapy context, therapists were instructed to simply observe the CRB and continue with the previous thread of conversation as appropriate. Use of generalization strategies (e.g., assigning homework) was prohibited during Phase A.

When baseline stability was achieved on the target behavior, the FAP phase was initiated. FAP was administered as described in the original FAP text (Kohlenberg & Tsai, 1991), with emphasis on a process in which the therapist employs all five FAP rules in a single session if possible to maximize the impact of FAP on the target behavior (Weeks et al., 2011). Specifically, the FAP phase, in addition to observing CRBs (Rule 1), consisted of actively evoking CRBs (Rule 2), natural contingent responding to in-session CRBs (Rule 3), assessing the reinforcing or punitive effects of the therapist's responses (Rule 4), and incorporation of specific generalization strategies (Rule 5).

Some examples demonstrated by the therapists of reinforcement of CRB2s in this study included: giving the client what she requested (e.g., complying with a request for a change of schedule) when the request was made assertively, highlighting the positive impact of the client's disclosure on the therapist (e.g., "I feel closer to you when you tell me how you feel instead of making jokes"), and commenting on the effectiveness of the client's behavior (e.g., "When you are open with me and tell me how you feel, it makes me feel more connected to you and I feel more committed to treatment with you"). Therapist responses to CRB1s included gently blocking avoidance behavior and prompting alternative behaviors (typically the corresponding CRB2 according to the case conceptualization), and gently punishing the behavior (often by

simply pointing out to the client that the behavior was occurring; e.g., "That sounds more like criticizing others to me than telling me about what you did that was a problem.").

Regarding Rule 4 of noticing your effect on the client, therapists were encouraged to "process" interactions that involved an improvement and subsequent contingent responding with the client. This typically consisted of asking the client how the interaction felt, and if he or she might be more or less likely to engage in the behavior again in the future. Rule 4 also included the covert therapist behavior of observing the change in CRB over time.

Regarding Rule 5 of generalizing the behavior change, while processing successful interactions, therapists were encouraged to describe the successful interaction in detail, discuss when and how they might try the successful behavior with others in the client's daily life, and assign homework related to these discussions.

3.4.1. Therapists

Study therapists were a clinical psychologist (the second author) and an upper level graduate student (the fourth author). The clinical psychologist is a known expert in research and training of FAP with 10 years prior therapy experience. The upper level graduate student had 2 previous years of FAP supervision, had attended numerous FAP workshops, and had conducted 5 previous FAP cases.

3.4.2. Supervision and adherence coding

During both phases of the study the therapists met weekly with the first author for supervision in which videotapes were reviewed and feedback provided. The supervisor noted no significant deviations from protocol during baseline. In other words, therapists appeared to successfully avoid implementation of the active components of FAP during the baseline phase, whereas the first FAP sessions included obvious and significant implementation of techniques involved in FAP's active components. The frequency of FAP techniques varied from session to session throughout the remainder of the FAP phase of the study.

To supplement the supervision observations of the first author, the last baseline session and the first FAP session were coded by trained raters using the Functional Analytic Psychotherapy Rating Scale (FAPRS; Callaghan, Follette, Ruckstuhl, & Linnerooth, 2008; Callaghan, Ruckstuhl, & Busch, 2005). The FAPRS has several therapist and client codes that capture the process of FAP on a turn-by-turn level. Here we report on the three categories of codes that are specifically relevant to this paper: (1) *FAP behavior allowable in the A phase*, (2) *FAP behavior only allowable in the A+B phase*, and (3) *all other codes* (i.e., *non-FAP related behavior*). *FAP codes allowable in the A phase* consisted of the code "Therapist Focus on the Therapy Relationship" (TFR) and those FAP behaviors that pertained only to Rule 1. TFR reflected when the therapist speech focused on the therapeutic relationship but the statement did not function as a more specific FAP code, such as shaping or evoking CRB. This code is important because much of the discussion during FAP sessions centers on building a strong relationship; however, not every therapist statement regarding the relationship will be a specific FAP rule.

FAP codes only allowable in the A+B phase consisted of the active components of FAP behaviors that make up Rules 2–5, which a specific code for each rule.

