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A Randomized Trial of Individual and Couple Behavioral Alcohol Treatment for Women

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Abstract

Although alcohol use disorders (AUDs) adversely affect women, research on efficacious treatments for women is limited. In this randomized efficacy trial of 102 heterosexual women with AUDs, the authors compared alcohol behavioral couple therapy (ABCT) and alcohol behavioral individual therapy (ABIT) on percentage of days abstinent (PDA) and percentage of days of heavy drinking (PDH) over 6 months of treatment and 12 months of posttreatment follow-up. Baseline relationship functioning and comorbid disorders were tested as moderators of outcome. Piecewise linear growth models were used to model outcomes. During treatment, women increased their PDA and decreased their PDH, with significantly greater improvements in ABCT than in ABIT ($d = 0.59$ for PDA; $d = 0.79$ for PDH). Differences favoring ABCT were maintained during follow-up. Women with poorer baseline relationship functioning improved more on PDA during treatment with ABCT than with ABIT. For PDH, results during treatment and follow-up favored ABCT for women with better baseline relationship functioning. ABCT resulted in better outcomes than ABIT for women with Axis I disorders at the end of follow-up (PDA), and for women with Axis II disorders at the end of treatment (PDA) and at the end of follow-up (PDH).

Keywords

alcohol use disorders; women; couple therapy; behavior therapy; comorbidity

Alcohol use disorders (AUDs) are prevalent, and rates of drinking and AUDs are increasing (U.S. Department of Health and Human Services, 2001). In all age groups, the prevalence of AUDs is higher among men than women, but the rates for women are considerable, with

4%–9.8% of younger women (below 44 years of age) meeting criteria for diagnosis. Psychological and medical correlates of AUDs differ for women and men. In treatment samples, as many as 65% of women with AUDs meet lifetime criteria for another psychiatric disorder (Mann, Hintz, & Jung, 2004). Women with AUDs also have higher rates of medical problems (Smith & Weisner, 2000) and an accelerated rate of development of alcohol-related morbidity and mortality. Furthermore, cognitive and somatic deficits develop more rapidly in heavy-drinking women than their male counterparts (Diehl et al., 2007). Death rates among women with AUDs are estimated to be 50%–100% higher than those of men with AUDs (Smith & Weisner, 2000).

Despite the greater negative consequences of drinking, women are less likely during their lifetime to seek treatment for an AUD (23% of men with alcohol dependence vs. 15.1% of women; Dawson, 1996). Outcome research on treatments for AUDs reflects the lower prevalence of women in treatment. A recent review of treatment outcome studies found that women constituted only 15.7% of study samples in published studies (Swearingen, Moyer, & Finney, 2002). In general, the low numbers of women in alcohol treatment outcome studies have made it difficult to draw firm conclusions about effective treatments for women, and few studies have examined sex-segregated treatment. In one of the only randomized clinical trials evaluating sex-segregated versus mixed sex treatment for women with AUDs, outcomes were more positive for the women-only treatment approach (Dahlgren & Willander, 1989; Haver, Dahlgren, & Willander, 2001).

Intimate relationships may play a more significant role in women's than men's reasons for drinking and for relapse. Women with AUDs are more likely than men to drink in response to negative emotions or conflicts with others, and they are less likely to drink in response to pleasant emotions or positive social situations (Annis & Graham, 1995). After treatment, women are more likely to relapse with either a romantic partner (Connors, Maisto, & Zywiak, 1998) or a friend; men are more likely to relapse when alone (Rubin, Stout, & Longabaugh, 1996).

Given the salience of the intimate relationship for women with alcohol dependence, testing partner-involved treatment models would seem appropriate. Evidence has accumulated to support the efficacy of spouse-involved treatment for alcohol problems, but most studies have used mostly male samples. Studies of alcohol behavioral couple therapy (ABCT) with alcoholic men and their female partners have reported significant reductions in alcohol consumption and improvements in relationship functioning (McCrady, Stout, Noel, Abrams, & Nelson, 1991; O'Farrell, Choquette, & Cutter, 1998). ABCT with adjunctive relapse prevention techniques also has been shown to be helpful for alcohol dependent men (McCrady, Epstein, & Hirsch, 1999; O'Farrell, Choquette, Cutter, Brown, & McCourt, 1993). Studies suggest that active couple interventions rather than passive spouse presence are necessary for the conjoint treatment to be efficacious (Fals-Stewart, Birchler, & Kelley, 2006; McCrady et al., 1991).

Two recent studies have tested ABCT for women with AUDs (Fals-Stewart et al., 2006) or other substance use disorders (SUDs; Winters, Fals-Stewart, O'Farrell, Birchler, & Kelley, 2002). Both studies recruited women entering outpatient alcohol or substance abuse treatment. Women were either married for at least 1 year or in a cohabiting relationship for at least 2 years, and their male partners were excluded if they met criteria for an alcohol or other SUD. In both studies, a considerable proportion of couples were excluded because of this screening criterion (38% in Fals-Stewart et al., 2006; 70% in Winters et al., 2002). In both studies, demographic characteristics were quite similar—average age was in the early 30s, and the average education was about 12.5 years. Both studies had large minority representations (41% of Fals-Stewart et al.'s, 2006, sample; 31% of Winters et al.'s, 2002,

sample), and about one third of women in Winters et al.'s (2002) sample were mandated to attend treatment. All women in Fals-Stewart et al.'s (2006) study met criteria for alcohol abuse (11.5%) or dependence (86.9%). Although Winters et al.'s sample included women whose primary drug of abuse was not alcohol, 60% also met criteria for an AUD diagnosis. Winters et al. randomly assigned women to individual or couples therapy; Fals-Stewart et al. randomized women to individual treatment, couples therapy, or a partner-involved psychoeducational control treatment. In both studies, ABCT was provided in the context of a treatment program, and women were scheduled to receive a total of 32 (Fals-Stewart et al., 2006) or 56 (Winters et al., 2002) treatment sessions, 12 of which included the male partner. In Fals-Stewart et al.'s study, the larger treatment program had a 12-step focus; the larger treatment program was cognitive-behavioral in focus in Winters et al.'s study. In both studies, the ABCT intervention focused on reciprocity enhancement and communication skills training; the ABCT treatment had some couple-focused abstinence interventions, but individual client sobriety strategies were provided by the parent treatment program.

Outcome analyses in Fals-Stewart et al. (2006) and Winters et al. (2002) focused on main effects, with no moderator or mediator analyses. Both studies found greater improvements in marital happiness for couples receiving ABCT, though these differences were detected only through the first 6 months of follow-up in Winters et al.'s study. Drinking/drug use outcomes also were more positive for ABCT than the control treatments in both studies, but the differences were detected only through the first 9 months of follow-up in Winters et al.'s study.

Research on nonsubstance-related Axis I disorders also supports the incremental value of family-involved treatment for other disorders, such as agoraphobia (e.g., Barlow, O'Brien, & Last, 1984) and depression (e.g., Beach & O'Leary, 1992). To date, there are no published studies of the effectiveness of couple therapy for persons with an AUD comorbid with another Axis I disorder, but the promising literatures on couple therapy for alcohol and for other Axis I disorders suggest that couple therapy may be particularly effective for individuals with AUDs and other comorbid diagnoses.

