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Parallel Demand-Withdraw Processes in Family Therapy for Adolescent Drug Abuse

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Abstract

Isomorphism, or parallel process, occurs in family therapy when patterns of therapist-client interaction replicate problematic interaction patterns within the family. This study investigated parallel demand-withdraw processes in Brief Strategic Family Therapy (BSFT) for adolescent drug abuse, hypothesizing that therapist-demand/adolescent-withdraw interaction (TD/AW) cycles observed early in treatment would predict poor adolescent outcomes at follow-up for families who exhibited entrenched parent-demand/adolescent-withdraw interaction (PD/AW) before treatment began. Participants were 91 families who received at least 4 sessions of BSFT in a multi-site clinical trial on adolescent drug abuse (Robbins et al., 2011). Prior to receiving therapy, families completed videotaped family interaction tasks from which trained observers coded PD/AW. Another team of raters coded TD/AW during two early BSFT sessions. The main dependent variable was the number of drug use days that adolescents reported in Timeline Follow-Back interviews 7 to 12 months after family therapy began. Zero-inflated Poisson (ZIP) regression analyses supported the main hypothesis, showing that PD/AW and TD/AW interacted to predict adolescent drug use at follow-up. For adolescents in high PD/AW families, higher levels of TD/AW predicted significant increases in drug use at follow-up, whereas for low PD/AW families, TD/AW and follow-up drug use were unrelated. Results suggest that attending to parallel demand-withdraw processes in parent/adolescent and therapist/adolescent dyads may be useful in family therapy for substance-using adolescents.

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Keywords

demand-withdraw interaction; adolescent substance abuse; family therapy; BSFT; process-outcome research

The efficacy of family therapy for adolescent substance abuse is well documented. Many studies have demonstrated that, compared to individual therapy and treatment as usual, generic family therapy is associated with greater reductions in adolescent substance use and other types of positive behavior change (cf. Rowe, 2012; Stanton & Shadish, 1997; Waldron & Turner, 2008 for reviews). Specific models, such as Multidimensional Family Therapy (Liddle, 2002) and Functional Family Therapy (Sexton & Alexander, 2002), have achieved the status of “well-established treatments” in this arena (cf. Waldron & Turner, 2008). Brief Strategic Family Therapy (BSFT) – a relatively pure form of systemic therapy, and the focus of this report – has demonstrated clear promise as well (Robbins et al., 2011; Santisteban et al., 2003; Szapocznik et al., 1989; Williams & Chang, 2000).

As outcome evidence accumulates, researchers are recognizing that process studies are needed to determine how and for whom family interventions work (Rowe, 2012). By understanding the mediators and moderators of family therapy researchers will be able to refine family interventions by emphasizing the aspects that are most highly associated with positive outcomes and eliminating the aspects that are inert. Such refinement efforts will help make family therapy models more efficient and cost-effective (Kazdin & Nock, 2003; La Greca, Silverman, & Lochman, 2009).

In the current study, we investigate a process hypothesis based on the systemic notion of isomorphism, or parallel process – namely, that poor outcomes are likely when patterns of therapist-client interaction replicate, or resemble in form, problematic patterns of interaction within the family itself. In the context of family therapy, isomorphism occurs when relational roles or patterns in one part of the therapy system correspond closely to the roles or interaction patterns in another subsystem (Liddle & Saba, 1983, 1985; Schwartz, Liddle, & Breunlin, 1988). For example, Liddle and Saba (1983) described the supervisory system and the therapy system as isomorphic: the supervisor’s role as “teacher” to the therapist is similar to the therapist’s role as an agent of learning and change to the family. Liddle and Saba (1983) also described isomorphism that develops within the therapy system, where therapists form relationships with family members that are isomorphic to existing relationships within the family. For instance, if a therapist tries to change the behavior of an adolescent in the same way that a parent tries to change the adolescent, the therapist-adolescent relationship can become isomorphic to the parent-adolescent relationship.

The current study focuses on a communication pattern called demand-withdraw interaction (DW) and investigates whether isomorphic DW processes in the therapist-adolescent and parent-adolescent subsystems of BSFT predict adolescent drug use outcomes. Demand-withdraw interaction is a dyadic pattern of communication in which one family member nags, criticizes or pressures another family member to change while the other ignores, distances, or refuses to discuss the topic (Eldridge & Christensen, 2002; Shoham, Rohrbaugh, & Cleary, 2008). Researchers have focused mainly on DW in couples, where

this pattern correlates strongly with relationship dissatisfaction (Christensen, 1987; Christensen & Heavey, 1990; Heavey, Layne, & Christensen, 1993; Noller & White, 1990), domestic violence (Babcock, Waltz, Jacobson, & Gottman, 1993; Holtzworth-Munroe, Smutzler, & Stuart, 1998) and alcohol abuse (Kelly, Halford, & Young, 2002). Two studies have also investigated DW in parent-child dyads, finding that it correlated with relationship dissatisfaction of both parents and adolescent children as well as increased adolescent substance use (Caughlin & Malis, 2004a, 2004b).

From a family systems perspective, DW is a problem-maintaining process that is fueled by both the demanding partner's wish to change the other and the withdrawn partner's desire to ignore the demanding partner in an attempt to preserve the status-quo (Rohrbaugh & Shoham, 2001; Watzlawick, Bavelas, & Jackson, 1967). An example of a DW interaction that might occur in the family of a drug-abusing adolescent could involve a mother pressuring her son to quit using drugs while the son withdraws from her. The more the mother demands, the more the son ignores her; and the less likely it becomes that he will follow her advice – an ironic outcome given the mother's wish for her son to stop using drugs.