Prior to coding, coders were provided with a detailed case conceptualization and any questions about it were discussed. This allowed coders to restrict Rule 3 codes (i.e., reinforcing responses provided by the therapist) to responses targeted at specific CRBs as per the case conceptualizations, rather than generally reinforcing responding (e.g., for coming to session and for building the therapy relationship). Furthermore, a coding hierarchy was used such that if a specific turn-at-speech met criteria for multiple codes, FAP codes only allowable in the A+B phase would be coded over FAP codes allowable in the A phase. For example, if a therapist turn-at-speech was both a Rule 1 and a Rule 3, Rule 3 would get coded. This was done to ensure that any FAP codes of Rules 2 through 5 would be coded as data if they occurred in either the A or A+B phases.

For the purposes of the current report, we summed all three categories (FAP codes allowable in the A phase, FAP codes allowable in the A+B phase, and other (non-FAP) codes) to the session level. This summarization of turn-by-turn FAP behavior to the session level is comparable to previous reports of similar coding of FAP and non-FAP sessions (Kanter et al., 2009; Kanter, Schildcrout, & Kohlenberg, 2005). The research team is preparing a detailed turn-by-turn analysis of these coded FAP sessions to precisely describe the nature of FAP techniques used, including the nature of contingent responding to specific CRBs. Such a detailed analysis is beyond the scope of the current paper.

The raters were the second author (Rater A) and two trained graduate students (Raters B and C). Raters B and C were blind to the hypotheses of the study, client outcomes, and what session was being selected for coding. Sessions were digitally recorded and raters rated each session in its entirety in pairs, based on procedures to increase reliability established in other FAPRS coding research (Busch et al., 2009; Busch, Callaghan, Kanter, Baruch, & Weeks, 2010). Previous studies have shown that graduate student coders can achieve good (i.e., Kappa $>.65$; Fleiss, 1981) or better levels of agreement when coding with the FAPRS in pairs (Busch et al., 2009, 2010). Raters coded each turn of speech for the presence of a code, and, when necessary, discussed disagreements in codes until an agreement was reached. The same procedure was used in Kanter et al. (2009) to investigate the use of present-focused interventions in cognitive and behavioral therapies. Raters B and C rated the four FAP sessions (A+B phase) and Raters A and C rated the baseline sessions. A limitation of this arrangement was that Rater A was not blind to study hypotheses. To establish reliability, the three raters individually coded segments of between 10 and 30 turns of speech from 6 sessions from the study (but not the last baseline session or first FAP session as those were coded for data analysis). Kappa analyses indicated good agreement between raters on the three categories relevant to this study: Rater A with Rater B Kappa $=.93$, Rater A with Rater C Kappa $=.95$, Rater B with Rater C Kappa $=.85$.

4. Results

4.1. Adherence to treatment

Table 1 presents results of adherence coding of therapist turns at speech during each client's last baseline session and first FAP session. It presents the total number of therapist turns in the session, the percentage of turns in which FAP behaviors allowable during baseline occurred (general focus on the therapy relationship and Rule 1), and the percentage of turns in which the active component of FAP behaviors encouraged during the FAP phase occurred (Rules 2–5). Results suggest that the therapists were largely adherent to study protocol in the last baseline session and first FAP session, with very few turns coded as active components of FAP in the baseline session and a significant number of turns coded as active components of FAP in the first FAP session.

4.2. Target variables

Table 2 describes each client's target behavior and how the behavior was defined as in-session CRB1s (problematic behaviors)

Table 1
Adherence coding results.

	C1	C2	C3	C4
Baseline session				
Total therapist turns at speech	100	100	100	86
Turns with FAP Rule 1 codes (allowable during baseline)	7	1	3	0
Turns with FAP Rules 2, 3, 4, and 5 codes	4	2	3	0
First FAP session				
Total therapist turns at speech	147	205	192	93
Turns with FAP Rule 1 codes (allowable during baseline)	9	8	11	8
Turns with FAP Rules 2, 3, 4, and 5 codes	48	36	75	42

Table 2
Target behaviors and examples.

