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Behavioral Couples Treatment for Substance Use Disorder: Secondary Effects on the Reduction of Risk for Child Abuse

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Abstract

Risk for child abuse was examined prior to and after Behavioral Couples Treatment (BCT) among 61 couples in which one or both parents were diagnosed with substance use disorder (SUD). All couples were residing with one or more school-age children. Mothers and fathers completed pretreatment, post-intervention, and 6-month post-intervention follow-up assessments. Results of piecewise latent growth models tested whether the number of BCT sessions attended and number of days abstinent from drugs and alcohol influenced relationship satisfaction and its growth over time, and in turn if relationship satisfaction and change in relationship satisfaction influenced risk for child abuse. For both mothers and fathers, attending more BCT sessions lead to a direct increase in relationship satisfaction, which in turn led to stronger reductions in risk for child abuse. This effect was maintained from the post-intervention through the 6-month post-intervention follow-up. For fathers, number of days abstinent significantly influenced reduction in child abuse potential at post-intervention via relationship satisfaction. This indirect effect was not present for mothers. The overall benefits of BCT on mothers' and fathers' risk for child abuse suggest that BCT may have promise in reducing risk for child abuse among couples in which one or both parents have SUD.

Keywords

couples treatment; substance use disorder; relationship satisfaction; child abuse

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Among the most detrimental consequences of drug and alcohol use disorders are the negative effects parents' substance use disorder (SUD) has on risk for child abuse (Staton-Tindall, Sprang, Clark, Walker, & Craig, 2013 for a review; Wekele, Wall, Leung, & Trocmé, 2007). Although individual treatment for alcohol use disorder is associated with reductions in children's exposure to interparental violence (Rounsaville, O'Farrell, Andreas, Murphy, & Murphy, 2014) and improvements in their children's emotional and behavioral functioning (Andreas & O'Farrell, 2007), whether couples-based treatment for SUD is associated with decreases in risk for child abuse has not been examined. Behavioral Couples Therapy (BCT), a conjoint treatment designed to reduce substance use and improve relationship functioning (O'Farrell & Fals-Stewart, 2006), has demonstrated benefits in reducing alcohol use (see Klostermann, Kelley, Mignone, Pusateri, & Wills, 2011 for a review) and improving relationship adjustment (see Meis et al., 2013; Powers, Vedel, & Emmelkamp, 2008 for reviews). In the present study, we examined whether the number of BCT sessions attended and the number of days abstinent from drugs and alcohol corresponded to changes in mothers' and fathers' relationship satisfaction as well as their risk of child abuse over time among couples in which one or both parents were diagnosed with SUD.

Risk for Child Abuse among Mothers and Fathers with SUD

Parental SUD is associated with higher incidence of, and risk for, child abuse (e.g., Ammerman, Kolko, Kirisci, Blackson, & Dawes, 1999; Gruber, 2006; Hien, Cohen, Caldeira, Flom, & Wasserman, 2010), and is one of the main reasons children enter foster care (Vanderploeg, Connell, Caron, Saunders, Katz, & Tebes, 2007). The association between parental SUD and child abuse has been documented by retrospective reports from adults (e.g., Dube et al., 2001; Walsh, MacMillan, & Jamieson, 2003), prospective longitudinal studies (e.g., Chaffin et al., 1996; Kotch et al., 1999) and examinations of child protective services cases (e.g., Dubowitz, Kim, Black, Weisbart, Semiatin, & Magder, 2011; Staton-Tindell et al., 2013). In a seminal study of this issue, Christoffersen (2003) found risk for child abuse to be 2 to 13 times higher for those who were raised by mothers, fathers, or two parents with alcohol use disorder compared to offspring raised by non-alcohol-abusing parents.

In contrast to the limited research examining substance-abusing fathers, studies have demonstrated consistently that mothers with SUD are at greater risk for child abuse compared to mothers without SUD (e.g., Grella, Hser, & Huang, 2006; Gruber & Taylor, 2006; Hien & Honeyman, 2000). Compared to non-substance-abusing mothers, mothers with SUD exhibit significantly harsher physical punishment (e.g., spanking, hitting child with a fist) in response to child misbehavior (Hien & Honeyman, 2000; Miller, Smyth, & Mudar, 1999). Moreover, the possibility of child abuse appears especially high when mothers with SUD show high anger arousal and reactivity (Hien et al., 2010).

Relative to studies on mothers with SUD, fewer studies have examined fathers' SUD and risk for child abuse. Blackson et al. (1999) demonstrated that both fathers and mothers in relationships in which fathers had alcohol use disorder reported greater child abuse potential

than parents in relationships in which men did not have alcohol use disorder. This finding coincides with research demonstrating that non-alcohol-abusing women with alcohol-abusing partners report more psychological distress than women with non-substance-abusing partners (Tempier, Boyer, Lambert, Mosier, & Duncan, 2006). Thus, even when a parent does not have SUD, residing with a partner that has SUD may increase emotional distress, social isolation, depressive symptoms, disorganization, and financial strain, as well as reduce frustration tolerance, all of which may increase risk for child abuse (Ammerman et al., 1999; Gruber & Taylor, 2006; Kelley, Lawrence, Milletich, Hollis, & Henson, 2015; Staton-Tindell et al., 2013; Testa & Smith, 2009; Wulczyn, 2009). As might be expected, children with substance-abusing parents who experience child abuse are at higher risk for emotional and behavioral problems (e.g., Chen & Weitzman, 2005; Gruber & Taylor, 2006). Thus, identifying treatments for SUD that may also reduce risk for child abuse is critical.

Behavioral Couples Treatment for SUD

One of the most empirically supported conjoint treatments for alcoholism is Behavioral Couples Therapy (BCT). BCT is a partner-involved treatment for substance abuse that teaches skills that promote partner support for abstinence and attempts to alter dyadic patterns to support a family environment that is more conducive to long-term abstinence. BCT does not directly address child or parenting concerns (see O'Farrell & Schein, 2011). In general, BCT has been shown to be superior to individual treatment for alcohol use disorder (Klostermann et al., 2011; Meis et al., 2013; O'Farrell & Clements, 2012; Powers et al., 2008). For instance, compared to women who took part in individual behavioral therapy for alcohol use, women who took part in BCT for alcohol use showed greater improvement both in percent days abstinent and percent days heavy drinking (McCrary et al., 2009). Furthermore, women in the BCT group continued to have better drinking outcomes at the 18-month follow-up. Similarly, Schumm et al. (2014) found greater reduction in alcohol use and fewer alcohol-related problems among women who took part in BCT as compared to those who took part in individual treatment.