The observation that DW often reflects one family member's attempts to change another receives support from studies of couples, showing that demand and withdraw roles change according to the importance of the discussion topic for each partner (Heavey et al., 1993; Klinetob & Smith, 1996). For example, Klinetob and Smith (1996) found that when a discussion topic centered on something the wife wanted to change about her husband, wife-demand/husband-withdraw was more likely to occur than husband-demand/wife-withdraw. If the couple was discussing something the husband wanted to change about his wife, however, a husband-demand/wife-withdraw pattern was more likely to occur.

In view of this, social contexts like couple or family therapy, where people at different levels of an interactional system often attempt to induce change in another person's behavior, provide fertile ground for parallel processes to develop. Thus, in family therapy for adolescent drug abuse, a therapist's ultimate goal may parallel the goal of a parent – namely, to change the drug use behavior of the adolescent identified patient (IP). If a central dynamic in the family is a parent-demand/adolescent-withdraw (PD/AW) dynamic, a therapist who replicates the parental stance by putting direct pressure on the adolescent IP to change risks provoking the IP to withdraw from the therapist in the same way he or she withdraws from the demanding parent(s). If the pattern repeats, and a therapist-demand/adolescent-withdraw (TD/AW) cycle develops, it is not difficult to imagine how such an escalating pattern could undermine successful family therapy and contribute to poor IP drug use outcomes.

Empirical support for these ideas about parallel DW processes in couple and family therapy comes from a study comparing cognitive-behavioral therapy (CBT) and family systems therapy (FST) for couples in which the male partner was alcoholic (Shoham, Rohrbaugh, Stickle, & Jacob, 1998). The CBT approach placed a high demand on the drinker to abstain from alcohol use, while FST therapists remained neutral about abstinence until the couple decided they were ready to change. Prior to therapy, all couples participated in a video-recorded interaction task in which they discussed a conflict as well as the husband's

drinking. From these recordings, investigators later derived observational measures of DW interaction. Strikingly, couples high on wife-demand/husband-withdraw were much more likely than couples low on this pattern to drop out of the high-demand CBT therapy, whereas DW had little bearing on continuance in low-demand FST. The authors interpreted this result to suggest that drinkers responded to a demanding therapy (or therapist) in ways that paralleled their response to a demanding partner or spouse.

The current study investigates parallel DW processes in family therapy for adolescent drug abuse, hypothesizing that therapist-demand/adolescent-withdraw interaction (TD/AW) cycles observed early in treatment would predict poor adolescent outcomes at follow-up for families who exhibited entrenched parent-demand/adolescent-withdraw interaction (PD/AW) before treatment began. The main participant and outcome data are from a multi-site effectiveness study of Brief Strategic Family Therapy (BSFT) for adolescent drug abuse (Robbins et al., 2011; Szapocznik, Hervis, & Schwartz, 2003) administered from the University of Miami as protocol CTN-0014 in the National Institute on Drug Abuse (NIDA) Clinical Trials Network. The observational ratings of parent-adolescent and therapist-family interaction, on the other hand, come from a NIDA platform study conducted at the University of Arizona.

Because BSFT is a “structural” variant of family therapy, related to the work of Minuchin, Haley, and others (Haley, 1976; Madanes, 1981; Minuchin, 1974; Minuchin & Fishman, 1981; Nichols, 2010), the place of DW in this framework deserves comment. For one thing, BSFT focuses *less* on DW and other dyadic interaction patterns than it does on structural patterns like enmeshment, disengagement, cross-generation coalitions, and hierarchical anomalies in the broader family system (cf. Szapocznik et al., 2003). However, despite its central concern with relationship structure, the actual practice of BSFT focuses largely on interrupting specific patterns of interaction (behavioral sequences) that define this structure. For example, when working with a family in which some members are emotionally disengaged from one another, a BSFT therapist would want to change the interaction patterns that maintain this disengagement – and patterns of DW are likely to figure prominently in this. Another consideration is that good BSFT therapists are active, direct, and even to some extent “demanding,” as their prescribed role is to orchestrate change in the family system by actively restructuring relational patterns associated with the adolescent’s drug abuse (Szapocznik et al., 2003). Equally and perhaps more important, however, is for the therapist to remain decentralized and work through the family hierarchy to help parents more effectively nurture and control their children. This implies directing interventions (including therapeutic “demands” for change) toward parental figures more than children. In other words, a central goal of BSFT is to reorganize the family so that the parent figures are in a leadership position, which in practice involves placing more responsibility for change on parents than on children. Thus, therapist demand on adolescents and TD/AW interaction is not consistent with the BSFT model.

This study tested two hypotheses. First, consistent with previous research (Caughlin & Malis, 2004b) we expected that PD/AW would be associated with greater IP drug use at both baseline and follow-up. Second, we expected that TD/AW would moderate the association between PD/AW and IP drug use at follow-up, such that TD/AW would predict

increased drug use for IPs with high baseline levels of PD/AW but not for those with low baseline PD/AW.

Method

Participants

Participating adolescent IPs and families met two sets of inclusion criteria – one for the parent study and another for the more fine-grained observational analyses reported here. The parent study recruited 13- to 17-year-old clients from 8 community treatment programs (CTPs), including one site each in Arizona, California, Colorado, North Carolina, Ohio, and Puerto Rico, and two sites in Florida. Adolescents were included if they reported using illicit drugs other than alcohol or tobacco in the 30-day period preceding their baseline assessment or had been referred from an institution (e.g., detention or residential treatment) for the treatment of a substance use disorder. They were excluded if they did not reside in the same home as a parent figure, if they reported suicidal or homicidal ideation, or if they had current or pending severe criminal charges.

