

# A Single-Case Experimental Demonstration of Functional Analytic Psychotherapy with Two Clients with Severe Interpersonal Problems

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## Abstract

Functional Analytic Psychotherapy (FAP) is emerging as an effective psychotherapy for psychiatric clinical cases. However, there is little research demonstrating the process of change of FAP. The present study evaluated the introduction and withdrawal of FAP interventions on therapy-interfering verbal behaviors of two participants who were in therapy with the researcher. The single-case experimental design was A-B1-B2-C1-C2 (A= therapy without planned interventions; B1 and B2 = introduction of FAP, and C1 and C2 = FAP withdrawal) and occurred over 20 sessions for each client. Results demonstrated both intrasubject and intersubject replication of the effects of FAP interventions on the verbal behavior of clients and confirmed that the main mechanism of change involved in FAP is the direct shaping of behavior in session, within the context of the therapeutic relationship.

## Keywords

Functional Analytic Psychotherapy, contingency shaped behavior, single-case experimental design, process research, DSM-IV Axis II

Functional Analytic Psychotherapy (Kohlenberg & Tsai, 1991) is a behavior analytic approach to psychotherapy that emphasizes as its hypothesized mechanism of change the therapist's provision of natural contingent reinforcement to shape clients' clinically relevant behaviors (CRBs) when they occur in the therapeutic relationship. More specifically, the goal of FAP is for the therapist to contingently respond to decrease CRB1s (in-session problem behaviors) and increase CRB2s (in-session improvement behaviors) over the course of therapy. A secondary goal in FAP is to increase CRB3s. According to Kohlenberg and Tsai (1991), CRB3s, which represent client attempts to provide functional analyses of their own behavior that should be shaped by the FAP therapist in session, should also increase over the course of therapy, facilitating the generalization of in-session gains to out-of-session environments. Many descriptive case studies on FAP have been published since Kohlenberg and Tsai's book in 1991, and the efficacy of FAP as treatment has gained some support (for a review see Ferro, 2008), but there are limited data specifically supporting the mechanism of change in FAP.

In the first empirical investigation of FAP's mechanism, Callaghan, Summers and Weidman (2003) created the FAP Rating Scale (FAPRS), a reliable and valid FAP process coding system that identifies CRBs and contingent therapist responses on a turn-by-turn basis. The FAPRS may be particularly suited to single subject experimental designs, because it may be used to code multiple therapy sessions in sequence and thus may generate repeated measures of the dependent variable. In addition, the FAPRS allows for the measurement of the dependent variable to be customized for each client since each presents different clinically relevant behaviors that may be identified and measured. Using the FAPRS, Callaghan et al. (2003) coded four 15-minute segments of client-therapist interactions during the

uncontrolled FAP treatment of a personality disordered client with histrionic and narcissistic features, and found that CRB1s decreased and CRB2s and CRB3s increased over the course of therapy. This provided an initial indication that FAP's mechanism was active (Callaghan et al., 2003).

Busch, Callaghan, Kanter, Baruch and Weeks (2010) then demonstrated that the FAPRS could be applied reliably with an independent set of raters. As in Callaghan et al. (2003), in this uncontrolled study in which FAP was applied throughout therapy the client's CRB1s decreased and CRB2s increased over the course of therapy (CRB3s were not reported in this study). In addition, lag sequential analyses suggested that CRBs were successfully responded to at high rates with contingent reinforcement as per FAP's hypothesized mechanism of change.

Kanter et al. (2006) provided single subject data on two clients who received Cognitive Behavior Therapy (CBT) and then FAP in a within-subject A/A+B design. In this study, out-of-session behavior was measured via client self-report. Client 1 showed slight decreases in the targeted behaviors after the initiation of FAP but he dropped out of therapy shortly after FAP was introduced. Client 2 demonstrated immediate improvements in her targeted behaviors when FAP was introduced which were maintained for the remainder of FAP treatment. Busch et al. (2009) then coded every session of Client 2 with the FAPRS, linking the out-of-session improvements identified by Kanter et al. (2006) with in-session improvements measured by the FAPRS. Busch et al. (2009) also replicated previous findings using lag analyses that therapist responding successfully shaped client in-session behavior during FAP but not during CBT.