Client	Target behavior	Daily life examples	CRB1	CRB2
1	Initiating conversations	Initiating conversations in social settings (e.g., talking with other students, calling a friend)	Extreme passivity in conversations (e.g., deferring to therapist for therapy topics, and avoidance of topics)	Initiating topics and making requests (e.g., setting agenda for therapy session)
2	Making critical comments	Criticizing others' behaviors or choices and talking negatively about others	Talking negatively about others to the therapist (e.g., placing blame for problems and life circumstances on others)	Acknowledging her effect on others to the therapist (e.g., describing life circumstances non-judgmentally and accepting responsibility for her part)
3	High self-esteem behaviors	Noticing his emotions and taking care of himself (e.g., turning on the air conditioner in the car when he normally would not)	Inability to describe or tolerate his emotions in session (e.g., avoiding emotional topics)	Pro-social, genuine emotional responding (e.g., sharing information or feelings)
4	Being assertive in risky situations	Expressing to his ex-girlfriend how he felt about her cheating on him and interacting with people in his peer group	Passive, not genuine responding (e.g., being passive with respect to therapy topics with the therapist and not being genuine)	Genuine expression (e.g., clearly stating desired therapy topics)

or CRB2s (improvements). Fig. 1 presents the weekly self-reported frequency of target behaviors for each client. In this figure, the *X*-axis displays both session numbers (the top number) and weeks (the bottom number), thereby indicating when a session did not occur in a given week (e.g., Client 1, Week 4), and when two sessions were scheduled in a given week (e.g., Client 1, Week 5). The plotted results for each client are supplemented with simulation modeling analysis for brief time-series data streams (SMA; Borckardt et al., 2008), using 10,000 simulations, to determine the statistical significance of the difference between the mean weekly frequency of target behavior in the FAP phase compared to the baseline phase, accounting for autocorrelation, for each client.

4.2.1. Client 1

Client 1 (C1) was a 44-year-old divorced Caucasian female graduate student with Major Depressive Disorder, Generalized Anxiety Disorder, and Depressive Personality Disorder. She reported interpersonal problems including a limited social network, difficulty initiating conversations, and frequently experiencing neutral responses from others as punitive or hurtful. Her difficulties were complicated by fibromyalgia, a medical condition that limited her energy and ability to be active at times. C1's target behavior tracked on the diary card was “initiating conversations,” a behavior she wished to increase in frequency, and her in-session CRB2s were “initiating topics” and “making requests.” C1's in-session CRB1 was defined by C1 and the therapist as “extreme passivity in conversations.”

C1's baseline phase therapy focused on validating her symptoms associated with fibromyalgia and discussing interpersonal conflicts and perceived insults from family; to avoid reinforcement of CRB2s in the baseline, the therapist focused validation on the client's experience and feelings, and not on attempts to initiate conversations. FAP sessions, starting in Session 6, focused on therapist reinforcement of C1's initiation of therapy topics combined with continued focus on baseline phase topics. C1 canceled three consecutive sessions following the first FAP session due to increased pain associated with her fibromyalgia, but maintained her diary card for 2 of those 3 weeks. In Session 10, she stated that her target behavior tracked on the diary card was no longer a focus of concern for her and requested that therapy begin to address other topics.

Diary card data for C1 is depicted in Panel C1 of Fig. 1. Visual inspection shows the target behavior reached a stable baseline, and a clear increase in frequency occurred after the phase shift. While frequency following the phase shift became somewhat variable, overall the target behavior maintained an increased frequency as compared to baseline levels throughout the remaining portion of recorded treatment. Using SMA, the mean frequency of target behavior in the FAP phase ($M=2.13$) was marginally significantly higher than the mean frequency of target behavior in the baseline phase ($M=.25$), $r=.70$, $p=.056$.

4.2.2. Client 2

Client 2 (C2) was a 20-year-old single Caucasian female college student with Major Depressive Disorder and Avoidant, Obsessive Compulsive, and Depressive Personality Disorders. Her reported interpersonal problems included a complicated family situation, frequent interpersonal conflicts with coworkers, a difficult romantic relationship, and few friends. C2's target behavior tracked on the diary card was operationally defined as “making critical comments,” a behavior which she wished to decrease in frequency. Her in-session CRB1 was “talking negatively about others” and a corresponding in-session CRB2 was “acknowledging her effect on others.”