A narrower set of criteria was necessary to ensure sufficiently complete data for examining parallel DW processes. Families needed to have participated in at least 4 therapy sessions for which there were at least 2 adequate (ratable) video recordings. Treatment-as-usual (TAU) was not videotaped; thus, only BSFT cases were included. Families also needed to have completed a baseline family interaction task (FIAT) with good enough video and audio quality for the observational ratings and to have completed timeline follow-back (TLFB) interviews assessing IP substance use through at least 8 months of the 12-month follow-up period. Of the 245 cases randomized to BSFT, 91 met these criteria.

Table 1 shows demographic characteristics of adolescents and families in the study sample, and Table 2 contains information regarding therapists' characteristics. As Table 1 shows, about 80% of the adolescents were male and 34% were white. Almost half of the adolescents had a previous history of incarceration. Chi-square analyses and *t*-tests showed no differences between the 91 IPs included in the current study sample and the other 389 parent study participants who were not included with regard to sex, ethnicity, blended family status, household income, family size, or history of incarceration (all *ps* > .05). Adolescents in the study sample did, however, use drugs on more days in the month prior to baseline than did adolescents not included in the study, $t(473) = -2.27, p = .02$. For therapist participants, there were no differences in age, sex, ethnicity, degree earned, or years of counseling experience between the 18 included therapists and the 31 who were not included, all *ps* > .12.

Procedure

In the BSFT clinical trial, investigators at the University of Miami recruited adolescents and families from participating community treatment programs (CTPs), randomized them to treatment condition, and collected self-reported drug use data from adolescents. The Miami team also developed a BSFT manual (Szapocznik et al., 2003), recruited therapists from participating CTPs, randomized them to treatment condition, trained therapists in how to

implement BSFT, and continuously monitored the progress of the BSFT therapists via supervision and adherence ratings of videotaped therapy sessions (cf. Robbins et al., 2011 for details about these procedures). Investigators at the University of Arizona coordinated the administration of videotaped structured family interaction tasks (FIATs) at baseline, from which a team of research assistants later rated PD/AW. A second, independent group of Arizona research assistants (RAs) rated videos of selected BSFT sessions to code the therapist's level of demand for IP change and the IP's response to these demands (generating the measure of TD/AW). The institutional review boards of the University of Miami, the University of Arizona, and each participating research site approved the study procedures.

Descriptive statistics indicated that BSFT families in the clinical trial received an average of 8.1 ($SD = 5.2$) therapy sessions over 5.7 ($SD = 3.2$) months. In contrast, families in the present sub-sample received an average of 11.3 ($SD = 4.5$) sessions over 6.6 ($SD = 2.7$) months. Most participants (58.2%) had completed BSFT by the 6-month assessment. Therapy sessions lasted about 1 hour and took place in families' homes (63%) or in clinic settings (32%).

Observational measures of PD/AW came from video-recorded FIATs administered by RAs at each site prior to the initiation of treatment. RAs asked that all family household members over the age of 6 gather in a place that was comfortable and convenient for them, such as their home or the CTP facility. The RAs then administered 3 sequential FIAT tasks based on earlier work by Minuchin, Montalvo, Guerney, Rosman, & Schumer (1967) and the Miami group (e.g., Santisteban et al., 2003). The tasks were: (1) plan a dinner menu; (2) discuss likes and dislikes about each family member; and (3) discuss a recent family argument. To ensure that all families received the same task information, RAs used audiotaped instructions to initiate each task. On average, FIATs included 3.7 ($SD = 1.4$) family members and in 48.4% of FIATs, two parental figures were present. It took families an average of 2.4 ($SD = 1.2$) minutes to complete the first FIAT task, 4.9 ($SD = 3.6$) minutes to complete the second task, and 4.2 ($SD = 2.7$) minutes to complete the third task. Total FIAT time averaged 11.5 minutes ($SD = 6.3$).

To capture TD/AW, the first author (KNR) and a team of 4 trained RAs coded levels of therapist demand and the adolescent IP's response to that demand. The team rated three 5-minute segments of two BSFT sessions, the first occurring early in the process of therapy (session 1 – 4) and the second occurring about midway through therapy (session 5 – 7). As a rule, we selected the first usable (ratable) session in each of these blocks, and the rationale for sampling from two blocks was to estimate the consistency of therapist demand behavior across sessions and to include a session likely to involve active intervention (e.g. restructuring). Within each session the team observed and rated the first 5 minutes, another 5 minutes occurring 40% of the way into the session, and a final 5 minutes occurring 80% of the way into the session.

Measures

Adolescent Drug Use—Each month for 12 months, parent study RAs blind to treatment condition administered an adolescent-specific version of the Timeline Follow-Back

interview (TLFB; Bry, Conboy, & Bisgay, 1986; Bry & Krinsley, 1992; Sobell & Sobell, 1992) to all adolescent IPs. The RAs also conducted monthly urine drug screens using the SureStep Drug Screen Card 10A to encourage accurate reporting of drug use.