Overall, this series of studies using the FAPRS has provided some evidence that therapist responding to CRBs is a viable mechanism of change in FAP. However, the experimental designs

of these studies lacked the precision to demonstrate the mechanism with confidence and a number of limitations exist. First, the passage of time was not controlled for any case presented. Second, a functional evaluation was not properly performed to accurately define the CRBs. Most importantly, the positive results were not replicated within the same experimental designs. Specifically, intrasubject and intersubject replication of the findings is an important step in scientific research because it demonstrates the reliability and generalizability of the data, reduces error and increases internal validity (Sidman, 1960; Tanwey & Gast, 1984), and these replications have yet to be achieved with FAP single subject research.

Intersubject replication imposes special conditions on the clinical situation, specifically the removal or retention of treatment at different points and this may not be practical in all clinical situations (Kazdin, 1999). FAP, in this sense, can be considered a good independent variable for this type of research, because it may be possible to introduce and withdraw it without causing problems to the therapeutic process, and it can be withdrawn at different stages of the experimental design. When FAP is not used in the reversal phases of the design, good behavior analytic therapy, or another form of therapy, can still be conducted.

To extend previous research on FAP's mechanism of change with an improved experimental design that incorporated both intrasubject and intersubject replication, the current study investigated the effects of Functional Analytic Psychotherapy (FAP) interventions with two clients who presented with multiple problems including problematic verbal behaviors that interfered with therapy. Because FAP may be most appropriate for clients whose primary presenting problems include long-standing interpersonal difficulties (Follette, Naugle, Callaghan, 1996; Kohlenberg & Tsai, 1991; Tsai et al., 2009), FAP process research that targets problematic ways of talking in interactions with the therapist may be especially interesting to conduct. CRBs that may appear in high frequency in FAP sessions may include verbose talking, superficial speech, lack of correspondence of the client's speech with the therapist's speech and aggressive verbal responses. These CRBs are important to identify and address because they may hinder the development of genuine interpersonal relationships and may interfere with the therapy process as well, making it difficult to establish a deeper interpersonal therapeutic relationship.

In the current study, two clients who were receiving therapy from the therapist-researcher received FAP in an A-B1-A1-B2-A2 design which started with a baseline (A) phase, introduced (B1) and withdrew (A1) FAP, and then replicated the introduction (B2) and withdrawal (A2) of FAP. The primary hypothesis was that CRBs would have different probabilities of occurrence after the introduction and withdrawal of FAP as per FAP's mechanism of change, with CRBs decreasing and CRB2s and CRB3s increasing during FAP.

## METHOD

### PARTICIPANTS

Client 1, Roberta<sup>1</sup>, was a 46-year-old female diagnosed with borderline personality disorder. She was previously the client of a student therapist, was transferred to the therapist-researcher when the previous therapist graduated from the program, and was selected for this project because she presented the CRBs targeted in this study. Data collection started in the 165<sup>th</sup> session. Client 2, Vini, was an 18-year-old male diagnosed with paranoid schizophrenia. Vini's diagnosis was only known after the end of the data collection. Vini presented with intense suffering and very disorganized speech, and his data collection started at the 78<sup>th</sup> session. Neither client was prescribed psychiatric medication (previous attempts to medicate Vini failed due to his refusal to take medication). The therapist-researcher (CKBO) was a behavior-analytic therapist with 10 years of clinical experience. She received group supervision during the study sessions.