C2's baseline therapy focused on discussions of her relationships with family, coworkers, and boyfriend. Her first FAP session

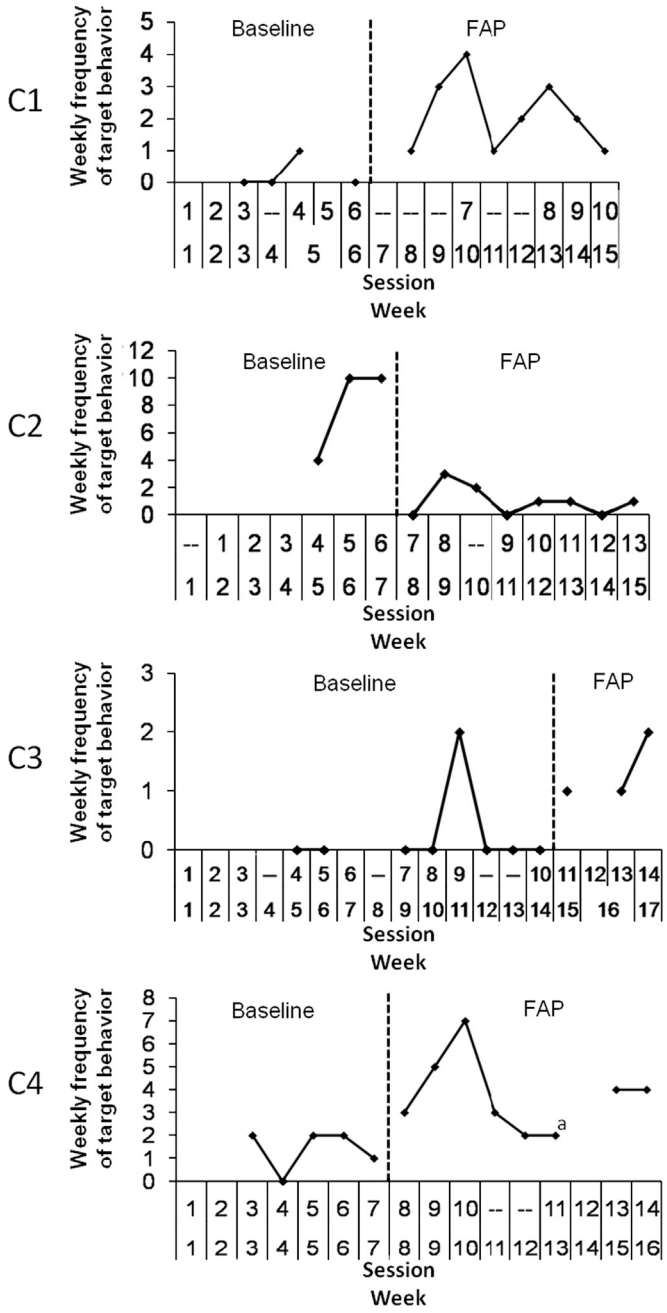

Fig. 1. Diary card target data for each participant. For Clients 1, 3, and 4, the target behaviors were desirable (and should increase after the intervention, if successful). For Client 2, the target behavior was undesirable (and should decrease after the intervention, if successful). [a]Client only collected diary card data for 4 days this week.

occurred on Session 6 and focused on the therapist giving her direct feedback about how he felt when she was complaining about others versus talking genuinely about how she felt and acknowledging her contributions to conflicts. C2 was prompted to talk directly about herself and the therapist provided positive feedback about feeling closer to her when she did so. In Session 13, C2 reported the unexpected death of a close family member. Therapy shifted to focus on grief and it was deemed inappropriate to ask her to continue with study procedures.

Diary card data for C2 is depicted in Panel C2 of Fig. 1. Visual inspection of the data shows a baseline trending upwards, opposite of the desired direction, prior to the phase shift, followed by a clear decrease in frequency following the phase shift. The frequency of "making critical comments" continued to remain low and relatively stable for the remaining portion of treatment. Using SMA, the mean frequency of target behavior in the FAP phase ($M=1.0$) was significantly lower (the target was a CRB1 to be decreased in the FAP phase) than the mean frequency of target behavior in the baseline phase ($M=8.0$), $r=-.88$, $p=.004$.

4.2.3. Client 3

Client 3 (C3) was a 28-year-old single biracial male who was enrolled in technical college with Major Depressive Disorder; Past Alcohol Abuse, Sustained Full Remission; and Avoidant, Depressive, and Borderline Personality Disorders. He reported that his last incident of self-injury was seven years prior. C3 reported feeling depressed since childhood, as well as a history of suicidal and homicidal ideation. His psychosocial history was significant for incidents of being sexually and physically abused, as well as being raised practicing a religion prohibiting interaction with non-members. C3 reported difficulty with interpersonal relationships, having few friends, experiencing aggressive urges and "ill wishing" towards others, and difficulty interacting with women.