The main outcome variable in this process study was the number of days that adolescent IPs reported using drugs in the 7 – 12 month follow-up period. The number of IP drug use days in the month prior to baseline was included as a covariate in each study analysis. Past research has shown that responses on the TLFB interview are reliable, yielding consistently high test-retest correlations (Mason, Cauce, Gonzales, Hiraga, & Grove, 1994); and month-to-month stability coefficients in the present study were high as well (all r_s .78, all p_s .0001).

Parent-Demand/Adolescent-Withdraw (PD/AW)—Observational ratings of FIATs assessed the amount of PD/AW in each family at baseline. At least 2 raters independently coded all FIATs using Global Structural Family Systems Ratings (GSFSR), a coding system that includes scales for rating both family structure and specific family interaction patterns, including PD/AW (Rohrbaugh, Hasler, Lebensohn-Chialvo, & Shoham, 2007). The GSFSR defines PD/AW as a pattern in which the parent(s) request, demand, nag, blame, criticize or try to discuss a problem with the IP while the IP becomes silent or disengaged, refuses to discuss the issue, or diverts attention away from the issue. Raters assessed the level of PD/AW in each task of the baseline FIATs using two rating scales, one measuring mother-demand/adolescent-withdraw (MD/AW) and another measuring father-demand/adolescent-withdraw (FD/AW). A score of 1 indicated no evidence of DW occurring at any time during the task, while a score of 5 indicated pervasive evidence of DW occurring throughout most of the task. Inter-rater reliability was continually monitored while ratings were taking place, and ICCs were consistently greater than .60. When ratings differed by more than 1.5 scale points, coders re-reviewed the FIAT to arrive at a consensus rating.

We performed a series of repeated measures ANOVAs to understand specific patterns of PD/AW across tasks and roles. There was a main effect of task ($F(1, 90) = 30.09, p < .001$) with the highest PD/AW scores occurring in task 3 (family argument) and each successive task generating significantly higher scores than the previous task, $p_s < .01$. Somewhat surprisingly, given the emphasis on gender roles in the DW literature, there was no significant main effect of parental role (MD/AW vs. FD/AW) and no statistical interaction between parental role and task ($p_s > .80$), suggesting that the balance of MD/AW and FD/AW was similar in each task. Nor did the average amount of PD/AW in families that had two parent figures present for the FIAT ($M = 1.31, SD = .37$) differ from the average amount of PD/AW in families with only one parent present ($M = 1.49, SD = .70$), $F(1, 89) = 2.30, p = .13$.

In tests of the study hypotheses, the measure of PD/AW at baseline reflects the highest level of PD/AW recorded in interactions between the adolescent and *either* parent in *any* of the three FIAT tasks. In other words, the family-level score could represent either MD/AW or FD/AW (depending which was greater) and could come from discussions of menus (task 1), likes and dislikes (task 2), or family arguments (task 3). We chose to measure PD/AW using this maximum score to ensure that we captured PD/AW whenever it occurred. In some FIAT

tasks, the maximum rating of PD/AW was “1”, meaning that PD/AW never occurred. Specifically, in task 1, 86% of families never engaged in PD/AW, in task 2, 58.2% of families never engaged in PD/AW, and in task 3, 48.4% did not engage in PD/AW. Using the highest rating of PD/AW from each family’s baseline FIAT maximized the probability that our measure captured instances of PD/AW. Nevertheless, families’ scores on this maximum PD/AW variable were relatively low, with a mean of 1.9 ($SD = 1.0$) on the 1–5 rating scale.

Parental monitoring—To assess the differential construct validity of the PD/AW ratings, we compared them to self-reports of parental monitoring, a set of parenting practices that have been shown to predict decreased adolescent drug use and behavior problems (cf. Dishion, Li, Spracklen, Brown, & Haas, 1998; Patterson & Stouthamer-Loeber, 1984). The parent study assessed parental monitoring at baseline using the parental monitoring subscale from the Parenting Practices Questionnaire (Thornberg, Huizinga, & Loeber, 1995). This subscale consists of 13 items on the adolescent version and 12 items on the parent version of the Parenting Practices Questionnaire. Representative items include: “When was the last time that you discussed with your child his/her plans for the coming day?” and “When your child is out, do you know what time he/she will be home?” Participants rated these items on 1 – 5 point scales where 1 indicated “Don’t know” and 5 indicated “Almost every day.” Parent study investigators found that the parental monitoring subscale had good internal consistency (Cronbach’s $\alpha = .72$) for both adolescents and parents (Feaster et al., 2010).

Therapist-demand/adolescent-withdraw—The research team developed original observational coding scales to rate therapist demand on the adolescent IP and the IP’s response to this demand. We conceptualized therapist demand as involving requests that the adolescent change some behavior, *or* accept some viewpoint or definition of a behavioral reality (e.g., that drug use is “dangerous,” talking back “disrespectful,” and so on). Two 5-point scales captured, respectively, the *extent* and *negative valence* of therapist demand. On the extent scale, a rating of 1 indicated that the therapist never requested the IP to change either behavior or perceptions of something, while 5 indicated that the therapist either did this very frequently *or* made more than one particularly salient demand for change. On the *negative valence* scale, raters coded the degree to which the therapist’s demands were critical, hostile, judgmental, or accusatory, with 1 indicating no negative valence and 5 very high negative valence (with one or two very salient examples justifying a score of 5). Inter-rater reliability for both of these observational scales was very good, with all ICCs $\geq .81$.