### MEASUREMENT

*Functional Analytic Psychotherapy Rating Scale (FAPRS; Callaghan & Follette, 2008)*. The FAPRS is designed to measure key FAP therapist and client behaviors on a turn-by-turn basis in therapy. The current authors modified the FAPRS to use in the current study. Regarding client codes, three codes for clinically relevant behavior (CRB) were used, specifically CRB1 (client problem behavior occurring in session), CRB2 (improvements in client problem behavior occurring in session), and CRB3 (client descriptions of variables controlling his/her CRB). The specific CRB1s coded included: *Verbose talking* characterized by an overabundance of words with few concrete ideas; *talking with no correspondence with the therapist's speech* characterized by an absence of correspondence with therapist comments, requests, or other attempts by the therapist to get in to the conversation; *superficial speech* characterized by client reports on events not related to the primary problems presented in therapy and a lack of talk about difficult situations or emotions; and, according to Zamignani (2007), *aggressive verbal responses* characterized by client expressions of disagreement, judgment or other negative opinions about the therapist's statements, suggestions, opinions or other therapist behaviors.

Codes for therapist behavior included: 1) Therapist responds effectively to CRB1 (TCRB1); 2) Therapist responds effectively to CRB2 (TCRB2); 3) Therapist responds effectively to CRB3 (TCRB3); and 4) Ineffective response to CRB (INF).

The primary coder was the therapist-researcher because, even considering the bias, this knowledge would be helpful to functionally identify the CRBs in each client. The reliability coder was a behavior-analytic therapist with 15 years of clinical experience. The reliability coder was not involved in the therapist's group supervision, but had detailed knowledge of FAP and had been trained in and used the FAPRS. To code the sessions, the reliability coder became familiar with the pre-defined CRBs for this research, read the case conceptualizations and discussed them with the therapist-researcher. To determine agreement, the reliability coder coded Session 169 of Roberta. Coding was done independently, and then, together with the therapist-re-

<sup>1</sup> The names are fictitious.

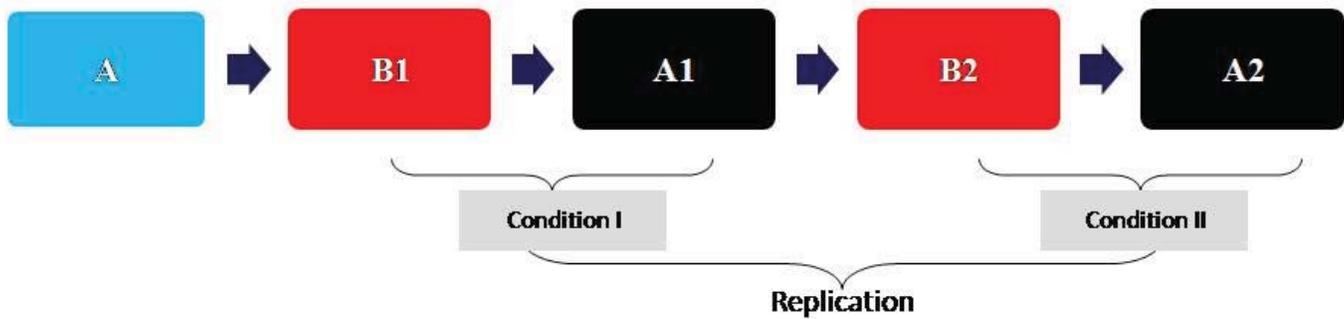


Figure 1. Structure of the experimental design. A = baseline without planned interventions; B1 and B2 = introduction of FAP; A1 and A2 = FAP withdrawal.

searcher, each turn with disagreement was reviewed and eventually changed. Kappa and percentage agreement were calculated. For client codes, the percent agreement was .88 and Kappa was .68. For therapist codes, the percent agreement was .93 and Kappa was .79.

### PROCEDURE

The structure of the experimental design is presented in Figure 1. This design allows for a baseline (Phase A, in blue), the introduction of FAP (Phases B1 and B2, in red), and the withdrawal FAP (Phases A1 and A2, in black). It also allows for intra-subject replication of experimental conditions (B2 and A2 replicating B1 and A1) and, because this design was administered to both Roberta and Vini, inter-subject replication as well.

**Phase A: baseline condition.** In Phase A data collection began with no planned therapeutic interventions and the clients were given an explanation of FAP and the research procedures. FAP interventions were allowed as needed in this phase. The lengthy therapy processes of the two participants prior to data collection could be considered baselines as well, but four sessions immediately before Phase B were selected.