C3's target behavior tracked on the diary card was defined as "high self-esteem behaviors," and was a behavior that C3 wished to increase in frequency. This target behavior took some time for the therapist and client to collaboratively identify and label, because C3 wanted to work on his self-esteem and had difficulty identifying more behaviorally precise targets. The therapist and C3 spent some time defining what would constitute high self-esteem behaviors for C3, which ultimately were framed as any behavior in which he was able to notice and respond to his emotions with self-care behaviors rather than avoidance. His in-session CRB2 was defined as "pro-social, genuine emotional responding" and the consequent CRB1 was defined as "inability to describe or tolerate his emotions in session."

C3's baseline therapy varied from week to week depending on C3's mood, ranging from discussions of conflicts at work, his tendency to avoid real relationships, and periods of dissociation during session. During C3's first FAP session, Session 10, the therapist suggested that they use the therapeutic relationship for C3 to practice engaging in more "high self-esteem behaviors" and improving his connection with the therapist but C3 responded that he did not understand the benefit of feeling more connected to the therapist and remained avoidant. In subsequent sessions, C3 maintained that he saw no benefit in getting closer to the therapist, or other people, and saw no relation between his problems with "self-esteem" and his lack of genuine relationships. He did not return for Session 15 and was unable to be contacted thereafter.

Diary card data for C3 is depicted in Panel C3 in Fig. 1. Visual inspection of the data for C3 shows a primarily stable baseline—most weeks C3 reported no instances of "self-esteem behavior" with only one week of two instances of the behavior prior to the phase shift. Following the phase shift, the data appears to be trending upward, but the improvements never exceed the bandwidth established during baseline. The upward trend is significant in the SMA, with the mean frequency of target behavior in the FAP phase ($M=1.33$) significantly higher than the mean frequency of target behavior in the baseline phase ($M=.25$), $r=62$, $p=.049$.

4.2.4. Client 4

Client 4 (C4) was a 26-year-old single Caucasian male graduate student with Major Depressive Disorder and Depressive Personality Disorder. C4 described a difficult childhood, including the death of a parent, and was recently recovering from a complicated breakup from his girlfriend. C4 reported difficulties including a small social network, lack of a romantic relationship, and difficulty interacting with people in his age group. C4's target behavior

tracked on the diary card was defined as "being assertive/taking initiative," a behavior he wished to increase in frequency. His in-session CRB2 was defined as "genuine expression" and his in-session CRB1 was defined as "passive, not genuine responding." He and the therapist talked about being genuine with others and "being who I am without hiding it" as ways of being assertive in social situations.

C4's baseline therapy consisted primarily of discussion of his feelings about and continuing difficulties with his ex-girlfriend, some behavioral activation strategies to increase his social network, and discussion of being more assertive in social situations. The FAP interactions in C4's first FAP session, Session 7, involved the therapist responding with strong validation and acceptance after prompting C4 to be more assertive and genuine in the therapy relationship (e.g., the therapist highlighted that the client was being more genuine and having more emotions and said "I like that" and later highlighted that it made him feel closer to the client. This theme continued through the next several sessions. Following Session 10, the study therapist was out of town for two weeks, during which C4 continued to monitor his target behavior. In Session 15, C4 requested that he stop tracking his target behavior tracked on the diary card as he felt "I am just doing it all the time now" and only reported some of the behaviors on his diary card for the past two weeks. The therapist complied with this request (a CRB2) and diary card data collection stopped at this point.

Diary card data for C4 is depicted in Panel C4 in Fig. 1. Visual inspection of the data shows a stable bandwidth during the baseline phase, followed by a marked increase in the desired direction after the phase shift. During Weeks 11 and 12, the therapist was out of town but the client continued to track the behavior with his diary card. The downward trend during these weeks suggests that the generalization of the behavior from in-session to daily life was dependent on the therapy sessions. The data collected at Session 11 only represents four days of tracking, and the data from Session 14 is an underestimation of the actual frequency of the target behavior, according to the client's self-report. Including these questionable data points in the SMA, the mean frequency of target behavior in the FAP phase ($M=3.75$) was not significantly higher than the mean frequency of target behavior in the baseline phase ($M=1.40$), $r=.65$, $p=.101$. When the questionable data points are removed, the p-value improves slightly, to the marginally significant range, $r=.70$, $p=.095$.