Compared to individual treatment for alcohol use disorder, BCT also results in greater improvements in relationship adjustment (Meis et al., 2013; Schumm et al., 2014). Among veterans with and without post-traumatic stress disorder who received BCT for SUD, BCT was associated with increases in relationship satisfaction, and reductions in male-to-female violence and psychological distress immediately after and at 12-month follow-up (Rotunda et al., 2008). Further, in one meta-analysis comparing various treatments for alcohol and drug use disorders, Powers and colleagues (2008) found that BCT outperformed individual-based treatments on relationship functioning ($d = .57$).

Secondary Effects of Parent Treatment for Substance Abuse on Children in their Homes

Although the effects of parent's SUD vary from family to family, many couples in which one or both parents have SUD display poor communication, emotional distress, mental health problems (e.g., depression), arguing, physical partner violence, financial stress, and unpredictability (e.g., Kelley, Klostermann, & Henson, 2013; Klostermann & Kelley, 2012

Wulczyn, 2009). It could be argued that many couples in which one or both parents have SUD may exhibit an overtly hostile style (Ahrons, 1981; Camara & Resnick, 1988) in which frictional conflict and poor communication is the mode by which partners communicate and work through everyday disagreements. This style of communication may spill over into parenting and parent-child interactions and increase risk for child abuse (Erel & Burman, 1995). Reductions in substance use and improvements in communication, problem solving, and conflict may improve relationship functioning and subsequently reduce stress and improve individual parent functioning which may reduce risk for child abuse.

In one of the few studies to examine the secondary effects of treatment for substance-abusing parents on parenting, Luthar and Suchman (2000) found structured psychotherapy with a focus on the reduction of maternal anxiety and depression but did not include any attempt to enhance parenting skills, reduced risk for child abuse. In a series of studies, Andreas and colleagues have examined the secondary benefits of individual treatment for alcohol use disorder combined with group therapy on children in their homes (Andreas & O'Farrell, 2007; Rounsaville, Andreas, O'Farrell, Murphy & Murphy, 2014). Importantly, treatment was associated with decreases in children's exposure to interparental conflict at 6- and 12-month follow-ups compared to baseline. Furthermore, children of remitted alcoholics did not differ in exposure to interparental conflict as compared to a community sample at 6-month follow-up. By the 12-month follow-up, remitted alcohol-abusing men and their non-alcohol-abusing partners' reported higher interparental conflict in the presence of children than did couples in the community sample (Rounsaville et al., 2014). Andreas and O'Farrell (2007) demonstrated that parents' reports of children's emotional and behavioral symptoms changed as a function of paternal drinking trajectory with the greatest changes for children whose parents remained abstinent from pretreatment through 12-month follow-up.

Although some research has demonstrated the secondary effects of individual treatment for alcohol use for children in their homes (e.g., Andreas & O'Farrell, 2007), the potential secondary effect of BCT for the reduction of risk for child abuse has not been demonstrated. In the present study, we tested two parallel models in which 1) the number of BCT sessions attended was expected to have positive indirect effects on mothers' and fathers' self-reported risk for child abuse via its impact on improvements in each parent's relationship functioning, and 2) increases in the number of days abstinent from drugs and alcohol was expected to increase parent's relationship functioning which in turn would reduce abuse risk.

Method

Participants

Participants were ($n = 61$) heterosexual couples where one or both partners met criteria for drug or alcohol use disorder or both. To qualify for the study, couples needed to be married or in a stable relationship defined as married for at least one year or cohabitating for at least two years and have at least one child 18 years of age or younger that lived with them full-time or in a few cases, the parent in the study had a shared custody arrangement and the study parent had care of the child approximately 50% of the time. Families were excluded if one or more partners reported affirmative responses to items that assess injury (e.g., Went to the doctor due to a fight with my partner) or severe violence (e.g., I beat up my partner) on

the CTS-2 (Straus, Hamby, Boney-McCoy, & Sugarman, 1996) or if both adult partners did not speak fluent English. Couples were recruited via advertising at outpatient treatment centers specializing in substance abuse treatment, via community mental health providers, in area newspapers, and at community events. Announcements indicated that adults who met study criteria were eligible to attend 12 free substance abuse counseling sessions with their partners. All participants were compensated \$30 each for the baseline assessment, then \$50 each for the post-intervention and the 6-month post-intervention follow-up assessment (resulting in \$130 per person and \$260 per couple if all assessments were completed).

Among male partners, 29 men (47.54%) who met DSM-IV-TR criteria for drug and alcohol diagnoses, 17 men (27.87%) who met criteria for alcohol use diagnosis, 10 men (16.39%) who met criteria for drug use diagnosis, and 5 men (8.2%) who did not meet criteria for drug or alcohol use diagnosis. Among female partners, 16 women (26.23%) met DSM-IV-TR criteria for drug and alcohol diagnoses, 4 women (6.56%) met criteria for alcohol use diagnosis, 8 women (13.12%) met criteria for drug use diagnosis, and 33 women (54.10%) did not meet criteria for drug or alcohol use diagnosis. Couples reported living together an average of 8.58 years ($SD = 7.61$), and approximately half of the couples ($n = 33$; 54.1%) reported being married. The mean age for children was 10.45 years ($SD = 4.26$; Range = 1 to 18 years); 33 children were girls. See Table 1 for a full description of the sample (age, race, income, and so forth) by partner gender. The study was conducted in accordance with the code of ethics of the American Psychological Association and human subjects approval was granted by the participating research university's internal review board.

Procedure

Potential participants responded to study advertisements or gave permission to be contacted about the study. Participants were screened over the phone to ensure they met eligibility criteria. They then came into the research center and were led through a baseline assessment by a licensed counseling or clinical psychologist (with approximately 15 years of clinical and clinical research experience) or a trained research assistant under the supervision of the licensed clinical psychologist. Participants provided informed consent individually. Participants were diagnosed with drug, alcohol, or both disorders using the Structured Clinical Interview for DSM-IV-TR Axis I Disorders (SCID; First, Spitzer, Gibbon, & Williams, 2010). This type of administration has been shown to be reliable (Lobbestael, Leurgans, & Arntz, 2010). After completing the baseline assessment, participants were invited to attend 12 conjoint BCT sessions. Participants returned to the research center to complete both a post-intervention assessment and a 6-month post-intervention follow-up after completion of the last BCT session or at a comparable time for couples who discontinued therapy (approximately 3 and 9 months after the baseline assessment). The same measures were completed at each assessment.