**Phases B1 and B2: FAP.** In B1 and B2 FAP interventions focusing on the therapeutic relationship and shaping client's behavior were employed most of the time. In the first FAP session (Phase B1) the therapist tried to respond contingently to the client's CRBs as they occurred in high frequency. Although four Phase B sessions were planned for both clients, Roberta needed a fifth session to ensure the stability of her data in Phase B1.

**Phases A1 and A2: FAP withdrawal.** The process of FAP withdrawal consisted of procedures that emphasized discussing the client's behaviors as they occurred in daily life, outside the context of the therapeutic relationship. These external contingencies were then analyzed to facilitate awareness of the determinants of client behavior. The therapist avoided (intentionally) the direct shaping of client behaviors in session, keeping the conversation about daily life situations. If the client initiated an interaction about the therapeutic relationship, it would be addressed for ethical reasons.

**Criteria for phase shift:** The criterion of four sessions per phase was selected, considering the minimum number of three measures to ascertain the stability, level and trend of the dependent variables (Hersen & Barlow, 1976). Phases shifted at the point that

the CRB measures taken during the sessions indicated stability or showed an expected tendency. If necessary more sessions occurred until stability was achieved. After each session, the session was transcribed, printed, and coded to determine CRB frequency.

### RESULTS

Figure 2 shows the rates of CRBs according to the experimental design. Rates were calculated using the total number of occurrence of CRBs1 (or CRBs2 or CRBs3) divided by the total number of occurrence of CRBs multiplied by 100. During the first baseline session, the rates of CRB1s were high for Roberta (86%) and Vini (48.54%) while the rates of CRB2s (22.83% for Roberta, 48.46% for Vini) and CRB3s (0% for Roberta, 1.46% for Vini) were lower. These rates remained stable through the baseline phase. During the B1 phase (FAP), the rates of CRB1s decreased and the rates of CRB2s increased for both clients. In the first reversal phase (A1), FAP was withdrawn and, as the figure shows, the rates of CRB1s started to increase and the rates of CRB2s started to decrease. In the B2-A2 replication phases, both the effects of introducing and withdrawing FAP were replicated for both clients, showing the strength of the phenomenon studied. Figure 2 also shows a similar pattern for CRB3s, with increasing rates of CRB3s during the FAP phases which reversed during the withdrawal phases.

It is noted that in Roberta's case the trend of the lines over the entire course of the study suggests an overall clinical improvement, with the CRB1 lines tending to decrease and the CRB2 lines tending to increase. This was not the case for Vini, whose CRBs appeared to be responsive to the FAP interventions in an evocative sense.

Figure 3 presents the rates of therapist shaping responses to CRBs. During baseline, only a few FAP interventions were conducted for both clients and thus shaping occurred at a low frequency (ranging from 0 to 7.56% for Roberta and 0 to 2.33% for Vini). In the first FAP phase (B1), the rate for therapist effective responses to CRBs jumped to a high rate of 38.18% for Roberta and 35.12% for Vini. In the withdrawal phase (A1), an impressive decrease in therapist's shaping responses occurred, as therapy focused on analyses of external contingencies, with the highest rate of shaping responses of 8.47% for Roberta and 2.02% for Vini. During the replication phases (B2 and A2), the