5. Discussion

This study suggests that FAP strategies designed to evoke clinically relevant behavior in session, shape it with contingent responding, and generalize improvements may have a positive immediate effect on out-of-session target behaviors. Three of the four clients (C1, C2, and C4) demonstrated clear and easily interpretable changes in idiographic target behaviors after the introduction of these active components of FAP. The fourth client, C3, was more complicated, demonstrating a brief upward trend in the target behavior after the introduction of FAP but dropping out of treatment shortly thereafter. Simulation modeling analyses of the data confirmed significant changes after the phase shift in two cases (C2, C3) and marginally significant changes in the other two (C1, C4). This provides replication and improvement on the successful case reported in Kanter et al. (2006) and replication of this effect across three clients in the current study.

C3 is instructive and replicates the drop-out after the FAP phase shift reported in Kanter et al. (2006). Detailed analyses of therapy sessions of these clients may shed light on FAP processes that predict poor response. While such analyses are beyond the scope of the current study, the primary hypothesis is that the therapy sessions in these cases were characterized by a greater ratio of therapist responses to CRB1s (punitive responses) to therapist responses to CRB2s (reinforcing responses), resulting in the therapy experience becoming aversive. In both cases, after the initiation of FAP the clients maintained that genuine and intimate relationships were not relevant to their problems (i.e., they did not accept the FAP rationale) but the therapist continued to advocate for the importance of the relationship. These clients represent an important line of research that should be undertaken in FAP to understand when, with whom, and how to implement *and not implement* FAP techniques.

The current study did not test the efficacy of FAP for clients with depression and interpersonal problems, so it does not provide evidence for FAP as a treatment package with respect to overall outcomes. It does, however, suggest that FAP techniques may be used to target specific behavior change within the context of therapy for these issues. Along these lines, it also may be worth noting that FAP techniques are included as part of Dialectical Behavior Therapy (DBT; Linehan, 1993) for Borderline Personality Disorder and are also largely consistent with techniques of Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999; Pierson & Hayes, 2007). For example, Linehan encourages the therapist to reinforce any use of skills in the therapy session, as well as more effective behavior with the therapist at any time (Waltz, Landes, & Holman, 2010) and Pierson and Hayes (2007) discuss the importance of the moment-to-moment interaction in the ACT therapeutic relationship and the value of noticing ACT treatment targets in the moment-to-moment interaction. The current study thus suggests that FAP techniques in DBT to target specific behavior change may be one of the active ingredients of DBT, and that FAP techniques in ACT may be beneficial for increasing the frequency of key FAP targets inside and outside the ACT therapy relationship (see also Baruch, Kanter, Busch, & Juskiewicz, 2009; Callaghan, Gregg, Marx, Kohlenberg, & Gifford, 2004; Kohlenberg & Callaghan, 2009).

While the current study represents the most methodologically sound research on FAP's active components to date, it has a number of important limitations. Because this study represents an advance over previous FAP research, we believe these limitations represent important lines for future FAP research and do not detract from the significance of the current work. The first limitation is that the study did not measure a crucial component of FAP's mechanism which is *in-session* client behavior change. A complete articulation of FAP's mechanism is: (a) the client demonstrates problem behaviors in his/her daily life, (b) these problem behaviors generalize into the therapy relationship as CRB1, (c) the therapist contingently responds to client behavior in session, (d) the client demonstrates an increase in CRB2s in session, and (e) these in-session improvements generalize to the client's daily life. The current study measured the client's daily life behaviors (a) and (e) in the sequence, with some support for FAP's active components (c) through adherence coding, but the current study did not demonstrate changes in the important client behavior variables (b) and (d) in session, nor did it precisely measure the occurrence of contingent responding per se in the FAP phase. To explore the full sequence, the current study must be supplemented with detailed analyses of in-session variables, as Busch et al. (2009) did with respect to Kanter et al. (2006).