On the adolescent IP side, two 5-point scales measured IP response to therapist demands. First, an *accept-reject* scale indicated whether IPs accepted or refused to comply with the therapist’s demands. Here a rating of 1 indicated consistent acceptance of the therapist’s demands and 5 indicated consistent refusal. The second *active rejection* response scale captured how passively or actively the IP rejected the therapist’s demands by attempting to change the subject, becoming defensive, or justifying him or herself. Here a rating of 1 indicated that all IP rejections were passive and 5 indicated that all were active. Scores on these IP response scales had good inter-rater reliability, ICCs $\geq .72$.

The measure of TD/AW interaction consisted of an aggregation of the ratings of therapist demand and IP response across the two rated sessions. Ratings of the *extent* and *negative valence* of therapist demand were positively correlated ($r = .42, p < .0001$). Thus, we averaged these ratings to form an aggregate measure of therapist demand. Ratings on the *accept-reject* and *active rejection* scales measuring IP withdrawal were also positively correlated ($r = .33, p = .001$). Thus, we averaged these scores to form an aggregate measure of IP withdrawal. The aggregate therapist demand measure from the early session correlated with the aggregate therapist demand score from the middle session ($r = .54, p < .0001$) and the aggregate IP withdrawal score from the early session correlated with the aggregate IP withdrawal score from the middle session, $r = .33, p < .002$, indicating that therapist demand and IP withdrawal were consistent over time. Therefore, we averaged therapist demand ratings across sessions and the IP withdrawal across sessions to create final measures of each of these constructs. A final analysis showed that the average amount of therapist demand across sessions significantly correlated with the average amount of IP withdrawal across sessions, $r = .47, p < .0001$. Thus, we created a final measure of TD/AW by adding these two aggregate scores and dividing the sum by 2.

Analytic strategy

To test the study hypotheses we used zero-inflated Poisson (ZIP) regression analyses and executed these analyses using the “pscl” package (Zeileis, Kleiber, & Jackman, 2008) in R (R Development Core Team, 2009). ZIP regression is appropriate for analyzing non-normally distributed dependent variables that consist of a number of discrete events (e.g., drug use days) when the most common frequency count is zero and the frequency of the remaining counts have a Poisson distribution. The distribution of drug use days in treatment studies is often non-normal and well characterized by such ZIP distributions (cf. Hildebrandt, McCrady, Epstein, Cook, & Jensen, 2010). This was true in the present study where 13.5% of adolescents never used drugs during follow-up and the frequencies of the remaining counts of drug use days were much lower (5.5%) and followed a Poisson distribution.

ZIP models contain two components, namely a binomial logistic regression that estimates the odds of being in the zero class (e.g., the odds of achieving complete abstinence from drugs) and a Poisson regression that estimates the Poisson mean of all values of the dependent variable, e.g., the number of drug use days (Zeileis et al., 2008). Thus, ZIP analyses provide two sets of parameter estimates, one that indicates the extent to which each independent variable predicts the probability of achieving complete abstinence and another that indicates the extent to which each independent variable is associated with the number of drug use days in the follow-up period.

Results

Descriptive statistics and preliminary analyses

Table 3 presents statistics describing the variables included in the study’s main analyses, namely, adolescents’ drug use, PD/AW interaction at baseline, and TD/AW interaction. This table shows that the percentage of IPs who were abstinent from drugs significantly

decreased from baseline (30%) to follow-up (15%), $\chi^2(1, N = 91) = 5.98, p = 0.01$. This decrease appeared unrelated to whether IPs were recruited from restricted environments at baseline. Indeed, a logistic regression that controlled for baseline abstinence showed that the number of days in the month prior to baseline that IPs spent in restricted environments was not associated with abstinence at follow-up ($OR = .08, SE = 2.43, p = .29$). There were no significant correlations between PD/AW, TD/AW, baseline drug use days, and therapists' years of counseling experience (all $ps > .11$). Thus, drug use days at baseline were not related to either TD/AW ($r = -.03, p = .79$) or PD/AW ($r = -.09, p = .40$). In addition, PD/AW was not associated with having a history of previous incarceration ($t(88) = .88, p = .38$) or multiple arrests, $t(88) = .05, p = .96$. TD/AW, however, was more pronounced for adolescents with a previous history of multiple arrests ($t(88) = -2.51, p = .01$) but did not differ according to whether adolescents had a history of incarceration, $t(88) = .20, p = .84$. PD/AW was unassociated with both adolescents' and parents' reports of parental monitoring, $r = -.06, p = .57$ and $r = .00, p = 1.00$, respectively.

Associations between PD/AW and IP drug use at baseline and follow-up

A ZIP analysis that regressed baseline IP drug use days on baseline PD/AW, controlling for days that IPs were in restricted environments at baseline showed that PD/AW was not related to baseline drug use days ($B = -.06, SE = .04, p = .16$), but was marginally associated with a *greater* likelihood of abstinence at baseline, $B = .46, SE = .25, p = .06$. Number of days spent in a restricted environment before baseline was not related to baseline drug use days ($B = -.03, SE = .02, p = .11$) but was associated with a greater likelihood of abstinence at baseline, $B = .21, SE = .09, p = .01$. A second ZIP analysis that regressed follow-up drug use days on baseline PD/AW, controlling for baseline drug use days and days spent in restricted environments at baseline and follow-up showed that PD/AW was associated with increased drug use days during the follow-up period ($B = .06, SE = .02, p < .001$) but was unrelated to abstinence at follow-up, $B = .23, SE = .35, p = .52$. Not surprisingly, baseline drug use was associated with increased follow-up drug use days ($B = .06, SE = .00, p < .001$) and a marginal decrease in likelihood of abstinence at follow-up ($B = -.49, SE = .26, p = .06$). Days in restricted environments during follow-up were unrelated to abstinence at follow-up ($B = .02, SE = .08, p = .78$) but were marginally associated with increased follow-up drug use days, $B = .01, SE = .01, p = .06$.