The objectives of the present study were (a) to test the efficacy of a model of ABCT that integrates drinking, partner, and couple interventions as a stand-alone treatment in women with AUDs and (b) to examine relationship functioning and psychopathology as potential moderators of treatment effects. We tested two major hypotheses: (1) ABCT would be more effective than individual cognitive-behavioral therapy in increasing the percentage of days abstinent (PDA) and decreasing the percentage of days of heavy drinking (PDH) in a sample of women with AUDs, and (2) ABCT would be differentially effective in increasing PDA and decreasing PDH for women with more relationship distress. We also tested one research question—whether Axis I or Axis II psychopathology would be a moderator of treatment outcome.

Method

Participants

Participants were 102 women with AUDs and their male partners recruited between September 1997 and July 2000 through advertising in the community and referrals from local alcohol treatment programs. All assessments and treatments were provided in a university-based research clinic. Participants met the following inclusion criteria: (1) female; (2) current alcohol abuse or dependence as determined by the Structured Clinical Interview for *DSM-IV* (SCID; First, Gibbon, Spitzer, & Williams, 1996a); (3) consumed alcohol within the past 60 days; (4) married, cohabiting for at least 6 months, or in a committed heterosexual relationship of at least 1 year of duration with intent to continue the

relationship;¹ (5) male partner willing to participate in the research and treatment; (6) neither partner had signs of severe organic brain syndrome as evidenced by a score of <25 on the Mini-Mental State Exam (Folstein, Folstein, & McHugh, 1975); (7) neither partner had signs of a psychotic disorder on the psychotic screening section of the SCID (First et al., 1996a); (8) neither partner met criteria for current (with no course specifier) drug dependence with physiological dependence as determined by the SCID (First et al., 1996a); and (9) either no evidence of domestic violence in the past 12 months, or, if any physical aggression was reported on the Modified Conflict Tactics Scale (MCTS; Pan, Neidig, & O'Leary, 1994), then (a) the victim of the violence reported no fear of retribution from their partner for discussions that might occur in couple therapy, *and* (b) the violence occurred only in the presence of intoxication, *or* (c) the violence had resulted in no injury requiring medical attention (O'Leary, 1996).

A total of 442 inquiries to the project yielded 351 women potentially eligible for the study. Of potentially eligible callers, 188 scheduled an in-person screening evaluation, 124 completed the in-person screening, 109 completed the baseline research assessment, and 102 entered treatment (see Figure 1, CONSORT [CONsolidated Standards of Reporting Trials] diagram). The necessity of having the male partner participate was the single largest reason given explicitly ($n = 54$; 15.4%) or implicitly ("I have to check with my husband/partner," $n = 64$; 18.2%) for potentially eligible women not to enter the study (total of 118/351; 33.6%). All analyses are reported on a modified intent-to-treat sample of couples that received at least one session of treatment because our original study design did not call for following participants who dropped out prior to treatment. Seven women (6% of those randomized) did not enter treatment (6 in ABCT; 1 in alcohol behavioral individual therapy [ABIT]).

Although not all women who called provided personal information, comparisons of available data on the couples who attended a clinical intake with other potentially eligible callers revealed that women who attended an intake were older (no intake, $M = 40.59$, $SD = 8.65$; intake, $M = 45.03$, $SD = 9.42$), $t(301) = 4.22$, $p < .001$; had been drinking for more years (no intake, $M = 19.61$, $SD = 8.86$; intake, $M = 22.74$, $SD = 8.23$), $t(288) = 3.01$, $p < .01$; and were less likely to have partners with SUDs (no intake, 13.1%; intake, 3.9%), $\chi^2(1, N = 199) = 4.64$, $p < .05$. There were no differences in the number of years of problem drinking, use of other drugs, or partners' use of drugs and alcohol. Comparisons of women who attended an intake session but did not begin treatment ($n = 22$) with those who entered treatment ($n = 102$) revealed that the women who began treatment were more likely to be married (vs. cohabiting or committed; no treatment, 68.2%; treatment, 89.2%), $\chi^2(1, N = 124) = 6.45$, $p < .02$; less likely to be Catholic (no treatment, 81.8%; treatment, 52.0%), $\chi^2(1, N = 124) = 6.59$, $p < .02$; and more likely to be in their first marriage (no treatment, 38.9%; treatment, 66.7%), $\chi^2(1, N = 108) = 4.91$, $p < .03$.

Table 1 summarizes female and male participant characteristics. There were no significant differences between conditions on any variables listed in Table 1. Female participants were heterogeneous in age, educational attainment, number of children at home, and household income. Most couples were married (91); 6 were cohabitating, and 5 were in a committed noncohabitating relationship. The distribution of relationship categories was almost identical in the two treatment conditions. Most women were Caucasian; about half were employed full- or part-time. In the 3 months prior to treatment, the women were abstinent about one third of the days; the majority of the days were heavy drinking days (more than three standard drinks per day for women; National Institute on Alcohol Abuse and Alcoholism

¹We included couples in committed, noncohabiting relationships ($n = 5$) to try to increase the heterogeneity of the sample because women with very low income may not be able to cohabitate with their male partner and still receive Temporary Assistance to Need Families. This inclusion criterion did not yield a more ethnically heterogeneous sample.

[NIAAA], 2003). All met criteria for an AUD. Most did not meet criteria for a current drug-related diagnosis, but almost half met lifetime criteria for a SUD other than alcohol, with cannabis and cocaine use disorders being the most common diagnoses. About 30% of the women had previous inpatient alcohol treatment; close to 30% had prior outpatient treatment. Sociodemographic characteristics of the male partners were similar to the women. The male partners drank at lower frequencies and quantities than the women, but more than one quarter met criteria for a current or past AUD, and more than one quarter met lifetime criteria for another drug use disorder. Male partners were not required to agree to change their own drinking or drug use as a condition of study eligibility.

More than one third of the women met criteria for another current Axis I disorder. Some form of mood or anxiety disorder was most common. About one third of the women met criteria for an Axis II disorder, with depressive, borderline, and avoidant personality disorders being most common. On average, the couples fell in the maritally distressed range on the Dyadic Adjustment Scale (DAS; Spanier, 1976). A history of domestic violence, including severe physical violence, was common.

Measures

Timeline Follow Back Interview (TLFB)—The TLFB (Sobell & Sobell, 1996) is a calendar assessment method that uses event prompts to cue recall of drinking. The baseline TLFB covered the 90 days prior to the baseline interview; follow-up TLFB covered the time since the previous interview. Reported test–retest reliability of the TLFB is high, and correlations between drinker and collateral reports of drinking also are high (ranging from $r = .84$ to $r = .94$; Breslin, Sobell, & Sobell, 1996). Baseline data on the women's drinking were collected with both partners present.² Follow-up TLFB data were collected separately from each partner and compared, and monthly worse case reports were used. Partner data also were substituted when the women did not provide follow-up data. For PDA, collateral data were substituted for the women's self-reports for 17%–27% of the cases each month; for PDH (more than three standard drinks per day for women; NIAAA, 2003), collateral data were used for 11%–20% of cases each month. With the exception of 1 month during treatment (Month 3), there were no differences between the two treatment conditions in the probability of using collateral data each month. Mean differences between the woman's and the man's reports of monthly PDA and PDH also did not differ between treatment conditions. PDA and PDH were the two primary outcome variables.