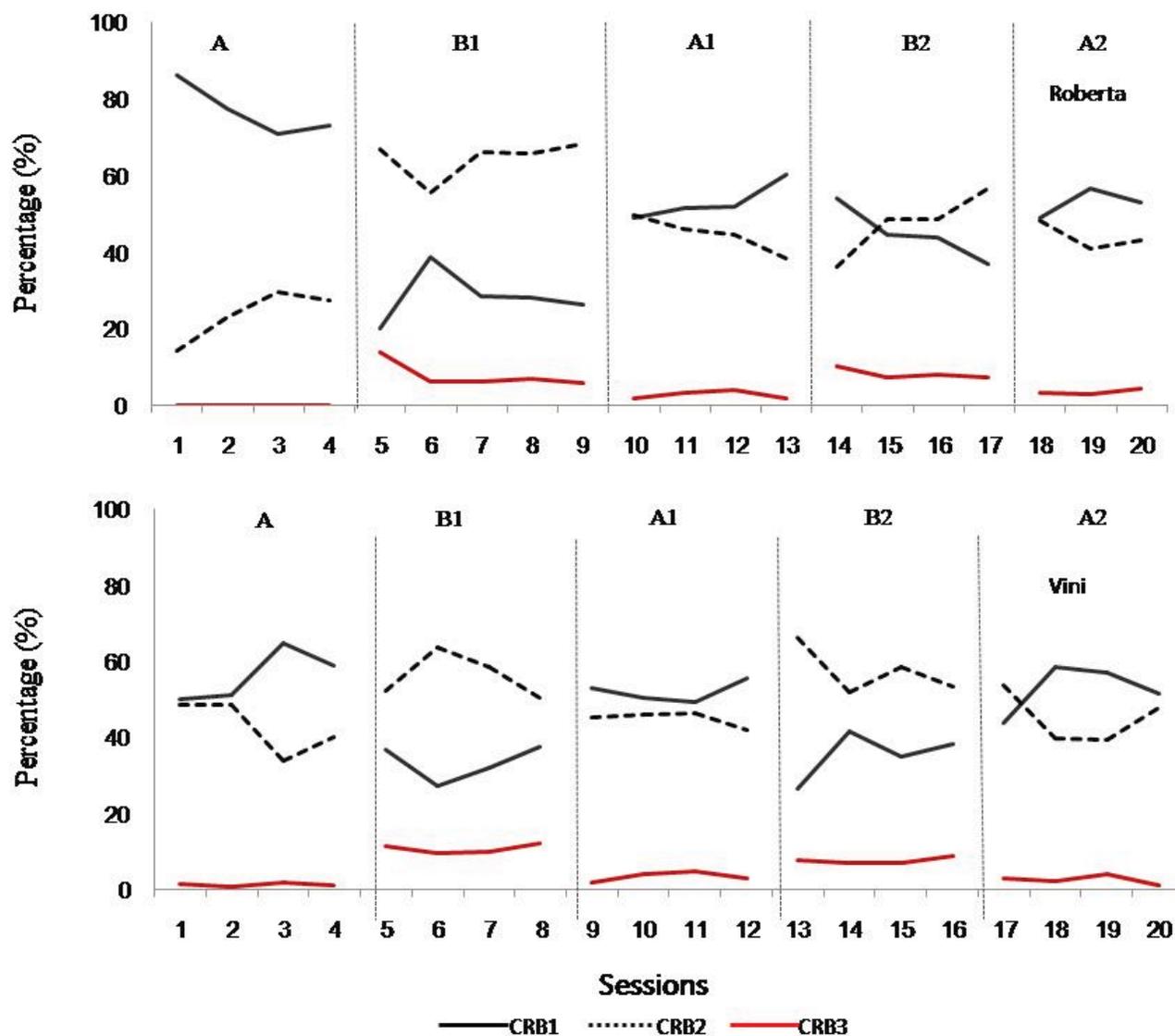


Figure 2. Rates of client CRB1s, CRB2s and CRB3s relative to total client turns across baseline (Phase A), FAP (Phases B1 and B2) and withdrawal (Phases A1 and A2) for Roberta (upper panel) and Vini (lower panel).

same tendencies of responses to CRBs were observed. It is noted that in the last FAP phase (B2) for Roberta, the rate of responding to CRBs decreased across sessions, which may have been a function of the therapist and client “slowing the pace” of the intense FAP work.

## DISCUSSION

Overall these two cases provide the strongest evidence to date that FAP—therapist contingent responding to CRBs—can effectively shape CRBs over the course of therapy. These data corroborate and extend the findings of three previous studies that also investigated the effects of therapist shaping responses during FAP sessions (Callaghan et al., 2003; Kanter et al., 2006; Busch et al., 2009). In addition, the current study demonstrates the robustness of this type of experimental design for clinical practice and suggests a way to study clinical events in FAP and related therapies.