Therapist-demand/adolescent-withdraw as a moderator of the association between PD/AW and IP drug use days at follow-up

A ZIP analysis that controlled for baseline drug use days, days spent in restricted environments at baseline and follow-up, and therapists' years of counseling experience showed that PD/AW and TD/AW interacted to predict drug use days at follow-up ($B = .35, SE = .05, p < .001$). Figure 1 illustrates the pattern of this interaction and Table 4 contains the full set of results. As shown in Figure 1, for IPs with relatively high levels of PD/AW at baseline (e.g., IPs whose level of PD/AW was at least $1/2 SD$ above the mean), as TD/AW increased, the IPs' follow-up drug use days increased, $b = .34, SE = .05, p < .001$. In contrast, for IPs who engaged in low levels of PD/AW (e.g., $1/2 SD$ below the average level of PD/AW), TD/AW was not associated with drug use days during follow-up, $b = -.01, SE = .05, p = .87$.

Discussion

This study attempted to evaluate a parallel process hypothesis about demand-withdraw interaction in family therapy for adolescent drug use. Specifically, we hypothesized that therapists' demands for change, when linked with concomitant adolescent withdrawal, would predict poor substance use outcomes in the context of established parent-demand/adolescent-withdrawal family interaction. Results supported this hypothesis. Therapist-demand/adolescent-withdraw interacted with PD/AW such that, for families that engaged in a relatively high amount of PD/AW at baseline, TD/AW predicted increased IP drug use days at follow-up whereas for families low in PD/AW, TD/AW was unrelated to IP drug use. A separate analysis also showed that baseline PD/AW was associated with increases in IP drug use at follow-up. Interestingly, however, baseline PD/AW was marginally associated with *increased* likelihood of IP abstinence at baseline.

Our parallel DW process hypothesis was based on the assumption that PD/AW would act as a problem maintaining interactional process associated with increases in IP drug use. One study has shown PD/AW to be associated with increases in adolescent drug use (Caughlin & Malis, 2004b) and several studies have found that DW interaction is associated with relationship dissatisfaction in couples (cf. Eldridge & Christensen, 2002). The current study findings agree with and build upon these findings. Whereas Caughlin and Malis found that PD/AW was cross-sectionally associated with increased adolescent drug use, we found that PD/AW predicted future increases in adolescent drug use. In addition, previous research that our group conducted using the same sample as the one the current study used showed that the PD/AW pattern was positively associated with observations of disengagement in the parent-adolescent dyads at baseline (Rohrbaugh et al., 2007). Disengagement is characterized by a lack of connectedness between the parent and adolescent, impermeable boundaries, emotional distance and absence of communication, empathy, and emotional support. Studies have shown that disengagement is associated with increases in adolescent drug use as well as internalizing behavior problems (Baumrind, 1991; Brook et al., 1990). The association between PD/AW and parent-adolescent disengagement and the fact that both PD/AW and family disengagement are associated with increased adolescent drug use supports the notion that PD/AW is a problematic interaction pattern in families of adolescent drug abusers.

Despite the fact that PD/AW predicted increases in follow-up drug use and increased parent-adolescent disengagement, PD/AW was marginally associated with *increased* abstinence at baseline. There may be a couple of explanations for this result. First, the level of PD/AW in this sample was low. In fact, the average rating of PD/AW was 1.86 ($SD = .99$) on a 1 – 5 scale, and only 10% of families had more than moderate (e.g., ratings higher than 3) levels of PD/AW. These statistics suggest that, at baseline, pronounced, repetitive PD/AW cycles were rare in the study families. Thus, baseline PD/AW may not have been at a level where it was a problem maintenance process for most study families. The severity of the drug use of adolescents in the current study may also help explain why PD/AW was not associated with increases in adolescent drug use at baseline. Only one study to date has found an association between PD/AW and increased adolescent drug use and it used a sample of normal (non-clinical) adolescents who had low levels of drug use (Caughlin & Malis, 2004b). Indeed, on

a 4-point scale with 1 indicating no recent alcohol or drug use and 4 indicating at least 10 episodes of use, adolescents' average score was 1.21 ($SD = .45$). In comparison, adolescents in the current study used drugs on an average of eight days per month at baseline. Given these differences, it may be possible that PD/AW plays a different role in the drug use of adolescents with diagnosed substance abuse than it does in adolescents who infrequently use drugs. For adolescents who do not often use drugs, the amount of increase in PD/AW that is associated with increases in drug use may not serve to predict significant increases in drug use of adolescents with more severe drug use problems.

The finding that PD/AW was marginally associated with increased abstinence at baseline might lead one to think that PD/AW was somehow associated with positive parenting practices that might have helped some adolescents stay abstinent from drugs. However, study findings suggest that this was unlikely. Indeed, we found that PD/AW was not associated with the positive discipline practices used in parental monitoring. Parental monitoring consists of paying attention to and tracking a child's whereabouts, activities, and adaptations (Dishion & McMahon, 1998). Studies have shown that it is negatively associated with the development of both substance use (Dishion et al., 1998; Dishion & Loeber, 1985; Steinberg, 1986) and antisocial behavior (Patterson & Stouthamer-Loeber, 1984) in adolescents referred to treatment for these behaviors. The lack of association between parental monitoring and PD/AW suggests that PD/AW is a communication pattern that operates independently of the positive disciplinary practices that are involved in parental monitoring.