Daily Drinking Log (DDL)—Clients maintained daily records of drinking during treatment. Data from the DDLs were used in analyses only if TLFB data were not available (0–3 participants per month during treatment). Previous studies of the DDL revealed correlations of .90 or greater between drinker and partner reports (e.g., McCrady et al., 1999).

SCID alcohol and drug use disorders modules—The SCID (First et al., 1996a) for lifetime alcohol and current drug use disorders was administered to the women and the men. All interviewers were trained and supervised in the use of the SCID by Elizabeth E. Epstein. Overall interrater reliability on the SCID for alcohol diagnoses has been reported at $\kappa = .75$; for other SUDs, it has been reported at $\kappa = .84$ (Williams et al., 1992). The total number of abuse and dependence symptoms was summed and used as a continuous measure of severity of the woman's AUD.

²Couples were interviewed together to increase the accuracy of reporting, given the expectation that some women might not accurately recall all their drinking. There are no data, however, to tell us whether the conjoint interview leads to more or less accurate data.

SCID I (First et al., 1996a) and SCID II (First, Gibbon, Spitzer, & Williams, 1996b)—SCID modules to assess current and lifetime mood, anxiety, eating, and personality disorders were administered separately to both partners. Good interrater reliabilities have been reported for the SCID, with kappas of .84 – 1.00 for the SCID I and .89–.98 for the SCID II (Schneider et al., 2004). In an interrater reliability study using 20 cases from the current study, interrater agreement was 95% for Axis I diagnoses, 92.73% for Axis II diagnoses, and 93.75% overall.

MCTS—The MCTS (Pan et al., 1994), administered during the in-person screening interview, is a 24-item self-report inventory of relationship aggression that occurred during the prior 12 months. Each item was rated on a 6-point Likert scale ranging from 0 (*never*) to 5 (*more than 20 times*). Respondents answered each item for their own behavior and the behavior of their partner. The MCTS has four major scales; the two physical violence scales, totaling 13 items, were used for the present study. The MCTS was used for screening purposes, and in an individual interview with each partner, the intake clinician reviewed endorsed MCTS items indicative of mild or severe physical violence to determine whether the violence should exclude the woman from the study. For analyses using the MCTS, women's reports of partner violence were used, and items from the Minor Violence and Severe Violence scales were summed. Agreement between partners in the present sample was as follows: for Minor Violence, $r(109) = .72, p < .001$; for Severe Violence, $r(109) = .45, p < .001$.

Drinking Patterns Questionnaire (DPQ)—The DPQ (Zweig, McCrary, & Epstein, in press) was used to identify alcohol use triggers in nine predetermined classes of cues (e.g., environmental, interpersonal, marital relationship). The Marital Relationship scale assesses drinking in response to positive and negative couple interactions and reflects the degree to which drinking is part of the marital relationship. For the present study, the total number of cues identified on the Marital Relationship scale was used as a measure of intensity of drinking related to the relationship. Internal consistency of the marital scale was Cronbach's $\alpha = .87$.

DAS—The DAS (Spanier, 1976), administered at baseline, is a 32-item measure of relationship satisfaction. In the present sample, Item 31 correlated significantly with the full DAS, $r(100) = .76, p < .001$. Therefore, to maintain consistency in the relationship variable with other analyses of marital happiness based on Item 31 (not included in this article), we used Item 31 for all analyses.

Relationship functioning—A composite relationship functioning variable was created by combining DAS Item 31, the Relationship scale from the DPQ (reverse scored so that higher scores reflected less relationship-related drinking), and the two violence subscales of the MCTS (also reversed scored to be consistent with other items), which were transformed into z-scores and then summed. Higher z-scores on the composite variable reflected better relationship functioning, including less relationship-related drinking.

Treatment integrity rating form—Four master's-level or doctoral-level psychologists rated a total of 253 audiotapes of Therapy Sessions 2, 5, and 9 using a modified version of the MATCH Treatment Rating Scale (Carroll et al., 1998). The modified MATCH Treatment Rating Scale included 18 items measuring elements of cognitive-behavioral therapy, 3 items measuring elements of couple therapy, and 3 items measuring general therapist behaviors. Each item was rated on a 5-point Likert scale on extent of use of the treatment element (1 = *not covered*, 2 = *covered a little*, 3 = *covered somewhat*, 4 = *covered considerably*, 5 = *covered extensively*) and a second 5-point Likert scale on the quality of

delivery of the intervention (1 = *very poor*, 2 = *poor*, 3 = *adequate*, 4 = *good*, 5 = *excellent*). Three variables derived from this measure, ranging in value from 1 to 5, were used in the ratings of treatment integrity: therapeutic alliance, overall therapist competence, and adherence to the specific treatment manual. Two independent raters double-coded 26% of the sessions. Interrater agreement was good for all ratings, with overall agreement within 1 point on the rating scale of 88.5% for ABCT and 93.9% for ABIT.

Follow-up interview—During each follow-up interview, women were asked to report the number of days that they attended any formal inpatient or outpatient alcohol treatment program (exclusive of mutual help groups) and any days that they were separated from their partner because of relationship issues. Given the low prevalence of these two events during follow-up, they were recoded as present or absent.

Procedures

Participant flow is summarized in Figure 1.

Pretreatment—During an initial telephone interview, potential participants were screened for eligibility, and the interviewer described the study to them. Eligible and interested women were scheduled with their partners for a joint in-person screening interview with a trained master's-level or doctoral-level clinician. The in-person interview included additional screening for eligibility, explanation of study procedures, and collection of basic demographic and screening measures; if couples were interested in participating, informed consent was obtained. The screening interview was completed with both partners present, except for the Mini-Mental State Exam and the domestic violence screening, which were conducted separately with each partner.

After informed consent procedures (as approved by the Rutgers University Institutional Review Board), couples were given packets of self-report measures to complete at home. Couples were instructed to complete all measures independently and to not look at their partners' responses; however, no checks were made to assess compliance with these instructions. During the subsequent in-person baseline interview, the couple met with a trained interviewer who used structured interviews to assess drinking, psychopathology, and other areas of functioning. When the baseline assessment was completed, participants were paid \$50, randomly assigned to ABCT or ABIT, and informed of their treatment assignment so that they could schedule their first treatment session as an individual or couple. A research assistant created equal numbers of sealed envelopes with cards listing each treatment condition. The baseline interviewer drew an envelope randomly to assign treatment condition.

Treatment—Both treatments were manual-guided, 20-session outpatient cognitive-behavioral therapies with an explicit goal of abstinence from alcohol, provided over a maximum of 6 months. Neither treatment included female-specific adaptations other than to use the appropriate gender pronouns in client handouts. ABIT sessions included only the female participant; were 60 min in length; and included self-monitoring, functional analysis of drinking, and coping skills to avoid alcohol and deal with other life problems. ABCT sessions included both partners in all sessions and were 90 min in length to equate the amount of time in the two treatments devoted to individually focused interventions. ABCT included the same individual interventions as ABIT as well as interventions to teach the partner to support abstinence and to decrease attention to drinking and interventions to improve the couple relationship, including reciprocity enhancement, communication, and problem solving. Male partners were not required to change their drinking but were free to use drinking reduction interventions in the treatment program themselves if they wished.