The method employed had several strengths and limitations. Regarding strengths, it was possible to collect repeated measures during the procedure, collect baseline data, remove and

introduce the independent variable, and replicate the experimental conditions (B2-A2 replicating B1-A1). In addition, the design demonstrated replication within participants (intrasubject replication) and between participants (intersubject replication), strengthening internal and external validity of the conclusion that FAP interventions were responsible for the change in both client’s behaviors. Strong experimental control was demonstrated; the introduction of FAP produced a reduction in the frequency of the target behaviors (CRB1s) and, after FAP withdrawal, an increase in the frequency of these same behaviors was observed. Another strength of the method was that the type of design did not make the therapeutic process artificial. In other words, the interventions chosen were planned to be applied preferentially according to their respective phases, but if there was a need, they could be applied in any time in any phase.

A primary limitation is that the therapist was the researcher of this study, allowing for the possibility of experimenter bias in which the behavior of the participants (including the reliability coder) may have been inadvertently affected in a supportive direction (Marczyk, DeMatteo & Festinger, 2005). The method

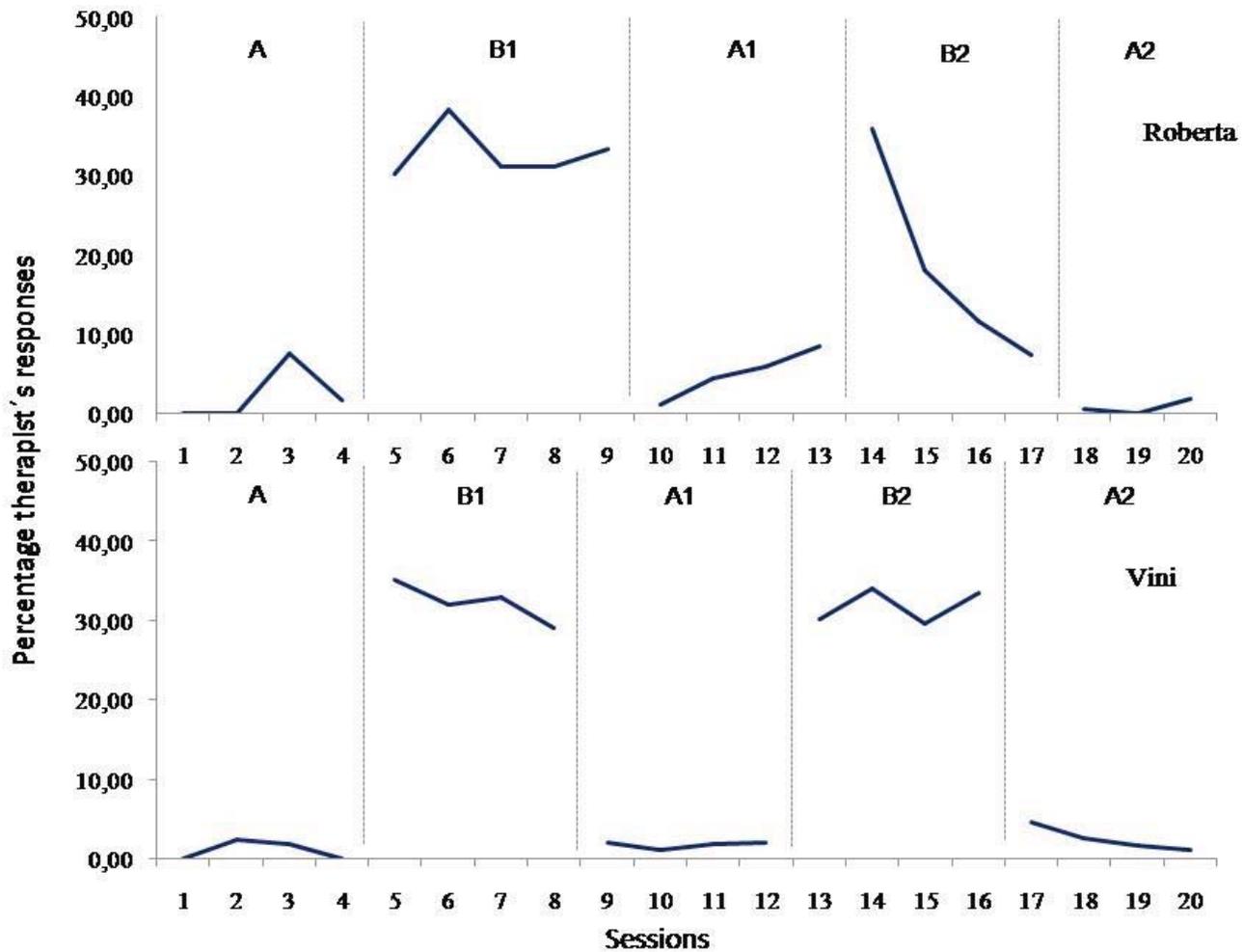


Figure 3. Rates of therapist effective responses to CRB1s, CRB2s, and CRB3s combined at Lag 1 across baseline (Phase A), FAP (Phases B1 and B2) and withdrawal (Phases A1 and A2) for Roberta (upper panel) and Vini (lower panel).

of determining agreement by having discussions and then changing codes could be the second limitation. Discussions between raters can artificially inflate agreement once changes get made. A third limitation of the current study is that both clients received several years of therapy which may have influenced the success of the design. In fact, the previous years of therapy were critical to the success of the experimental design, as the therapist-researcher built strong relationships with both clients, developed a conceptualization of the relevant stimulus functions affecting the clients' CRBs and ascertained the prevalence of CRBs emitted in the context of the therapeutic relationship. Tsai et al. (2009) considers that it is essential in FAP to create a sacred space of trust and safety and, in this research, this space was true, authentic and well-established for both clients before the research began. Nonetheless, because the clients were selected for the research by the therapist-researcher, it is important for future research to be conducted with different types of clients and with other therapists who are not the primary researchers.

