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Partner Violence Before and After Couples-Based Alcoholism Treatment for Female Alcoholic Patients

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Abstract

This study examined partner violence before and in the first and second year after behavioral couples therapy (BCT) for 103 married or cohabiting women seeking alcohol dependence treatment and their male partners, and used a demographically matched non-alcoholic comparison sample. The treatment sample received $M = 16.7$ BCT sessions over 5-6 months. Follow-up rates for the treatment sample at years 1 and 2 were 88% and 83%, respectively. In the year before BCT, 68% of female alcoholic patients had been violent toward their male partner, nearly five times the comparison sample rate of 15%. In the year after BCT, violence prevalence decreased significantly to 31% of the treatment sample. Women were classified as remitted after treatment if they demonstrated abstinence or minimal substance use and no serious consequences related to substance use. In year 1 following BCT, 45% were classified as remitted, and 49% were classified as remitted in year 2. Among remitted patients in the year after BCT, violence prevalence of 22% did not differ from the comparison sample and was significantly lower than the rate among relapsed patients (38%). Results for male-perpetrated violence and for the second year after BCT were similar to the first year. Results supported predictions that partner violence would decrease after BCT, and that clinically significant violence reductions to the level of a non-alcoholic comparison sample would occur for patients whose alcoholism was remitted after BCT. These findings replicate previous research among men with alcoholism.

Keywords

female alcoholism; partner violence; couples therapy

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Studies have shown a strong association between male-perpetrated intimate partner violence (IPV) and alcohol problems (Leonard, 2005) and 50-60% violence prevalence among men in the year before they enter alcoholism treatment (Murphy & Ting, 2009), indicating that male alcoholic patients seeking treatment are a high risk group for perpetrating IPV. Recent studies also suggest that violence risk decreases after men receive alcoholism treatment, especially among men whose alcoholism is remitted after treatment. For example, O'Farrell, Fals-Stewart, Murphy and Murphy (2003) found 56% of alcoholic men were violent toward their female partner in the year before individually-based alcoholism treatment, four times the rate (14%) in a non-alcoholic comparison sample. In the year after treatment, violence decreased significantly to 25% of the male alcoholic sample but remained higher than in the comparison group. Among remitted alcoholics after treatment, violence prevalence of 15% was nearly identical to the comparison sample and half the rate among relapsed patients (32%). These findings suggest that, among male alcoholic patients, recovery from alcoholism after treatment is associated with reduction in risk of IPV to a level that is similar to the nonalcoholic population. Almost identical results were found in 2 studies of male alcoholic patients who received couples-based alcoholism treatment and were followed for 2 years (O'Farrell, Van Hutton & Murphy, 1999; O'Farrell, Murphy, Stephan, Fals-Stewart, and Murphy, 2004). These IPV reductions are consistent with findings that other aspects of family functioning improve to the level of matched community controls when the alcoholic patient recovers (e.g., Moos, Finney & Cronkite, 1990).

Women seeking alcoholism treatment, the focus of the present study, are also a high risk group for experiencing IPV, but it is not clear whether violence risk decreases after women receive alcoholism treatment, as it does for men. High rates of IPV by men against women alcoholic patients have been found repeatedly. For example, Chermack, Walton, Fuller and Blow (2001) and Drapkin, McCrady, Swingle, and Epstein (2005) independently found that 50-60% of women experienced violence from their partner in the year before alcoholism treatment, with 40% or more experiencing severe partner violence. In addition to high levels of male-to-female violence, over 50% of women reported perpetrating IPV toward their male partners in the year before entering alcohol treatment (Drapkin et al, 2005). Other studies document similarly high rates of IPV among women seeking alcohol treatment (e.g., Bergman, Larsson, Brismar & Klang, 1989; Miller, Downs & Gondoli, 1989).