Treatment referrals were offered to men who expressed a desire for help with their own drinking, but no consistent data were recorded on whether men followed through on referrals.

Treatment was provided by two master's-level and five doctoral-level clinicians. Because the treatment was a psychosocial treatment, guided by treatment manuals, blinding of the therapists and participants was not possible. Therapists were trained to provide both treatments and were assigned to cases on the basis of time available that matched participants' schedules. All but one therapist (who saw only 3 clients) treated clients in both treatment conditions; therapists saw approximately equal numbers of participants in each condition. Therapists met weekly to review cases, and audiotapes of therapy sessions were reviewed randomly for each client for each therapist to avoid therapist drift.

Follow-up—Participants were followed at 3-month intervals from the date of the baseline interview. Partners were contacted separately by telephone for interviews at 3, 9, and 15 months, and for in-person interviews 6, 12, and 18 months after baseline. Of participants followed, follow-up drinking data were obtained from 98% of couples at 3 months, 91% at 9 months, 90% at 9 months, 88% at 12 and 15 months, and 86% at 18 months. Data collection by treatment condition is summarized in Figure 1. However, because growth curve models do not require complete data, we were able to analyze data on all participants. During follow-up, we were not able to blind interviewers to treatment condition because the treatment and the follow-up interviews were conducted in the same research suite and because interviewers saw the participants when they came to therapy alone or with their partners. Couples were paid \$25 for telephone interviews and \$50 for in-person interviews. Adverse-events reporting was initiated by the Rutgers Institutional Review Board in 2000; four adverse events judged unrelated to the study protocol were reported during the follow-up phase of the study.

Data Analysis Plan

Dependent variables—Two primary outcome variables, PDA and PDH, were used in all analyses. Drinking data were aggregated into 30-day blocks, allowing for 6 within-treatment and 12 posttreatment blocks of time. All PDA and PDH variables were arcsine transformed to attempt to address nonnormal distributions. As secondary descriptors of outcome, we also examined the proportions of participants maintaining continuous abstinence during the last month of treatment and during follow-up, as well as the number of participants who engaged in no heavy drinking during those same time frames, treating missing data as negative outcomes.

Moderator variables—Three potential moderator variables were examined. The composite baseline relationship functioning variable formed a continuous variable. Axis I and Axis II diagnoses current at baseline were coded as present or absent.

Latent growth curve models (LGCMs)—We conducted the primary analyses of treatment effects using growth curve modeling (Bollen & Curran, 2006). This statistical approach allows for the modeling of both within-subject changes (i.e., PDA or PDH) and between-subjects differences (i.e., treatment effects) simultaneously. We conducted all analyses using Mplus 4.20 (Muthén & Muthén, 2004). We modeled within-subject changes in drinking (PDA and PDH) using monthly drinking data. We estimated all models using a maximum likelihood estimator. We modeled missing data using the expectation maximization method with the maximum likelihood estimator. Patterns of missing data were evaluated and met all missing at random assumptions, suggesting appropriate use of expectation maximization imputation (McKnight, McKnight, Sidani, & Figueredo, 2007).

A number of covariates were evaluated that previously have been found to relate to drinking outcomes. We controlled for baseline levels of the respective dependent variables in all models. Other covariates tested included the following: participant education level, baseline severity of the AUD, presence of Axis I and Axis II comorbidity, and baseline relationship functioning. In initial univariate analyses, the number of sessions completed was found to correlate significantly with outcomes and differed between treatment conditions, so we entered number of sessions in all conditional models as a covariate.³ As per our study design, we were interested in whether three participant attributes—relationship functioning, presence of Axis I disorders, and presence of Axis II disorders—differentially predicted treatment response and follow-up outcomes, so we also included Treatment Condition $\times$ Participant Attribute interactions in models of drinking outcome.

To determine the effects of treatment at specific assessment points, we estimated models with the intercepts centered at Month 6 and Month 18. This allowed us to interpret treatment effects as mean drinking at the end of treatment and at 1-year posttreatment, respectively.

Two separate series of LGCMs were built for the respective study outcomes (PDA and PDH). We compared the goodness of fit for models assuming linear growth, nonlinear growth (i.e., addition of a quadratic term), piecewise growth, and the combination of nonlinear and piecewise growth. All piecewise models assumed within-treatment and posttreatment follow-up to be separate periods of change. The best fitting model—determined by best Akaike information criteria, Bayesian information criteria, and comparative fit index—was then used to evaluate treatment effects in a series of conditional LGCMs. For model comparisons, lower Akaike information criteria and Bayesian information criteria were interpreted as better fitting models. In addition, a comparative fit index $>.95$ was considered evidence for a good fit to the data (Hu & Bentler, 1999).

Results

Treatment Delivery

Descriptive data about participation in treatment are summarized in Table 2. Participants attended about 75% of scheduled treatment sessions. There was a trend for more attendance at individual than couple therapy sessions, $t(100) = 1.97, p = .0502$, and women in ABIT were more likely to complete the full 20-session protocol than were women in ABCT, $\chi^2(1, N = 102) = 4.63, p < .05$. Because couple therapy sessions were longer than individual sessions, women in the couple therapy received significantly more hours of treatment than those in the individual condition, $t(100) = 2.27, p < .05$. Women and men each completed about 75% of individual homework assignments, but in the couple therapy condition, compliance with joint homework assignments was lower. Women's homework compliance did not differ between the two treatment conditions.

Therapists did not differ significantly on the mean number of sessions that the women attended in either treatment condition. Treatment integrity and adherence ratings were compared for the two conditions, and there were no significant differences between the two conditions on any of the three measures. On average, on the 5-point treatment integrity scales, therapists were rated as effective in overall competence, therapeutic alliance, and adherence.

³We chose number of sessions as a covariate to allow for equivalence between conditions for treatment completers and because we viewed this variable as the best reflection of differences between conditions in compliance with attending treatment. We also ran all analyses without sessions as a covariate, and we found no differences in significance in any analysis. We chose to report the analyses including sessions as a covariate to provide a more conservative analysis of the differential efficacy of the two treatments.

PDA

During the last month of possible treatment (the 6th month postbaseline), 18 women in ABCT (36.0%) and 18 women in ABIT (34.6%) were completely abstinent. Across the year of follow-up, 8 women in ABCT (16.0%) and 8 women in ABIT (15.4%) maintained continuous abstinence.

Base LGCM—The best fitting model was a piecewise growth model with a quadratic term added to estimation of treatment growth indicating that PDA significantly increased over treatment ($\beta_{\text{slope}} = .160, SE = .034, p < .01$) but that this increase in abstinence decelerated as treatment ended ($\beta_{\text{quadratic}} = -.030, SE = .006, p < .01$). Over the 12 months of follow-up, PDA decreased linearly ($\beta_{\text{slope}} = -.007, SE = .002, p < .05$). The relationships between baseline PDA and within-treatment change in PDA ($\beta = -.072, SE = .022, p < .05$) and between baseline PDA and rate of deceleration during treatment ($\beta = .008, SE = .004, p < .05$) were significant. However, baseline PDA was not significantly associated with change in PDA during follow-up, nor was deceleration in PDA during treatment associated with change in PDA during follow-up. Within-treatment change in PDA predicted change in PDA during follow-up ($\beta = .005, SE = .001, p < .01$), indicating that the greater the magnitude of change in PDA during treatment, the greater the magnitude of change during the follow-up period.