Materials

Behavioral Couples Therapy—The 12 weekly BCT sessions were designed (a) to help partners refrain from drug and alcohol use via reviewing and reinforcing a verbal contract (i.e., Recovery Contract), (b) to teach successful communication skills including active listening and expressing feelings clearly and directly; and (c) to instruct couples in

acknowledging positive qualities and behaviors in one another and encourage couples to share in leisure activities. All counselors followed a detailed treatment manual (O'Farrell & Fals-Stewart, 2006) with weekly modules that included in-session exercises and weekly homework. Counselors were able to address clinical issues as necessary. Participants were allowed to attend group counseling (e.g., Alcoholics Anonymous, Narcotics Anonymous, Al-Anon) during the active treatment phase of the study. However, participants were prohibited from attending other active treatments during the weekly BCT sessions. Further, sessions did not address parenting skills, parent-child interactions, or child behavior.

Treatment providers were master's or doctoral level counselors or psychologists experienced in the treatment of addiction and were either state-certified or working toward licensure. Prior to providing BCT all therapists participated in pre-study didactic and training conducted by members of the research team. During the course of the study, all therapists received weekly supervision from a master's or doctoral level therapist who had extensive supervisory and counseling experience and knowledge of addiction and BCT. To establish treatment fidelity, sessions were audiotaped to ensure that counselors did not engage in proscribed topics (e.g., parenting, disciplinary practices) or include procedures from other treatment therapies. Also, the manual includes a list of weekly session topics. Prior to reviewing the audiotapes, three raters (one doctoral level clinical psychologist and two clinical doctoral students) received extensive training in BCT from a licensed counselor or psychologist who had published in the area of BCT and had trained/supervised counselors using BCT in clinical research studies and in community settings. Random review of 20% of the audiotaped sessions revealed 100% compliance to session topics and no breach in proscribed topics (e.g., parenting topics).

Relationship satisfaction—The Dyadic Adjustment Scale (DAS; Spanier, 1976) was used to assess relationship satisfaction. The DAS is a widely-used research and clinical measure that includes assesses dyadic consensus, dyadic satisfaction, affectional expression, and dyadic cohesion. Response scales vary for individual items; item scores are summed to create a total score in which higher values indicate better levels of relationship satisfaction (maximum possible value of 151). Reliability for the current study was excellent for both males ($\alpha = .95, .84, .95$ for times 1, 2, and 3 respectively) and females ($\alpha = .95, .97, .98$ for times 1, 2, and 3 respectively). See Table 2 for descriptive information for all study variables, as well as their bivariate correlations.

Child abuse potential—Child abuse potential was assessed using a slightly modified version of the Brief Child Abuse Potential Inventory (BCAP; Ondersma, Chaffin, Mullins, & LeBreton, 2005). Specifically, the BCAP assesses 24 items that assess potential risk for child abuse (1 additional optional item was added after the publication of the development sample; Ondersma, personal communication, and administered) and 9 items assess validity (3 items assess random responding and 6 items assess lying). The BCAP is an abbreviated version of the Child Abuse Potential Inventory (CAP; Milner, 1986). The CAP is a widely-used 160-item self-report instrument with good reliability and demonstrated predictive validity (Milner, 1994). The CAP and BCAP assess problems known to be associated with child abuse, including distress, family conflict, rigidity, happiness (reverse-worded), feelings

of persecution, loneliness, and financial insecurity. Items from the BCAP that assess random responding and lying were not administered to reduce subject burden and because the BCAP was administered one-on-one which may reduce the likelihood of random responding or invalid protocols. Further, one item that assessed strict obedience (rigidity) was deleted and replaced by an additional item that assessed feelings of persecution. The remaining instrument was comprised of 25 items (scored 1 = agree, 0 = disagree) that assessed problems associated with child abuse (e.g., “I often feel very alone”, “A child needs very strict rules”, “My family fights a lot”, and “I am often depressed”). Items were summed into a total score, where higher scores reflect a higher potential for child abuse. Reliability for the current study was excellent for both males ($\alpha = .87, .88, .89$ for times 1, 2, and 3 respectively) and females ($\alpha = .90, .89, .86$ for times 1, 2, and 3 respectively).

Number of sessions—Participants were invited to attend 12 weekly Behavioral Couples Therapy sessions (see O’Farrell & Fals-Stewart, 2006). The mean number of BCT sessions attended was 6.89 ($SD = 4.94$; Range = 0 to 12). Number of sessions attended is treated as an indicator of treatment dosage.

Timeline Followback Interview—Participants were guided through the 90-day Timeline Followback (TLFB; Sobell & Sobell, 1992, 1995) which uses a calendar assessment method that uses event prompts (i.e., holidays, birthdays, paydays, other key days) to cue drug and alcohol use days. At the pretreatment assessment, partners’ reported on the 90 days prior to the baseline assessment. The post-intervention and 6-month follow-up assessments covered the 90 days prior to the assessment. The TLFB has high convergent validity with other substance use screening instruments (Roy et al., 2008) and high test-retest reliability with collateral reports of drug and alcohol (Breslin, Sobell, & Sobell, 1996; Carey, Carey, Maisto, & Henson, 2004). Data were collected from partners’ separately. Based on this information, number of days abstinent (i.e., abstaining from both drugs and alcohol) were computed for each 90-day window.

Analysis Plan

After ensuring outcomes (relationship satisfaction and risk for child abuse) were normally distributed and free of outliers, analyses were conducted in Mplus, version 7.2 (Muthén & Muthén, 1998–2012) to test aims 1 and 2. As seen in Figures 1 and 2, piecewise latent growth models were constructed for number of sessions attended, days abstinent, relationship satisfaction, and child abuse potential resulting in parallel process models. Although sample sizes of 100 are preferred for growth models (Curran, Obediat, & Losardo, 2010); growth models (including parallel process latent growth models) have successfully been fitted to samples smaller than 100 participants (Kieffer & Lesaux, 2012; Rowe, Raudenbush, & Goldin-Meadow, 2012) and even as low as 22 participants (Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991).

Within the models, factor loadings were set to 1 for the intercept to reflect baseline levels for each construct. Factor loadings were set to 0, 1, and 1 for baseline, post-intervention, and 6-month post-intervention follow-up respectively for slope 1 to capture growth from baseline to post-intervention (the intervention effect), and were set to 0, 0, and 1 for slope 2 to

capture growth from post-intervention to 6-month follow-up (the maintenance effect). The structural paths assessed if number of sessions (Figure 1) or number of days abstinent (Figure 2) influenced relationship satisfaction (intercept) or its growth over time (slopes 1 and 2), and in turn if relationship satisfaction influenced child abuse potential (intercept) or its growth over time (slopes 1 and 2). Relationship satisfaction growth predicted child abuse potential growth for the same period (e.g., slope 1's influence on slope 1). These two effects were combined to estimate the indirect effect, indicating if mediation occurred. The direct effects between number of sessions or number of days abstinent and child abuse potential and its growth over time were also assessed. Significance was assessed using bias-corrected bootstrapped confidence intervals with 10,000 replications, where 95% confidence intervals not containing zero indicate significance at the $p < .05$ level. Fathers and mothers were assessed separately but simultaneously in each model, such that Figure 1 was assessed twice: once for males and once for females within the same model.