Interestingly, even though PD/AW was not significantly associated with adolescent drug use at baseline, it did interact with TD/AW to predict greater drug use at follow-up. Viewing DW interaction from a family systems perspective may help explain this finding. In family systems theory (Rohrbaugh & Shoham, 2001; Watzlawick, Bavelas, & Jackson, 1967) DW interaction is conceptualized as a cyclical process in which demand and withdraw behaviors reinforce one another via positive feedback. Increased demands lead to increased withdrawal, which in turn feeds more demand. In the current study, the parallel DW processes in the parent-adolescent and therapist-adolescent dyads may have reciprocally reinforced one another. Increased therapist demands (e.g., telling the adolescent that drug use is "dangerous," or that talking back is "disrespectful") may have been associated with adolescent withdrawal which in turn may have increased demands of the parent on the adolescent (e.g., "don't be disrespectful"). In this way, TD/AW may have escalated the overall amount of DW in the family-therapeutic system to a level where it became a problematic cycle associated with increases in the adolescent's presenting drug use problems. This may indicate that mirroring PD/AW by engaging in TD/AW interaction, even when the PD/AW cycle is not yet entrenched and problematic, could have the effect of contributing to poor adolescent drug use outcomes.

Alternatively, individual difference factors may have contributed to the study results. For example, an earlier finding from our group showed that, in this study sample, BSFT therapists tended to respond to adolescents who had relatively high baseline levels of substance abuse and conduct problems (e.g., histories of multiple arrests) with off-model behaviors such as didactic and prescriptive (e.g., "demanding") interventions (Lebensohn-

Chialvo, Hasler, Rohrbaugh, & Shoham, 2010). This result seemed to suggest that adolescents with more severe drug use and behavior problems at baseline “pulled” off-model demanding and directive therapist behaviors. These behaviors in turn were correlated with poor overall fidelity to BSFT. These findings may help explain how parallel DW cycles formed in the current study. That is, as the drug use of adolescents involved in PD/AW worsened, this increased drug use severity may have made it more likely that therapists would shift off model to using a didactic, demanding stance in relation to the adolescent.

Other studies conducted from an individual differences perspective may also help explain the study results. For example, it may be possible that IPs who engaged in PD/AW were particularly sensitive to therapist demands and unwilling to comply with them. This sensitivity, or reactance, may have lessened the effectiveness of BSFT for these IPs. Previous research has shown that client resistance in family therapy is associated with low therapist ratings of outcome (Chamberlain, Patterson, Reid, Kavanagh, & Forgatch, 1984) and in alcohol-related interventions, increased alcohol use one year following treatment (Miller, Benefield, & Tonigan, 1993). In addition, studies have shown that interactions between therapist directiveness and client reactance predict negative outcomes of alcohol-related interventions (Karno, Beutler, & Harwood, 2002; Karno & Longabaugh, 2005). These studies indicated that, for highly reactant clients, therapist directiveness was associated with increased post-treatment alcohol use, whereas low reactance clients either had a better drinking outcome after following therapists’ directives (Karno et al., 2002) or their alcohol use was not affected by therapist directiveness (Karno & Longabaugh, 2005). From the perspective of this research, the individual traits of IP reactance and therapist directiveness, rather than isomorphic DW interaction dynamics, may explain why PD/AW interacted with TD/AW to predict IP drug use.

The current study had some limitations. First, the study sample consisted of a subset of participants that were not selected at random. Although there were no demographic differences between this group and the adolescents that were excluded, the included participants attended significantly more BSFT sessions than did the excluded participants. Thus, our findings may not generalize to samples that receive lower levels of treatment or drop out early from treatment. A second limitation pertains to the correlational nature of the study. Therapists were not randomized to “low demand” and “high demand” conditions. Thus, third variables such as therapist behaviors correlated with TD/AW may have contributed to our results. A third factor that may limit the generalizability of findings concerns the trainee status of the study therapists. The demand behaviors we observed in the study therapists may be specific to their developmental stage as new BSFT trainees. It is quite possible that more experienced BSFT therapists would interact differently with family clients and that our results would not replicate with these therapists. Lastly, the study results occurred in a sample of adolescents whose number of drug use days did not change significantly from baseline to follow-up, and whose abstinence rates decreased from baseline to follow-up. Thus, the effects of PD/AW and TD/AW may differ in samples that decrease their drug use over time.

In sum, results suggest that parallel DW processes in family therapy for adolescent drug abuse can compromise treatment outcome. Findings highlight two key BSFT principles –

remaining decentralized and placing more demand for change on parents than on adolescents – and suggest that these principles are particularly important to observe when therapists work with families that exhibit PD/AW. More research is needed to discern the role that systemic DW processes versus individual traits such as therapist directiveness and adolescent reactance play in predicting outcomes of family therapy. For example, future research could evaluate whether instances of TD/AW interaction reliably predict subsequent PD/AW which then predict increased TD/AW (e.g., a therapist tells the adolescent that drug use is dangerous, the adolescent withdraws, and the parent then tells the adolescent to listen to the therapist). Coding such sequences of DW communication may provide a more purely systemic measure of parallel DW interactions than the one used in the current study. Using such a measure, researchers could compare coded DW sequences with observations of therapist directiveness and adolescent reactance to test the degree to which each measure predicts adolescent drug use outcomes. Such research would provide concrete information to family therapists regarding the degree to which demand-withdraw processes versus adolescent reactance and therapist directiveness traits predict poor outcome. Information provided by this type of research would likely be particularly beneficial to family therapy trainees and supervisors seeking to avoid getting involved in maladaptive interaction processes with the family. It would also help improve family interventions by clarifying processes or traits that may contribute to poor therapy outcomes.