Conditional PDA model within treatment—Table 3 summarizes raw data on PDA and PDH during treatment and follow-up. Table 4 summarizes the conditional PDA model outcomes during treatment and follow-up. The results indicate a medium significant effect for treatment condition on change in PDA during treatment ($d = 0.59$), with the participants in ABCT showing a larger increase in PDA and a higher PDA at the end of treatment than those in ABIT. Visual inspection and comparison of the intercepts for Months 1 and 2 found that the mean PDA was significantly lower for ABCT than ABIT, contributing to the significantly greater increase in slope in ABCT during treatment. Figure 2 shows back-transformed, covariate-adjusted, model-estimated complete data, including imputed values for PDA by treatment condition. These effects held even when controlling for the significant effects of baseline PDA, severity of the AUD, number of treatment sessions attended, and presence of Axis I or Axis II pathology. Although the quadratic model of within-treatment PDA change provided the best fit to the data, none of the described covariates, including treatment, were significant predictors of PDA deceleration during treatment.

The interaction between relationship functioning and treatment condition suggested that those with poorer relationship functioning prior to treatment had a better response to ABCT than ABIT (see Figure 3A, which illustrates the interaction effect by graphing PDA slope as bar graphs one standard deviation above and below the mean in baseline relationship functioning). The interaction between presence or absence of an Axis II disorder and treatment condition suggested that women with an Axis II disorder who received ABCT had a higher PDA at the end of treatment than women in ABIT (see Figure 4A).

Conditional PDA model during follow-up—There were no significant differences between treatments on the magnitude of change in PDA over the 12 months of follow-up, which was reflected by the small effect size ($d = 0.31$). The only significant covariates for follow-up were baseline severity of the AUD and number of sessions, with greater severity of the AUD and fewer sessions of treatment being associated with decreases in PDA over follow-up. Although treatment condition was not a significant predictor of posttreatment slope, centering the intercept at each follow-up point indicated a significant main effect for treatment on PDA, with those in ABCT having higher PDA at each follow-up point (see Figure 2).

With the intercept centered at Month 18 (end of follow-up), the Axis I $\times$ Treatment Condition interaction was significant ($\beta = -.309$, $SE = .103$, $p < .05$)—those with an Axis I diagnosis did better in ABCT than in ABIT (see Figure 4B; data not included in Table 4). There was no significant effect with the intercept centered at Month 18 for either the Axis II $\times$ Treatment Condition or Baseline Relationship Functioning $\times$ Treatment Condition interactions.

PDH

During the last month of scheduled treatment, 30 women in ABCT (60%) and 29 women in ABIT (55.8%) reported no heavy drinking days. Across the year of follow-up, 13 women in ABCT (26%) and 15 women in ABIT (28.8%) reported no heavy drinking days.

Base LGCM—The best fitting model included a quadratic term for within-treatment change but only linear posttreatment change. There was a significant decrease in PDH within treatment ($\beta_{\text{slope}} = -.040$, $SE = .019$, $p < .05$), which decelerated over time ($\beta_{\text{quadratic}} = -.006$, $SE = .002$, $p < .05$). There was no significant change in PDH slope over the 12 months of follow-up ($\beta_{\text{slope}} = -.004$, $SE = .003$, $p = .14$). Baseline PDH was significantly correlated with within-treatment change ($\beta = -.075$, $SE = .023$, $p < .01$) and the rate of PDH deceleration within treatment ($\beta = .010$, $SE = .003$, $p < .01$), indicating that the higher an individual's baseline level of PDH, the more slowly her PDH changed within treatment and the greater the rate of deceleration. Thus, participants with higher PDH had less change in drinking over time and their change in PDH slowed more quickly during treatment. Baseline PDH, education, and number of sessions did not significantly predict posttreatment change in PDH.

Conditional PDH model within treatment—Table 5 summarizes the conditional PDH model outcomes during treatment and follow-up when controlling for several covariates. Participants in ABCT had a greater reduction in PDH during the treatment period than those in ABIT (large effect; $d = 0.79$). Table 3 shows means and standard deviations for PDH. Figure 5 shows back-transformed, covariate-adjusted, model-estimated complete data, including imputed values for PDH by treatment condition. More years of education, a greater number of sessions attended, and absence of an Axis I disorder were associated with greater reductions in PDH within treatment.

The interaction of treatment and baseline relationship functioning was significant; those with better baseline relationship functioning showed greater decreases in PDH during treatment in ABCT than in ABIT (see Figure 3B). Axis I and Axis II pathology were negatively associated with PDH deceleration during treatment, but there were no Treatment Condition $\times$ Diagnosis interactions for PDH during treatment.

Conditional PDH model during follow-up—There were no significant differences between treatment conditions on the magnitude of change in PDH over the 12 months of follow-up as reflected by the small effect size ($d = 0.19$). Presence of an Axis II disorder at baseline was predictive of increases in PDH posttreatment. Although treatment condition was not a significant predictor of posttreatment slope, centering the intercept at each follow-up point indicated a main effect for treatment on PDH for all but Months 13 and 14, with those in ABCT having lower PDH in all other months of the follow-up period (see Figure 5). There was a significant interaction between treatment condition and relationship functioning. Women with better relationship functioning at baseline were more likely to have decreased PDH during follow-up but only in the ABCT condition (see Figure 3C).

With the intercept centered at Month 18 (end of follow-up), the Axis II $\times$ Treatment Condition interaction was significant (see Figure 4C; data not included in Table 5), $\beta = .973$, $SE = .219$, $p < .01$ —those with an Axis II diagnosis reported greater PDH at the end of follow-up in the ABIT condition than those in ABCT. Neither the Axis I $\times$ Treatment Condition interaction nor the Relationship Functioning $\times$ Treatment Condition interaction was significant on follow-up PDH at the end of follow-up (intercept placed at 18-month follow-up in model estimation).

Other Outcomes

Six couples in ABIT and 10 in ABCT separated during the follow-up interval. Committed noncohabitating couples were over-represented among separated couples, as 2 of the 5 cohabitating couples separated during follow-up (1 in ABCT; 1 in ABIT). The mean length of separation for those who separated did not differ between the two conditions (ABIT $M = 128.17$ days, $SD = 124.99$; ABCT $M = 251.00$ days, $SD = 186.42$). Six women in ABIT and 9 women in ABCT received additional formal treatment during the follow-up interval. The mean number of days receiving treatment did not differ between the two conditions (ABIT $M = 24.67$ days, $SD = 24.67$; ABCT $M = 37.56$ days, $SD = 26.60$).