Results

Number of Sessions

Results for the model assessing the influence of number of treatment sessions attended on change in child abuse potential through relationship satisfaction can be seen in Table 3. The values represented in the top section of the table represent the intercepts for the latent growth variables, which are interpreted as growth observed if the values of the associated predictors are zero (in this case, meaning no treatment sessions were attended). As seen in Table 3, the intercepts demonstrate that if no treatment sessions are attended, relationship satisfaction growth to time 2 (i.e., post-intervention) and growth to time 3 (i.e., 6 months after post-intervention) are both not significant, for neither females nor males. Thus, if couples do not attend treatment, there are no significant changes in relationship satisfaction across time. The intercepts for the latent growth variables for child abuse potential represent growth observed if the values of the associated predictors are zero (in this case, meaning no treatment sessions attended and no changes in relationship satisfaction over time). As seen in table 3, the intercepts indicate that if no treatment sessions are attended and relationship satisfaction does not change, child abuse potential growth to time 2 (i.e., post-intervention) and growth to time 3 (i.e., 6 months after post-intervention) are both not significant, for neither females nor males. Thus, if couples do not attend treatment and have no change in relationship satisfaction, their child abuse potential does not change over time. To examine the influence of attending treatment on relationship satisfaction, and how relationship satisfaction influences child abuse potential, we turn to the specific paths in the model, including the indirect effects

Indirect Effects—The indirect effect for slope 1 indicates that the number of treatment sessions attended significantly impacts growth in child abuse potential post-intervention through relationship satisfaction. The slope 1 direct effects indicate that more sessions attended lead to increases in relationship satisfaction, which in turn leads to stronger reductions in child abuse potential. This is true for both mothers and fathers. This indicates a significant intervention effect. Because the direct effect of number of sessions on child abuse potential is not significant (see Table 3), this implies that treatment influences child

abuse potential completely through relationship satisfaction. However, the indirect effect for slope 2 is not significant for either gender, indicating that these effects are maintained from post-intervention through the 6-month post-intervention follow-up. This is supported by the fact that the direct effects among slope 2 constructs are also not significant.

Number of Days Abstinent

Results for the model assessing the influence of change in number of days abstinent on change in child abuse potential through relationship satisfaction can be seen in Table 4. The values represented in the top section of the table represent the means (for number of days abstinent) and intercepts (for relationship satisfaction and child abuse potential) for the latent growth model variables, demonstrating that if there is no change in number of days abstinent, relationship satisfaction growth to time 2 (i.e., post-intervention) and growth to time 3 (i.e., 6 month post-intervention follow-up) are both not significant for females. However, for fathers, relationship satisfaction does significantly increase post-intervention, even without a change in days abstinent. Fathers' relationship satisfaction then relapses, as evidenced in a significant decline from the post-intervention to the 6-month post-intervention follow-up. Conversely, if there is no change in days abstinent and relationship satisfaction does not change, child abuse potential growth to time 2 (i.e., post-intervention) and growth to time 3 (i.e., 6 month post-intervention follow-up) are both not significant for males. However, mothers' child abuse potential does significantly decline post-intervention, even without a change in days abstinent or relationship satisfaction. It then stays consistent, with non-significant changes to the 6-month post-intervention follow-up assessment.

Indirect Effects—The indirect effect for slope 1 indicates that changes in number of days abstinent significantly impacts growth in child abuse potential post-intervention through relationship satisfaction for fathers. The slope 1 direct effects indicate that increases in number of days abstinent lead to significantly stronger increases in relationship satisfaction, which in turn leads to significant reductions in child abuse potential. This indicates a significant intervention effect. Because the direct effect of change in days abstinent on child abuse potential is not significant (see Table 4), this implies that change in days abstinent influences child abuse potential completely through relationship satisfaction. This effect was not observed for female partners. Although increases in relationship satisfaction at the post-intervention assessment were associated with reduced child abuse potential at post-intervention, change in number of days abstinent did not influence relationship satisfaction for female partners. As before, the indirect effect for slope 2 is not significant for either gender, indicating that these effects are maintained from post-intervention through the 6-month follow-up. This is supported by the fact that the direct effects among slope 2 constructs are also not significant.

Discussion

The primary goal of this study was to examine whether a couples-based therapy for substance abuse treatment (i.e., BCT) has secondary benefits for the reduction of risk for child abuse among substance-abusing parents residing with minor children. This is one of

the first studies to address this important, clinically relevant goal and our results provide preliminary evidence that a secondary benefit of BCT is the reduction of child abuse risk.

For both mothers and fathers, attending more treatment sessions had positive effects on relationship satisfaction. Importantly, this effect was maintained from the post-intervention through the 6-month post-intervention follow-up. These results are consistent with previous research that has demonstrated the efficacy of BCT for SUD for improvement in relationship satisfaction among couples in which one partner has alcohol use disorder (Meis et al., 2013; O'Farrell & Schumm, O'Farrell, Kahler, Murphy, & Muchowski, 2014; Powers et al., 2008). More globally, these results correspond to marital therapy research which has shown that behavioral therapies that target changes in communication are associated with improvements in relationship satisfaction (Doss, Thum, Sevier, Atkins, & Christensen, 2005) and decreases in relationship distress (Shadish & Baldwin, 2005).

This study also provides evidence that a secondary benefit of attending more treatment sessions is the reduction of mothers' and fathers' reports of risk for child abuse. Attending more BCT sessions, however, did not directly predict changes in child maltreatment risk. Rather, the number of BCT sessions attended had an indirect effect on risk for child abuse via improvement in relationship functioning. This finding is consistent with the aims of BCT. BCT is designed to foster effective communication, reduce conflict, and facilitate positive dyadic interactions in order to foster happier, more cohesive relationships that have lower risk of relapse. BCT, however, does not directly address parenting or parent-child interactions (O'Farrell & Fals-Stewart, 2006).