Such detailed process analyses might shed light on additional confounds in the current study. Specifically, Table 1 suggests that the number of therapist turns was much higher in the A+B phase than the A phase, but still only a minority of therapist turns in the A+B phase were active FAP turns. This (a) raises the possibility that increased therapist engagement or activity in the A+B phase produced some effects rather than the active components of FAP, and (b) raises questions as to what else happened in the A+B

phase other than the active components of FAP. Likewise, there was no measurement of the degree to which the therapist was established as a salient reinforcer for the clients, or to put it less behaviorally, of the therapeutic alliance, in the A phase, or if this stayed the same or increased in the A+B phase. Future researchers could address these possibilities with coding schemes that code for alliance and engagement as well as administration of alternate techniques such as acceptance or even cognitive restructuring. This could also be addressed by adding session-by-session measures of the therapeutic alliance.

A second limitation is that while the current study improved upon Kanter et al. (2006) with respect to isolating FAP's mechanism from the relationship-building aspects of FAP, it did not fully isolate contingent responding to CRBs from other active components, specifically evoking CRBs and generalization strategies. For example, generalization strategies included encouraging clients to increase the frequency of target behaviors out-of-session after contingent responding in session occurred. In the A phase of the study, clients were instructed on the use of the diary cards to measure target behavior, and target behaviors were discussed, but in the FAP phase, therapists may have been more direct about encouraging clients to try to change their behavior, including assigning out of session homework consistent with positive change in the target behavior. This alone could account for the results presented above, especially given that the data were obtained via client self-report which could be subject to influence by the therapist. Detailed analyses of therapy sessions of these cases will be instructive with respect to the interaction of contingent responding and generalization strategies, and future studies may employ generalization strategies (i.e., simple provision of instructions/rules to change the target behavior) during Phase A to control for them as well. It is likely that both strategies interact to produce the strongest effects.

A third limitation is that the current study reports no follow-up data and therefore only speaks to the immediate effects of FAP's active components. It does not address the stability of the target behavior changes after therapy ends. This is an important limitation and future research should include follow-up data.

A fourth limitation is that the modified non-concurrent design resulted in clients starting treatment at different times, resulting in less control for the effects of history, and baseline lengths for the three successful clients were not substantially different from each other (6, 6, and 7 sessions); only the unsuccessful case was different (Session 10). Thus, it may be that the timing of the intervention was the influential factor, rather than the content. However, in Kanter et al. (2006), the successful case started FAP in Session 12, while the unsuccessful case started in Session 8. Given the nature of the population studied and their presenting problems, true concurrent or non-concurrent multiple baseline designs may not be feasible in the future. Nonetheless, it will be important to establish that FAP's active components have an effect on target variables throughout the course of therapy.

Finally, it is important to note that FAP as conducted in this research may not parallel FAP as conducted in natural clinical practice. In particular, CRBs and target behaviors tracked on the diary card in this study were developed and chosen with awareness of what potentially could be reliably and validly tracked by clients and what might change in frequency after the sudden introduction of FAP techniques. FAP in natural practice ideally involves the identification of CRBs as functionally defined response classes, linked to a larger case conceptualization, and the gradual introduction of FAP techniques as appropriate. Research on more natural, potentially ecological valid FAP protocols will be important to conduct in the future.

In summary, this study replicates previous research (Kanter et al., 2006) by demonstrating the effect of FAP's active components – evoking CRBs, therapist contingent responding, and generalizing improvements – with three successful cases. It also replicates an earlier result suggesting that some clients may react poorly to FAP techniques if they are rapidly started and maintained without strong collaboration with the client. To our knowledge, this is the first study to successfully demonstrate across multiple cases that the active techniques of FAP may have an effect on out-of-session target behavior, for adult, outpatient populations. Although this particular study instantiated these principles through FAP rules, the principles are broadly applicable and, with additional study, may become model empirically supported principles of change (Rosen & Davison, 2003). To address several limitations of the current research and further isolate the primary FAP mechanism of contingent responding from other active components, additional study may include process analyses of successful and unsuccessful cases to fully explore contingent responding as it occurred during the therapy process, the inclusion of instructions/rules to change the target behavior in the baseline phase to control for the effects of generalization strategies on behavior change, the collection of follow-up data to explore the stability of the changes, and additional clients to explore the impact of FAP techniques with different clients and at different points in the therapy process.

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