Discussion

In the present study, we compared the efficacy of behavioral couple therapy and individual cognitive-behavioral therapy for women with AUDs. It is one of two randomized clinical trials of ABCT for women with AUDs and their male partners (Fals-Stewart et al., 2006) and one of only a handful of randomized clinical trials with an all-female sample of individuals with AUDs (e.g., Dahlgren & Willander, 1989). The women were self-referred (i.e., not mandated) to treatment, and analyses of their drinking prior to the first treatment session found that many of the women started to decrease their drinking as soon as they contacted the treatment study (Epstein et al., 2005). Thus, treatment focused both on helping women maintain their initial gains and decreasing their drinking.

Both major hypotheses were supported, and moderator analyses found evidence of the differential efficacy of ABCT over ABIT on some client attributes. Women receiving ABCT improved more on both PDA and PDH during treatment. However, women in ABCT drank more frequently during the first 2 months of treatment, so part of the greater slope of improvement represented their “catching up” with the women in ABIT. By the end of treatment, though, women in ABCT had surpassed women in ABIT in PDA. During follow-up, the ABCT group continued to have better drinking outcomes. Women with *poorer* relationship functioning who received ABCT showed more improvement in PDA than women who received ABIT during treatment but not during follow-up. During and after treatment, women with poorer relationship functioning responded similarly to the two treatments in changes in PDH, but women with *better* relationship functioning had fewer heavy drinking days in the ABCT than the ABIT condition. There also was evidence of differential positive effects of ABCT for women with Axis I disorders who had substantially poorer outcomes at the end of follow-up if they received ABIT rather than ABCT. Women with Axis II disorders in ABIT had substantially less PDA at the end of treatment and more PDH at the end of follow-up, compared with women in ABCT.

Women receiving individual treatment were more likely to complete the full 20-session treatment protocol, and there was a trend for them to participate in more treatment sessions. A small number of couples in each treatment condition separated during the follow-up period; a small number of women also sought additional help after the study treatment. The two treatments did not differ significantly on either of these variables, in contrast to earlier

research (e.g., McCrary et al., 1991) that reported lower separation rates associated with ABCT.

Regardless of treatment condition, the women were drinking considerably less frequently and heavily during and after treatment than before contacting the study. Eighteen months after their baseline interview, women who received ABCT were abstinent 75% of the time; women in ABIT were abstinent about 63% of the time. Women in both treatment conditions also reduced their heavy drinking considerably from approximately 57% of the days prior to treatment to 12% (ABCT) and 22% (ABIT) of days by the end of follow-up. During follow-up, there were no reliable differences between conditions in continuous abstinence (<20%) or avoiding any heavy drinking (<30%). However, these data reflect mean outcomes, and there was considerable variation among women in PDH. Future studies will examine individual differences in outcomes.

Several individual variables seemed to contribute to positive treatment outcome. As is typical, pretreatment drinking, severity of the AUD, and comorbid psychopathology generally predicted more drinking during treatment. During follow-up, baseline PDA continued to predict PDA, as did baseline severity of the AUD. The presence of an Axis II disorder predicted PDH.

Results are consistent with the literature supporting the relatively greater efficacy of couple rather than individual treatment for men with alcohol or other SUDs (McCrary et al., 1991; McKay, Longabaugh, Beattie, & Maisto, 1993; O'Farrell, Choquette, & Cutter, 1998) and more recent findings supporting couple therapy for women (Fals-Stewart et al., 2006; Winters et al., 2002). There are a number of important similarities and differences between the present study and the two other randomized trials of ABCT for women with AUDs or SUDs. Demographically, the women in Fals-Stewart et al.'s (2006) and Winters et al.'s (2002) samples were younger, less affluent, more ethnically diverse than the present sample; a substantial minority of women in Winters et al.'s study were mandated to attend treatment. Their studies excluded male partners with AUDs or SUDs, resulting in the exclusion of one third to more than two thirds of potentially eligible women, thus limiting the generalizability of their results to the population of women with AUDs or other SUDs. More research is needed to determine whether the treatment needs of couples in which both are alcohol dependent differ from those with only one alcohol dependent partner. A second key difference between the present study and the two other studies was the treatment setting and model. Our model is a stand-alone treatment model that addresses individual sobriety strategies and relationship functioning in an integrated treatment framework—the model tested in Fals-Stewart et al.'s and Winters et al.'s studies is designed to be delivered in the context of an on-going, more intensive addictions treatment program and therefore focuses on couple-level interventions rather than individual sobriety strategies. Our stand alone model can be used readily by solo practitioners without the need for an additional treatment program, which is an advantage in areas that are poor in treatment resources and for clients with limited resources. Treatment effect size estimates from Fals-Stewart et al.'s and Winters et al.'s models must be interpreted in the context of a larger treatment program (participants had an additional 20–44 sessions of treatment available to them); our effect sizes reflect the full impact of the treatment model. In addition to the differences in study populations and treatments, the present study is the first to consider specific moderators of outcome for ABCT treatment, particularly the interaction of individual and conjoint treatment with individual psychopathology. Thus, findings from these three complementary studies (a) suggest the efficacy of conjoint treatment models for women of heterogeneous backgrounds and ages, (b) support the efficacy of conjoint treatment alone and in the context of on-going addictions treatment, and (c) suggest the applicability of the treatment to

couples in which both may have AUDs or in which the woman has an additional Axis I or Axis II disorder.

Findings in the present study held despite the fact that couples were less likely to complete the full treatment protocol than individuals. Even though we provided extensive evening hours, the logistics of scheduling 20 weekly treatment sessions with both partners were challenging, particularly because most of the men were employed full-time, and many commuted to jobs more than an hour from their homes. Also, exit interviews with some women who withdrew from the study revealed that a small number of women assigned to ABCT felt uncomfortable with their partner's presence in the treatment sessions. Initially, the conjoint format appears to have been more difficult for the women, as reflected by the women in ABCT drinking more frequently in the first 2 months of couple treatment. In the first several conjoint sessions, the treatment focused on abstinence for the woman, but the male partner was in the room, and the couple was interacting. Also, because the male partners were not required to change their own drinking, their presence may have made early sessions more difficult for the women. The divided focus on drinking and the relationship may have contributed to the early poorer response in the couples condition. However, over time, the women in ABCT increased their abstinence and decreased their heavy drinking so that by the end of treatment they were on a more positive trajectory of change and drinking less frequently and heavily than women participating in individual treatment.

In terms of reducing their drinking during treatment, women seemed to benefit from the conjoint therapy format, particularly if they had poorer relationship functioning and more relationship-related drinking prior to treatment. For more distressed couples, the treatment may have provided needed skills to support each other, communicate, and solve problems. However, the couples therapy did not differentially benefit women in distressed relationships in terms of their heavy drinking. Rather, the couples therapy appeared to lead to less heavy drinking for the better functioning couples.

Women with other Axis I and Axis II disorders also responded more positively to ABCT than to ABIT. These findings seem counterintuitive, because it would seem that practitioners could more easily adapt individual rather than couple treatment to address or manage other psychopathology. However, the findings are consistent with the larger literature suggesting the efficacy of family-involved approaches to treatment of Axis I disorders. It may be that the men were learning a general set of skills to provide support to the women regardless of the problems that the women were coping with, and also may have learned better communication skills that may have decreased expressions of negative affect often associated with relapse in AUDs and other psychiatric disorders (e.g., O'Farrell, Hooley, Fals-Stewart, & Cutter, 1998).