Extensive theoretical and empirical literature has demonstrated that alcohol and drug abuse are linked to verbal and physical partner violence (Jose, O'Leary, Gomez, & Foran, 2014; Leonard, 2005; Moore, Stuart, Meehan, Rhatigan, Hellmuth, & Keen, 2008; Murphy & Ting, 2010; Rounsaville et al., 2014; Stuart, O'Farrell, & Temple, 2009; Whitaker, Orzol, & Kahn, 2006). Borrowing from the parenting literature, it could be argued that this style of couple interaction in which arguing and physical violence is common, represents an overtly hostile style (Ahrns, 1981; Camara & Resnick, 1988). Teaching parents skills that increase positive communications and problem solving, may reduce poor communication and the frictional conflict that permeates many couples in which one or both partners have SUD (see Kelley et al., 2013). Further, it has been argued that one of the reasons that couples therapy is effective in martially distressed couples, is that it is effective in reducing psychological distress (Doss et al., 2015). Although we did not assess the specific mechanisms by which BCT reduces risk for child abuse, given the objectives of BCT, it is possible that improvements in relationship satisfaction may also reduce psychological stress, depressive symptoms, arguing, loneliness, and parenting over-reactivity. Each of these factors has been associated with risk for or the perpetration of child abuse (Ammerman et al., 1999; Gruber, 2006; Kelley et al., 2015; Staton-Tindell et al., 2013; Testa & Smith, 2009; Wulczyn, 2009). Although more research is needed on the mechanisms by which BCT for SUD contributes to changes in child abuse potential, these findings provide initial preliminary research showing a potential critical side effect of BCT is reducing child abuse risk.

Despite the overall benefits of BCT, the relationship between BCT and risk for child abuse is nuanced by parent gender. Even without changes in days abstinent, fathers' reported higher relationship satisfaction at post-intervention. This finding may reflect that non-substance-abusing female partners, who were generally non-substance-abusing, were willing to attend and support their partners' recovery attempts. As an aside, it was almost always the female partner who initially inquired about therapy for their substance-abusing partner. Furthermore, in BCT, partners engage in a recovery contract in which the non-substance-abusing parent learns to support her partners' sobriety. Support from their female partners' may have increased men's satisfaction with their partners.

Given the lack of a direct relationship between days abstinent and child abuse risk, the association between changes in days abstinent and reduction in risk for child maltreatment was completely through relationship satisfaction. In contrast, for mothers there was no direct or indirect effect between days abstinent and child abuse risk. This difference may reflect that nearly all fathers met diagnostic criteria for drug or alcohol use disorders. Thus, changes in substance use may have had stronger associations with relationship satisfaction and risk for child abuse among fathers. Andreas and O'Farrell (2007) found fathers' alcohol use and children's adjustment tended to parallel one another and fluctuate in sync. In the present study, fathers' risk for child abuse risk fluctuated with drug and alcohol use. However, the association between drug and alcohol use and child abuse potential was mediated by relationship satisfaction. These findings are constant with research showing that for fathers, relationship satisfaction is related to paternal warmth toward (Lee & Doherty, 2007) and closeness to their children (Hosley, Canfield, O'Donnell, & Roid, 2008).

For mothers, increases in relationship satisfaction at the post-intervention assessment were associated with lower child abuse potential at post-intervention; however, change in number of days abstinent did not influence relationship satisfaction for mothers. This finding may reflect that mothers were less likely than fathers to be diagnosed with SUD. For mothers, couples therapy, as opposed to days abstinent, may have a stronger effect on relationship satisfaction and subsequent reduction in mothers' risk for child abuse.

Clinical Implications

Globally, these results suggest that the ability to increase the number of days abstinent and improvement in dyadic satisfaction have the potential to reduce both mothers' and fathers' independent reports of risk for child maltreatment. Thus, families in treatment for reduction of child risk potential may benefit from assessment for parental substance use, and if present, treatment aimed at improving parental relationship satisfaction (e.g., BCT). In addition, increasing treatment adherence and motivation to return to sessions until treatment is complete may be especially important in these families as number of sessions completed was related to relationship satisfaction, which in turn was associated with decreases in child abuse risk. For fathers in particular, treatment providers may see improved outcomes by monitoring substance and encouraging abstinence, as increased paternal days abstinent was also related to decreases in fathers' child abuse potential. These results also show that substance abuse and family systems and risk for child abuse is not uniform, rather, child abuse risk may fluctuate with changes in therapy, substance use, and relationship

satisfaction. Despite some inroads to our understanding of parenting practices (McMahon, Winkel, & Rounsaville, 2008; Stover, Hall, McMahon, & Easton, 2012; Stover, McMahon, & Easton, 2011) and risk for child abuse among substance-abusing fathers' (Christoffersen, 2003), our results show the importance of further research and addressing risk for child abuse among both mothers and fathers in which one or both parents have SUD and reside with minor children.

Study Limitations

Certain limitations of this investigation should be noted. Foremost, child abuse behaviors themselves were not assessed; so although parents were at a decreased risk for child abuse potential (based on indicators that have been found to be associated with child abuse), there was no evidence of child abuse behaviors specifically being reduced. In addition, we cannot be certain that parents answered questions honestly. Further, the generalizability of the findings may be limited by couples with SUD who are willing to take part in a couples-based substance abuse treatment. These parents may be more motivated to make changes in their lives. It is also possible that couples who discontinue treatment have more problems than those who continue treatment (e.g., more relationship problems, mental health issues, etc.). In addition, these results may not generalize to other family configurations such as single-parent families. Similar to other clinical studies of substance abuse treatment (Epstien et al., 2007; Kelly, Epstein, & McCrady, 2004), discontinuation of treatment was high, with the typical couple completing approximately seven of 12 BCT sessions. In addition, this was a non-controlled trial. We cannot conclude that BCT is more effective in reducing risk for child maltreatment than comparable individual or group-based treatments. In addition, parents were recruited to the study that met SUD criteria for drug, alcohol or both drug and alcohol use disorders. The sample size prohibited fine-grained analysis of different forms of alcohol or drug use as related to changes in drug use, dyadic satisfaction, and risk for child maltreatment. Ideally, future research should examine how addiction to various substances may be differentially associated with risk for child abuse. In addition, we did not examine many other aspects of parent and family functioning (e.g., intimate partner violence), which may be associated with study findings.

Conclusion

This study contributes to the scarce literature on how couples-based treatment for SUD may have secondary benefits for children in their homes. Despite the overall benefits of BCT for the reduction of risk for child abuse, some differences were noted as a function of parent gender. For both mothers and fathers, attending more BCT sessions was associated with increases in relationship satisfaction which reduced risk for child abuse. This effect was maintained from the posttreatment through 6-month posttreatment follow-up. For fathers, even in the absence of any change in drug and alcohol use, relationship satisfaction improved from baseline to post-intervention but declined from posttreatment to 6-month post-intervention follow-up. Among fathers who increased days abstinent, an indirect effect was found in which increases in days abstinent was associated with increases in relationship satisfaction and reductions in child maltreatment risk. Number of days abstinent did not impact relationship satisfaction for women. Although preliminary, results suggest that BCT

appears to be a viable way to reduce risk for child abuse among parents with SUD who reside with minor children.