Another limitation of this study was the absence of measures of problem behaviors and improvements outside the therapeutic context; thus there is no indication of generalization of improvements to external situations. Furthermore, it is observed that the effective reversal of gains during the withdrawal phases suggests that maintenance of gains may not have occurred, es-

pecially with Vini. This aspect raised an important discussion about the evocative aspects of FAP interventions. The sessions of phases B1 and B2 evoked more CRBs because of the nature of complaints (difficult in interpersonal relationship). For this reason, during FAP phases, Roberta and Vini emitted more behaviors to avoid intimacy and feelings. Maybe because of the evocative aspect of FAP, the reversibility could be favored. It is important for future research to combine coding of in-session behavior with measurement of out-of-session behavior (as was done collectively in Kanter et al., 2006, and Busch et al., 2009) for a full analysis of FAP's mechanism of change. However, in the current study, it is important to note that the observed in-session improvements, because they were improvements in behaviors that specifically interfered with the quality of therapy, are clinically important in their own right.

## CONCLUSION

The primary contribution of this research is the experimental design, as there is no record in the FAP process literature of this type of study; rather, the literature contains descriptive studies (Bolling, Kohlenberg & Parker, 2000; Callaghan et al., 2003; Kohlenberg, Kanter et al., 2002) and one quasi-experimental A/A + B design (Kanter et al. 2006). The robustness

of the current findings strengthens the conclusion that effective therapist shaping responses occurred in session, providing strong support for the action of FAP. In addition this research demonstrated empirically the efficacy of FAP interventions on therapy-interfering behaviors of two clients with quite severe interpersonal and psychological problems, as in Busch et al., (2009) and Kanter et al., (2006). Future directions for research include additional replication of these findings, using similar designs, using different clients, therapists, and researchers, and the measurement of out-of-session behaviors to document the generalization of gains to natural environments.

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