In general, in the study design we maximized internal validity by using treatment manuals to guide the delivery of the treatment conditions, well-trained therapists who delivered both treatments, valid and objective measures of treatment integrity, well-trained interviewers to collect follow-up data, and well-validated standardized measures. There were, however, some limitations in the study design. First, although we attempted to recruit from community treatment programs, most participants entered the study in response to direct advertising. Despite the potential limitations in such a recruitment strategy, the women were quite similar to reported samples of women in treatment (e.g., Rice et al., 2001) in terms of quantity and frequency of drinking as well as levels of comorbid psychopathology. Second, follow-up interviewers could not be blinded to treatment condition. Third, the length of the sessions differed between the two treatment conditions. We designed the treatments this way to equate the conditions on time focused on the woman's drinking, but as a consequence the total hours of treatment exposure differed between the two conditions.

There also are some limitations on the generalizability of the results. Participants were recruited to a university-based clinic, and most were recruited by direct advertising. Almost the entire sample was alcohol dependent and Caucasian, and mean income was higher than national and local means at the time. An unavoidable limitation of the design was the requirement that the male partners be willing to participate in the treatment. These men were a select subsample, given that about one third of potentially eligible callers did not enter the study because of reasons at least partly related to the male partner's availability or willingness to participate in the study. The men differed from other reported samples of husbands of women with AUDs in that they had considerably lower rates of current AUDs (12.7% vs. 51%; Dahlgren, 1978), lower rates of other psychopathology, and lower rates of interference with women's help-seeking than reported in prior research (e.g., Beckman & Amaro, 1986). The women also may have been a select group in that they were agreeable to couple rather than individual therapy, were older, and were more likely to be married than women who inquired about the study but did not enroll (but they also had longer drinking histories). The couples in the study also may have had more functional intimate relationships than typical samples of women with AUDs. Finally, the study design did not call for following women who were randomized but refused to start treatment. Somewhat more women dropped out after being assigned to couples rather than individual therapy, making results generalizable only to couples willing to participate in treatment together.

Despite the fairly robust literature on ABCT, little is known about the mechanisms underlying the effectiveness of the treatment. Three major mechanisms have been proposed: increases in the reinforcing qualities of the relationship that may provide greater incentives for continued abstinence, greater partner support for change efforts, and improved conjoint problem solving around alcohol-related and other life problems (Longabaugh et al., 2005). Future research should directly test these hypothesized mechanisms of change. Future research also should examine the interconnections between relationship functioning and treatment outcomes for women when their male partner is not involved in treatment, and should test more flexible models of conjoint treatment that place less demands on the couple for conjoint participation. In advance of these studies, however, the current results support the value of involving male partners in the treatment of women with AUDs if the couple is willing to seek treatment together.

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Figure 1. CONSORT (CONSOLIDATED Standards of Reporting Trials) diagram. ABCT = alcohol behavioral couple therapy; ABIT = alcohol behavioral individual therapy; mo. = month; FU = follow-up.

Figure 2.

Percentage of Days Abstinent (PDA) $\times$ Time $\times$ Treatment Condition. *Note:* Plotted follow-up data are back-transformed means for covariate-adjusted, model-estimated means of complete data, including imputed values, for arcsine transformed data. Mean PDA for alcohol behavioral couple therapy (ABCT) was significantly greater than for alcohol behavioral individual therapy (ABIT) for Months 7–18. Baseline value of PDA is plotted to provide a complete picture of drinking over time, but baseline PDA was entered as a covariate in all analyses, and pre–post differences in PDA were not tested.

Figure 3. Baseline Relationship Functioning × Treatment Condition interactions. (A) Relationship Functioning × Treatment Condition interaction effect on percentage of days abstinent (PDA) slope during treatment. (B) Relationship Functioning × Treatment Condition interaction effect on percentage of days of heavy drinking (PDH) slope during treatment. (C) Relationship Functioning × Treatment Condition interaction effect on PDH slope during follow-up. *Note.* To illustrate the interaction effects, we have graphed slopes as bar graphs at +1 SD and -1 SD from the mean of baseline relationship functioning in which values 1 SD below the mean reflect poorer relationship functioning (more distress), and values 1 SD above the mean reflect better relationship functioning (less distress). A *positive* slope for PDA (3A) reflects better outcome; a *negative* slope for PDH (3B and 3C) reflects a better outcome. ABIT = alcohol behavioral individual therapy; ABCT = alcohol behavioral couple therapy.

Figure 4.

Comorbid Psychopathology $\times$ Treatment Condition interactions. (A) Axis II Disorder $\times$ Treatment Condition interaction effect on percentage of days abstinent (PDA) intercept at end of treatment. *Note:* Alcohol behavioral couple therapy (ABCT): 20 with Axis II disorders, 30 with no Axis II disorders; alcohol behavioral individual therapy (ABIT): 14 with Axis II disorders, 38 with no Axis II disorders. (B) Axis I Disorder $\times$ Treatment Condition interaction effect on PDA intercept at end of follow-up. *Note:* ABCT: 22 with Axis I disorders, 28 with no Axis I disorders; ABIT: 19 with Axis I disorders, 33 with no Axis I disorders. (C) Axis II Disorder $\times$ Treatment Condition interaction effect on percentage of days of heavy drinking (PDH) intercept at end of follow-up. *Note:* ABCT: 20 with Axis II disorders, 30 with no Axis II disorders; ABIT: 14 with Axis II disorders, 38 with no Axis II disorders.

Figure 5. Percentage of Days of Heavy Drinking (PDH) $\times$ Time $\times$ Treatment Condition. *Note.* Plotted follow-up data are back-transformed means for covariate-adjusted, model-estimated means of complete data, including imputed values, for arcsine transformed data. Mean PDH for alcohol behavioral couple therapy (ABCT) was significantly lower than for alcohol behavioral individual therapy (ABIT) for Months 7–12 and for Months 15–18. Baseline value of PDH is plotted to provide a complete picture of drinking over time, but baseline PDH was entered as a covariate in all analyses, and pre–post differences in PDH were not tested.

Table 1

Participant Characteristics

Variable	Women						Men					
	ABCT (n = 50)			ABIT (n = 52)			ABCT (n = 50)			ABIT (n = 52)		
	M	SD	n	%	M	SD	n	%	M	SD	n	%
Demographic												
Age	44.78	9.14			45.31	9.31			47.96	9.56		
Education (years)	14.57	2.56			14.54	2.61			15.30	2.75		
Ethnicity (% Caucasian)			46	92			51	98			47	94
Employment status												
Homemaker			15	30			11	21			0	0
Employed part-time			7	14			11	21			0	0
Employed full-time			18	36			14	27			44	88
Household income—Median (\$)	87,500						73,500					
No. of children at home	1.36	1.35			1.08	1.22						
TLFB % abstinent days	34.98	29.17			31.98	28.04			66.26	32.28		
TLFB % heavy drinking days (>3 drinks)	56.83	28.87			57.41	32.26			14.53	30.01		
Current alcohol use disorder ^a									6	12	7	13.5
Alcohol abuse			0	0			1	1.9				
Alcohol dependence			49	98			51	98				
Past alcohol use disorder									10	20	6	11.5
Previous alcohol treatment												
Inpatient			12	24			17	32.7				
Outpatient			14	28			16	30.1				
Lifetime drug diagnosis			20	40			22	42			17	34
Met Axis I disorder criteria			22	44			19	36			13	25
Met anxiety disorder criteria			16	32			14	27				
Met mood disorder criteria			15	30			11	21				
Met Axis II disorder criteria			20	40			14	27				
32-item Dyadic Adjustment Scale	97.07	24.03			105.13	19.24			100.75	21.31	104.96	16.70
Modified Conflict Tactics Scale—Violence (female report)	5.64	8.01			5.42	8.23			4.90	8.70	3.71	5.70

Note. ABCT = alcohol behavioral couple therapy; ABIT = alcohol behavioral individual therapy; TLFB = Timeline Follow Back Interview.