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Highlights

- BCT attendance has indirect effects on child abuse risk via relationship satisfaction
- Fewer days of substance use benefits fathers' child abuse risk
- Relationship satisfaction, but not fewer days of substance use, impacts mothers' child abuse risk
- BCT may have secondary benefits on child abuse risk

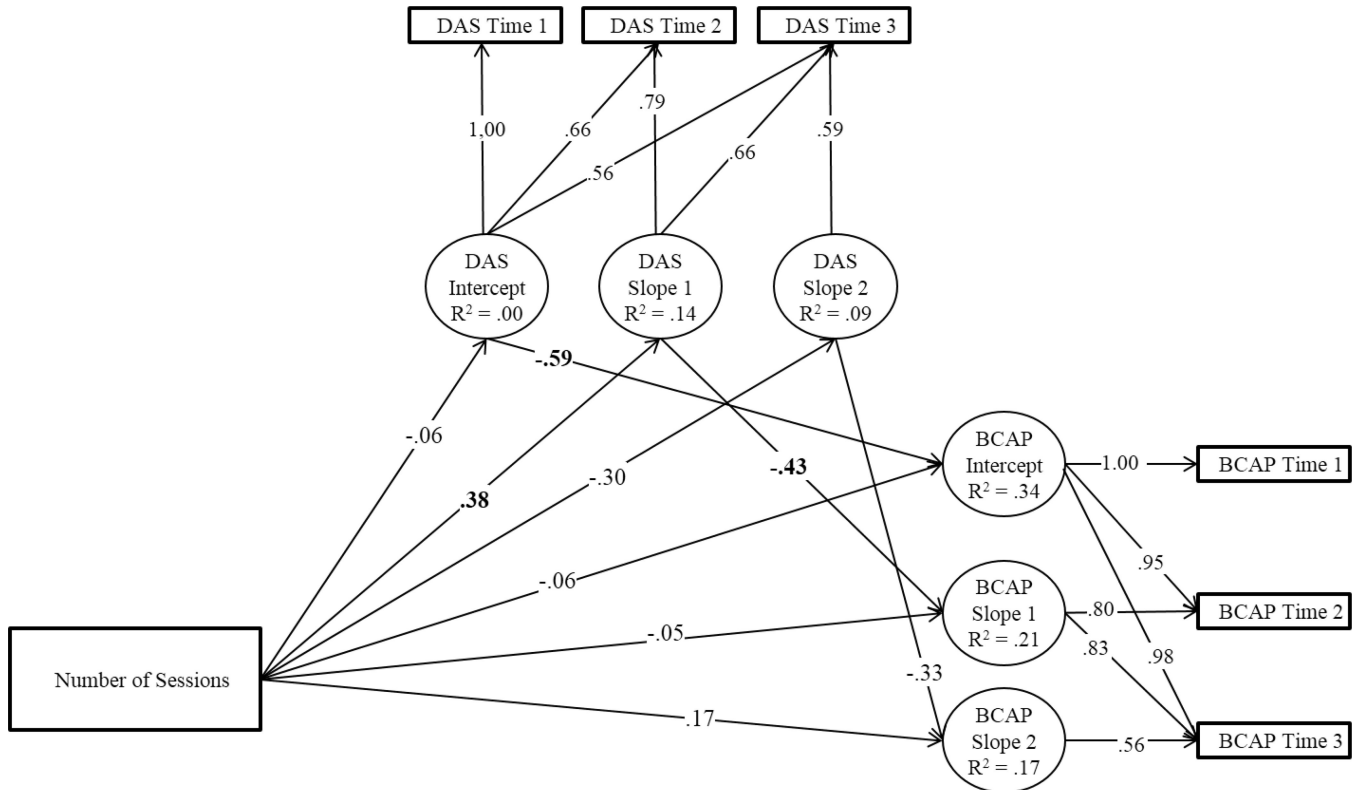


Figure 1. Standardized results of the parallel-process latent growth model (LGM) for number of sessions, DAS, and BCAP among females only ($N = 61$). Significant effects are in bold typeface for emphasis and were determined by a 95% bias-corrected bootstrapped confidence interval (based on 10,000 bootstrapped samples) that does not contain zero. Correlations among errors and disturbances are not displayed for clarity. DAS = Dyadic Adjustment Scale, BCAP = Brief Child Abuse Potential Inventory.