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Figure 1.

Adolescents' predicted number of drug use days in the 7 to 12 month follow-up period as a function of baseline level of parent-demand/adolescent-withdraw interaction and level of therapist-demand/adolescent-withdraw in BSFT sessions.

Table 1

Adolescent and Family Demographic Characteristics

Adolescent Demographics	
Age in years, <i>M (SD)</i>	16 (1.26)
Males, <i>n (%)</i>	73 (80.2)
Ethnicity ^a	
Hispanic, <i>n (%)</i>	44 (48.4)
White, <i>n (%)</i>	31 (34.1)
African-American, <i>n (%)</i>	14 (15.4)
Number (%) with History of Incarceration	45 (48.9)
Number (%) with History of Multiple Arrests	34 (37.4)
Number (%) in Restricted Environment in Month Prior to Baseline ^b	19 (20.9)
Family Demographics	
Blended family composition, <i>n (%)</i> ^c	82 (90.1)
Family size, <i>M (SD)</i> ^d	3.18 (1.01)
Median household income	\$20,000 – \$24,999

Note. *n* = 91;

^a Ethnicity data were missing for 2.2% of adolescents;

^b Restricted environments included detention facilities and in-patient treatment,

^c Blended families were those in which one or both parental figures were remarried and/or had children from a previous relationship,

^d Family size was measured by the number of family members with which the adolescent reported having regular, almost daily contact.

Table 2

Therapist Demographic Characteristics

Age in years, <i>M (SD)</i>	43 (9.03)
Males, <i>n (%)</i>	8 (44.4)
Ethnicity	
Hispanic, <i>n (%)</i>	4 (22.2)
White, <i>n (%)</i>	10 (55.6)
African-American, <i>n (%)</i>	3 (16.7)
Other, Unspecified, <i>n (%)</i>	1 (5.5)
Years of Counseling Experience, <i>M (SD)</i>	7.72 (5.33)
Level of education	
<i>N (%)</i> with Bachelor's Degree	3 (16.7)
<i>N (%)</i> with Master's Degree	13 (72.2)
<i>N (%)</i> with Doctorate Degree	2 (11.1%)
Family clients during the study, <i>M (SD)</i>	13.17 (6.46)

Note. *n* = 18.

Table 3

Descriptive Statistics: Adolescent, Family and Therapist Variables

	Baseline	Follow-up
Adolescent Variables		
Number (%) Abstinent	27 (29.7)	14 (15.4)
Number of Drug Use Days, <i>M (SD)</i> ^a	8.25 (10.06)	48 (62.93)
Number of Days in a Restricted Environment, <i>M (SD)</i> ^b	1.87 (5.61)	20.36 (1.01)
Family and Therapist Variables		
Parent-Demand/Adolescent-Withdraw Interaction, <i>M (SD)</i> ^c	1.86 (1.00)	--
In-Session Therapist-Demand/Adolescent-Withdraw Interaction, <i>M (SD)</i> ^c	--	2.71 (1.56)

Note. *n* = 91;

^a Baseline numbers reflect occurrences of the behavior in the month prior to baseline, follow-up numbers represent the occurrences of the behavior during follow-up months 7 – 12;

^b Restricted environments included detention facilities and in-patient treatment,

^c These variables were rated on a 1 – 5 scale.

Table 4

Results of Zero-Inflated Poisson Regression Examining Predictors of Drug Use Days and Complete Abstinence from T7 through T12

	B	SE B	Z value
Count Model Coefficients Estimating Prediction of Average Monthly Drug Use Days at Follow-Up			
Constant	3.99	0.18	21.93***
Baseline Drug Use Days	0.06	0.00	42.42***
Therapists' Years of Counseling Experience	0.00	0.00	0.19
N of Days in a Restricted Environment at Baseline	-0.01	0.00	-1.37
N of Days in a Restricted Environment at Follow-Up	0.02	0.00	2.40*
Baseline Parent-Demand/Adolescent-Withdraw	-0.59	0.10	-6.13***
Therapist-Demand/Adolescent-Withdraw	-0.48	0.10	-4.96***
Baseline Parent-Demand/Adolescent-Withdraw X Therapist-Demand/Adolescent-Withdraw	0.35	0.05	6.94***
Zero-Inflation Model Coefficients Estimating Likelihood of Complete Abstinence at Follow-Up			
Constant	1.34	3.88	0.73
Baseline Drug Use Days	-0.43	0.26	-1.67
Therapists' Years of Counseling Experience	0.03	0.07	0.48
N of Days in a Restricted Environment at Baseline	-0.07	0.08	-0.83
N of Days in a Restricted Environment at Follow-Up	0.06	0.09	0.68
Baseline Parent-Demand/Adolescent-Withdraw	-0.37	2.03	-0.18
Therapist-Demand/Adolescent-Withdraw	-1.67	2.12	-0.79
Baseline Parent-Demand/Adolescent-Withdraw X Therapist-Demand/Adolescent-Withdraw	0.39	1.07	0.37

Note.

 $p < .001$,

**
 $p < .01$,

*
 $p < .05$.