^aDiagnosis missing for 1 ABCT participant.

Table 2

Treatment Delivery and Participation

Treatment variable	ABCT			ABIT		
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>
No. of sessions ^a	12.38	6.38		14.88	6.47	
Hours of treatment ^b	18.57	9.57		14.88	6.47	
Attended all 20 sessions ^b			12	24		23
% homework completed						44
Female	72.82	16.58		73.70	24.17	
Male	75.05	20.06			Not applicable	
Couple	47.58	29.04			Not applicable	
Treatment integrity ^c						
Competence	3.93	0.56		4.05	0.43	
Therapeutic alliance	3.94	0.59		3.92	0.58	
Adherence	3.83	0.58		3.97	0.39	

Note. ABCT = alcohol behavioral couple therapy; ABIT = alcohol behavioral individual therapy.

^a Indicates $p = .0502$.

^b Differences are significant at $p < .05$.

^c Rated on a 5-point scale ranging from 1 (*very poor*) to 5 (*excellent*).

Table 3

Percentage of Days Abstinent (PDA) and Percentage of Days of Heavy Drinking (PDH) by Month—Raw Data

Month	PDA		PDH	
	ABCT	ABIT	ABCT	ABIT
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
1	60.14 (35.85)	73.68 (34.13)	28.57 (35.93)	18.67 (32.49)
2	75.83 (26.67)	80.50 (28.44)	17.43 (26.33)	12.64 (27.25)
3	81.66 (26.33)	85.15 (24.90)	11.67 (21.98)	10.70 (23.82)
4	78.01 (31.08)	78.40 (34.26)	11.30 (21.92)	17.22 (33.77)
5	79.70 (28.90)	77.85 (33.23)	11.56 (23.20)	16.59 (34.45)
6	80.52 (27.75)	74.17 (35.04)	10.52 (22.16)	18.70 (34.61)
7	74.07 (32.46)	72.27 (36.30)	12.74 (24.33)	17.48 (34.25)
8	75.63 (32.36)	72.34 (33.18)	11.78 (22.69)	18.44 (34.09)
9	75.48 (30.32)	70.43 (35.07)	10.96 (22.53)	20.58 (35.95)
10	75.15 (33.09)	61.52 (38.99)	15.15 (26.78)	24.49 (37.44)
11	74.54 (33.19)	62.54 (39.04)	14.39 (25.94)	22.10 (37.05)
12	75.68 (34.34)	61.45 (39.51)	12.35 (27.41)	23.77 (37.63)
13	75.83 (32.18)	62.39 (40.13)	10.23 (23.35)	23.04 (37.65)
14	75.61 (32.10)	62.61 (39.73)	10.98 (24.44)	24.78 (38.04)
15	74.77 (30.69)	60.51 (37.78)	10.23 (22.76)	25.22 (36.49)
16	70.71 (39.29)	62.61 (37.52)	15.32 (30.59)	21.38 (34.25)
17	74.76 (34.34)	62.75 (37.71)	12.54 (24.33)	22.90 (33.73)
18	75.40 (34.75)	63.12 (37.64)	12.78 (26.16)	22.46 (34.21)

Note. ABCT = alcohol behavioral couple therapy; ABIT = alcohol behavioral individual therapy.

Table 4

Summary of Conditional Percentage of Days Abstinent (PDA) Model: Within-Treatment and Posttreatment Change

Covariate	Slope within-treatment (SE)	Intercept (SE) ^a	Slope posttreatment (SE)
Treatment condition	.072 (.024)*	.345 (.100)*	.004 (.010)
Baseline PDA	-.069 (.020)*	.006 (.002)*	.000 (.000)
Baseline severity of alcohol use disorder	-.028 (.013)*	-.082 (.047)*	.010 (.005)*
Education	.005 (.002)*	.000 (.000)	.000 (.000)
No. of sessions	.013 (.005)*	.042 (.008)	-.002 (.001)*
Baseline relationship functioning	.000 (.000)	.000 (.000)	.000 (.000)
Axis I	-.046 (.018)*	.000 (.000)	.012 (.010)
Axis II	.047 (.026)*	-.060 (.101)	-.014 (.012)
Axis I × Treatment Condition	.000 (.000)	.000 (.000)	.000 (.000)
Axis II × Treatment Condition	.000 (.000)	-.123 (.046)*	.000 (.000)
Relationship Functioning × Treatment Condition	-.003 (.001)*	-.013 (.007)	.001 (.001)

Note. All parameters were estimated in a model with the intercept centered at the end of treatment. Nonsignificant parameters estimated at $<.001$ were fixed to zero in the final model and are reported as .000 (.000) in the table.

^aSet at end of treatment.

* $p < .05$.

Table 5

Summary of Conditional Percentage of Days of Heavy Drinking (PDH) Model: Within-Treatment and Posttreatment Change

Covariate	Linear slope within-treatment (SE)	Quadratic slope within-treatment (SE)	Linear slope posttreatment (SE)	Intercept (SE) ^a
Treatment condition	-.042 (.013)*	.000 (.000)	-.004 (.006)	-.256 (.076)*
Baseline PDH	.000 (.000)	.000 (.000)	.001 (.001)	.004 (.001)*
Baseline severity of alcohol use disorder	.000 (.000)	.000 (.000)	.000 (.000)	.043 (.030)
Education	-.004 (.002)*	.000 (.000)	.000 (.000)	.000 (.000)
No. of sessions	-.003 (.001)*	.000 (.000)	.001 (.001)	-.030 (.006)*
Baseline relationship functioning	.000 (.000)	.000 (.000)	.001 (.001)	.000 (.000)
Axis I	.040 (.013)*	-.004 (.002)*	.000 (.000)	.194 (.082)*
Axis II	-.008 (.016)	-.018 (.005)*	.007 (.002)*	-.023 (.088)
Axis I × Treatment Condition	.000 (.000)	.000 (.000)	.000 (.000)	.000 (.000)
Axis II × Treatment Condition	.000 (.000)	.000 (.000)	.000 (.000)	.000 (.000)
Relationship Functioning × Treatment Condition	.011 (.003)*	.000 (.000)	.007 (.002)*	.008 (.006)

Note. All parameters were estimated in a model with the intercept centered at the end of treatment. Nonsignificant parameters estimated at $<.001$ were fixed to zero in the final model and are reported as .000 (.000) in the table.

^aSet at end of treatment.

* $p < .05$.