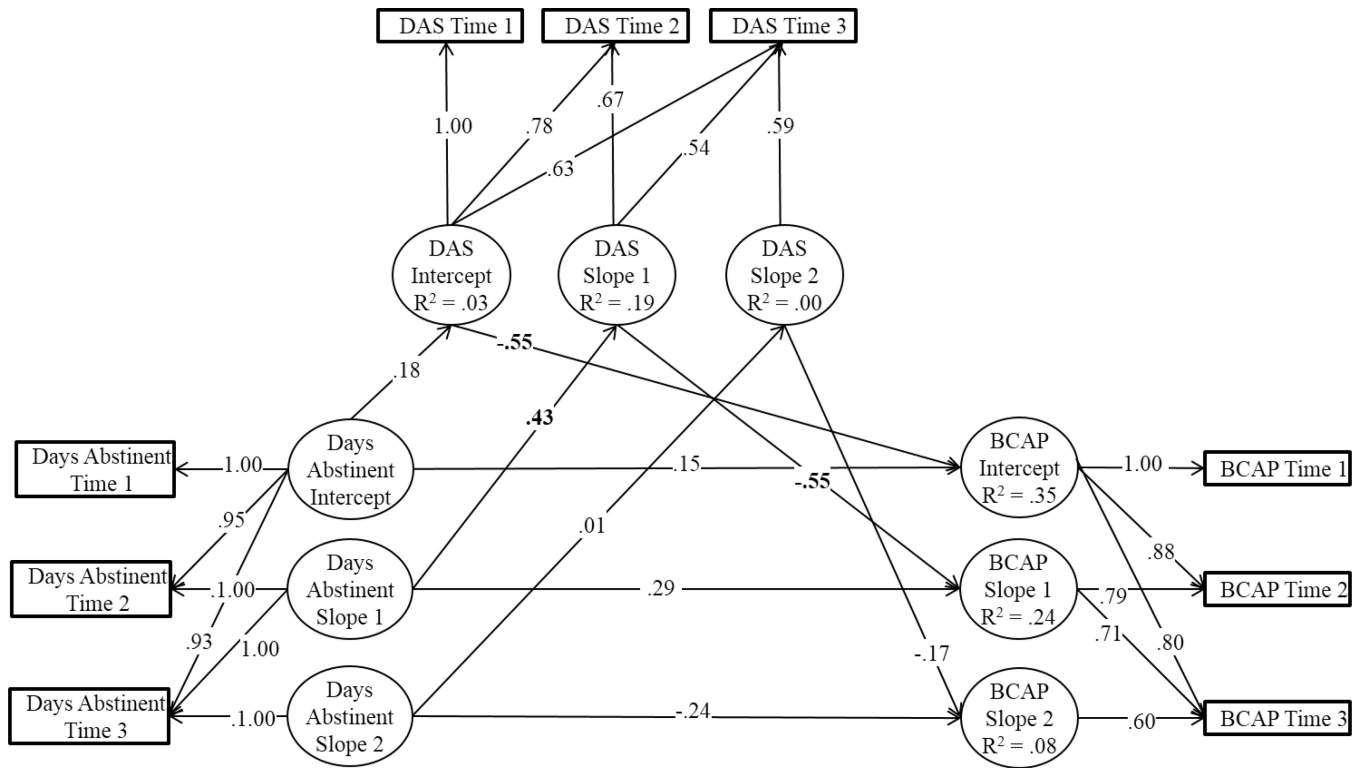


Figure 2. Standardized results of the parallel-process latent growth model (LGM) for number of Days Abstinent, DAS, and BCAP among males only ($N = 61$). Significant effects are in bold typeface for emphasis and were determined by a 95% bias-corrected bootstrapped confidence interval (based on 10,000 bootstrapped samples) that does not contain zero. Correlations among errors and disturbances are not displayed for clarity. Days Abstinent = Number of days abstinent from alcohol and drugs, DAS = Dyadic Adjustment Scale, BCAP = Brief Child Abuse Potential Inventory.

Table 1

Demographic Information for Female and Male Partners

Variable	Female			Male		
	Count (%)	M	SD	Count (%)	M	SD
Age in years	-	40.90	7.76	-	43.21	8.20
Ethnicity						
African-American	11 (18.03)	-	-	16 (26.23)	-	-
American Indian or Alaskan Native	1 (1.64)	-	-	2 (3.28)	-	-
Asian	1 (1.64)	-	-	0 (0.0)	-	-
Caucasian	36 (59.02)	-	-	37 (60.66)	-	-
Hispanic or Latino	1 (1.64)	-	-	3 (4.92)	-	-
Multicultural/Other	11 (18.03)	-	-	3 (4.92)	-	-
Married						
Yes	29 (47.50)	-	-	28 (45.90)	-	-
No	32 (52.50)	-	-	33 (54.10)	-	-
Years cohabitating	-	8.20	7.16	-	8.58	7.61
Years of education	-	13.54	2.46	-	12.93	2.33
Income (past 6 months)						
< \$20,000	42 (68.85)	-	-	31 (50.80)	-	-
\$20,000 to < \$40,000	12 (19.67)	-	-	13 (21.31)	-	-
\$40,000 to < \$60,000	4 (6.56)	-	-	10 (16.39)	-	-
> \$60,000	2 (3.28)	-	-	7 (11.48)	-	-
Missing	1 (1.64)	-	-	0 (0.00)	-	-
SUD diagnosis						
None	33 (54.10)	-	-	5 (8.20)	-	-
Alcohol only	4 (6.56)	-	-	17 (27.87)	-	-
Drug only	8 (13.12)	-	-	10 (16.39)	-	-
Alcohol and drug	16 (26.23)	-	-	29 (47.54)	-	-
Child age in years	-	10.44	4.27	-	10.45	4.26

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Variable	Female			Male		
	Count (%)	M	SD	Count (%)	M	SD
Child sex						
Male	28 (45.90)	-	-	28 (45.90)	-	-
Female	33 (54.10)	-	-	33 (54.10)	-	-

Table 2

Bivariate correlations and descriptive statistics among all study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	M	SD
1. Number of Sessions	---																			6.89	4.94
2. M: DA Time 1	.23	---																		48.04	35.81
3. M: DA Time 2	.26	.09	---																	47.84	38.71
4. M: DA Time 3	.14	.16	.08	---																61.42	38.92
5. M: DAS Time 1	-.21	.21	.25	-.11	---															100.19	23.06
6. M: DAS Time 2	.03	-.02	.49	.09	.69	---														105.03	23.17
7. M: DAS Time 3	.18	-.05	.38	-.02	.58	.76	---													97.49	33.02
8. M: BCAP Time 1	-.00	-.19	-.24	-.01	-.63	-.50	-.44	---												7.46	5.42
9. M: BCAP Time 2	-.09	-.39	-.27	.06	-.35	-.46	-.54	.63	---											6.81	5.44
10. M: BCAP Time 3	-.01	-.27	-.20	-.12	-.46	-.35	-.47	.66	.75	---										6.92	5.75
11. F: DA Time 1	.17	.38	.12	.29	.05	-.04	-.06	-.00	-.17	-.00	---									50.12	35.01
12. F: DA Time 2	.17	-.13	.56	.20	.08	.30	.27	-.16	-.16	-.32	.07	---								43.55	38.16
13. F: DA Time 3	.27	-.00	.10	.49	-.20	-.14	-.02	-.05	.05	-.25	.32	.41	---							40.71	42.48
14. F: DAS Time 1	-.06	-.08	.22	-.21	.63	.46	.44	-.35	-.26	-.16	.04	.17	-.17	---						91.49	26.67
15. F: DAS Time 2	.28	.12	.49	.05	.20	.57	.44	-.34	-.35	-.24	.14	.33	.28	.36	---					95.02	30.83
16. F: DAS Time 3	.05	-.16	.60	-.13	.55	.58	.54	-.31	-.37	-.30	-.11	.66	.13	.67	.62	---				92.41	34.96
17. F: BCAP Time 1	-.03	.22	-.31	.12	-.23	-.37	-.36	.19	.11	.05	-.08	-.15	-.01	-.63	-.28	-.44	---			9.92	6.43
18. F: BCAP Time 2	-.22	.07	-.28	-.01	-.21	-.28	-.32	.29	.20	.34	-.26	-.41	-.18	-.39	-.47	-.42	.60	---		7.08	5.77
19. F: BCAP Time 3	-.02	.17	-.39	.07	-.26	-.27	-.18	.29	.17	.34	-.05	-.43	-.22	-.30	-.43	-.47	.63	.79	---	6.24	5.24

Note. Significant correlations ($p < .05$) are bolded for emphasis. Cronbach's alphas are underlined and shown on the diagonal. M = Male, F = Female, DA = Days Abstinent from both alcohol and drugs, DAS = Dyadic Adjustment Scale, BCAP = Brief Child Abuse Potential Inventory.

Table 3
Parallel-process latent growth models of number of sessions, DAS scores, and BCAP scores with regression

<i>Intercepts</i>	Female			Male		
	<i>b</i>	β	95% CI	<i>b</i>	β	95% CI
DAS Intercept	93.83	3.55	78.96, 107.50	107.13	4.69	96.03, 116.88
DAS Slope 1	-13.17	-0.43	-32.65, 2.69	-2.25	-0.12	-12.55, 8.85
DAS Slope 2	10.56	0.38	-12.87, 31.47	-13.27	-0.61	-36.03, 6.23
BCAP Intercept	22.90	3.68	15.18, 27.63	21.99	4.27	13.62, 28.02
BCAP Slope 1	-1.95	-0.37	-4.14, 0.35	-0.63	-0.13	-3.22, 1.69
BCAP Slope 2	-1.69	-0.48	-4.58, 0.85	-1.45	-0.36	-4.48, 1.25
<i>Direct Effects</i>						
Number of Sessions → DAS Intercept	-0.34	-0.06	-1.72, 1.71	-1.01	-0.22	-2.25, 0.26
Number of Sessions → DAS Slope 1	2.37	0.38	0.74, 4.29	1.15	0.30	0.05, 2.19
Number of Sessions → DAS Slope 2	-1.66	-0.30	-3.79, 0.50	0.75	0.17	-1.04, 2.85
DAS Intercept → BCAP Intercept	-0.14	-0.59	-0.18, -0.07	-0.14	-0.60	-0.19, -0.06
DAS Slope 1 → BCAP Slope 1	-0.07	-0.43	-0.14, -0.03	-0.12	-0.45	-0.24, -0.02
DAS Slope 2 → BCAP Slope 2	-0.04	-0.33	-0.11, 0.03	-0.03	-0.18	-0.12, 0.05
Number of Sessions → BCAP Intercept	-0.07	-0.06	-0.32, 0.20	-0.14	-0.13	-0.37, 0.12
Number of Sessions → BCAP Slope 1	-0.05	-0.05	-0.33, 0.22	0.08	0.08	-0.21, 0.37
Number of Sessions → BCAP Slope 2	0.12	0.17	-0.13, 0.40	0.13	1.59	-0.14, 0.43
<i>Indirect Effects</i>						
Number of Sessions → DAS Intercept → BCAP Intercept	0.05	0.04	-0.16, 0.27	0.14	0.13	-0.03, 0.36
Number of Sessions → DAS Slope 1 → BCAP Slope 1	-0.17	-0.16	-0.34, -0.07	-0.13	-0.13	-0.37, -0.02
Number of Sessions → DAS Slope 2 → BCAP Slope 2	0.07	0.10	-0.20, 0.38	-0.03	-0.03	-0.19, 0.04

Note. Significant effects are in bold typeface for emphasis and were determined by a 95% bias-corrected bootstrapped confidence interval (based on 10,000 bootstrapped samples) that does not contain zero. DAS = Dyadic Adjustment Scale, BCAP = Brief Child Abuse Potential Inventory. Slope 1 reflects growth from baseline to post-intervention (3 months after baseline). Slope 2 reflects growth from post-intervention to 3 months later (6 months after baseline). Note that the top section of the table displays intercepts for endogenous latent variables (i.e., DAS and BCAP latent growth models), indicating their value if their predictors are zero (e.g., no sessions attended, or no relationship satisfaction).

Table 4
Parallel-process latent growth models of number of days abstinent, DAS scores, and BCAP scores with regression

<i>Means and Intercepts</i>	Female			Male		
	<i>b</i>	β	95% CI	<i>b</i>	β	95% CI
Days Abstinent Intercept	50.58	1.46	41.36, 59.42	48.16	1.36	39.17, 56.99
Days Abstinent Slope 1	-9.67	-0.20	-25.80, 5.12	1.86	0.04	-13.77, 16.55
Days Abstinent Slope 2	3.32	0.08	-14.21, 20.92	9.27	0.18	-9.82, 28.27
DAS Intercept	91.08	3.44	76.83, 104.32	94.2	4.17	84.38, 104.06
DAS Slope 1	3.83	0.12	-5.05, 11.59	5.52	0.29	0.40, 10.76
DAS Slope 2	-2.65	-0.10	-11.78, 5.57	-6.55	-0.31	-13.05, -0.64
BCAP Intercept	22.70	3.68	15.15, 26.68	21.45	4.05	14.54, 26.61
BCAP Slope 1	-2.24	-0.42	-3.66, -0.93	-0.07	-0.01	-1.34, 1.16
BCAP Slope 2	-0.72	-0.20	-1.83, 0.52	-0.07	-0.02	-1.56, 1.41
<i>Direct Effects</i>						
Days Abstinent Intercept → DAS Intercept	0.01	0.01	-0.24, 0.24	0.12	0.18	-0.05, 0.28
Days Abstinent Slope 1 → DAS Slope 1	0.03	0.05	-0.13, 0.22	0.17	0.43	0.05, 0.32
Days Abstinent Slope 2 → DAS Slope 2	-0.16	-0.25	-0.43, 0.08	-0.01	-0.01	-0.19, 0.13
DAS Intercept → BCAP Intercept	-0.13	-0.56	-0.17, -0.06	-0.13	-0.55	-0.18, -0.07
DAS Slope 1 → BCAP Slope 1	-0.08	-0.47	-0.15, -0.04	-0.14	-0.55	-0.25, -0.04
DAS Slope 2 → BCAP Slope 2	-0.06	-0.42	-0.13, 0.01	-0.03	-0.17	-0.10, 0.01
Days Abstinent Intercept → BCAP Intercept	-0.02	0.10	-0.04, 0.03	-0.02	-0.06	-0.37, 0.01
Days Abstinent Slope 1 → BCAP Slope 1	0.00	0.01	-0.28, 0.29	0.03	0.29	-0.00, 0.06
Days Abstinent Slope 2 → BCAP Slope 2	-0.02	-0.26	-0.05, 0.05	-0.02	-0.24	-0.04, 0.01
<i>Indirect Effects</i>						
Days Abstinent Intercept → DAS Intercept → BCAP Intercept	-0.00	0.01	-0.04, 0.03	-0.02	-0.10	-0.04, 0.05
Days Abstinent Slope 1 → DAS Slope 1 → BCAP Slope 1	-0.00	-0.02	-0.02, 0.10	-0.02	-0.24	-0.06, -0.01
Days Abstinent Slope 2 → DAS Slope 2 → BCAP Slope 2	0.01	0.11	-0.00, 0.36	0.00	0.00	-0.09, 0.01

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Note. Significant effects are in bold typeface for emphasis and were determined by a 95% bias-corrected bootstrapped confidence interval (based on 10,000 bootstrapped samples) that does not contain zero. Days Abstinence = Number of days abstinent from drugs and alcohol; DAS = Dyadic Adjustment Scale; BCAP = Brief Child Abuse Potential Inventory. Slope 1 reflects growth from baseline to post-intervention (3 months after baseline). Slope 2 reflects growth from post-intervention to 3 months later (6 months after baseline). Note that the top section of the table displays means for exogenous variables (i.e., Days Abstinence latent growth models) and intercepts for endogenous variables (i.e., DAS and BCAP latent growth models).