Despite the high levels of IPV among female alcoholic patients, relatively little is known about whether IPV decreases after the woman receives treatment for alcoholism. Downs, Miller and Maguin (1996) found that women from alcoholism treatment programs, at baseline assessment, had experienced substantially more IPV from their male partners than had women in a matched community sample. At 18-month follow-up, male to female IPV had significantly decreased but was still higher than in the community sample. However, this study used non-parallel measures of IPV at pre- and post-treatment, did not examine the impact of drinking outcome on IPV, and had a single follow-up raising concerns about the stability of the reductions in IPV. A second study by Stuart et al (2002) found a decrease in prevalence of male-perpetrated IPV toward female patients (from 50% at baseline to 20% at 12-month follow-up after alcohol treatment), but the small sample (N=10) limits conclusions. Finally, Fals-Stewart, Birchler, and Kelley (2006) found that women with alcoholism who received behavioral couples therapy (BCT) had less frequent male- and female-perpetrated IPV in the year after BCT than did women who received individually-based counseling. Although this study showed BCT reduced IPV, it did not directly examine the association between drinking outcome and post-treatment IPV.

Thus 3 studies suggest that IPV may decrease after a woman receives alcoholism treatment (Downs et al, 1996; Fals-Stewart et al, 2006; Stuart et al, 2002), as it does for men. However, further study is needed for the following reasons. First, important study limitations including

modest-size samples, insufficient measurement of IPV, limited follow-up periods, and failure to assess impact of alcoholism recovery on IPV, reduce confidence in prior findings. To overcome these limitations the present study included an acceptable sample size, standard IPV measures completed by both the female patient and her male partner regarding each person's IPV, 2 follow-up periods to evaluate durability of IPV changes, a community comparison sample without alcoholism, and an evaluation of the impact of treatment outcome status (recovered or not) on IPV levels after treatment. Second, women patients are typically under-represented in alcoholism treatment studies, and findings from studies of men do not necessarily generalize to women (Greenfield et al, 2007). Finally, IPV may be more extensive and more bidirectional among women than men alcoholic patients (Drapkin et al, 2005; Stuart et al, 2009), suggesting a need to examine partner aggression more broadly to include both male- and female-perpetrated physical violence as well as verbal aggression.

The present study examined partner aggression among women with alcoholism and their male partners in the year before and the two years after BCT. It included a demographically matched sample, which served as a comparison group. The main study goal was to examine the impact of women's alcoholism treatment on partner aggression in order to find out if IPV decreases after women receive alcoholism treatment, as it does for men (e.g., O'Farrell et al, 1999, 2003, 2004). We predicted that partner aggression in female alcoholic patients would be greater than in the comparison sample before treatment, and would decrease significantly in the first and second year after BCT. We further predicted that women's recovery from alcoholism would reduce partner aggression to the level of the comparison sample, so that partner aggression in remitted alcoholic patients after BCT would be similar to their comparison sample counterparts and lower than in patients who relapsed after BCT.

Method

Participants

Alcoholic sample—Participants were 103 heterosexual couples in which a female alcoholic patient and her husband or male partner entered the Counseling for Alcoholics' Marriages (CALM) Project between 1992 and 1998. They took part in a large naturalistic study examining factors that predict outcomes after behavioral couples therapy (BCT; O'Farrell & Fals-Stewart, 2006) for individuals with alcoholism. Baseline data on violence from the present sample of 103 female alcoholic patients were included in an earlier article on correlates of partner violence among female alcoholic patients (Chase, O'Farrell, Murphy, Fals-Stewart & Murphy, 2003). However, other data presented in this article (e.g., other measures of partner aggression, longitudinal data at 1- and 2-year follow-up, and data from the nonalcoholic comparison sample) have not appeared elsewhere.

Participants sought treatment at one of four addictions treatment programs in Massachusetts, and met the following inclusion criteria: (a) alcoholic patient and spouse were age 21 to 65; (b) couple was married or living together for at least 1 year; (c) alcoholic patient met criteria of the revised third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III-R; American Psychiatric Association, 1987) for diagnosis of current (past 6 months) alcohol abuse or alcohol dependence; (d) patient accepted abstinence from alcohol as the treatment goal for the duration of the BCT program and expressed a willingness to take Antabuse if medically cleared to do so; (e) patient's alcoholism diagnosis was at least as serious as any co-existing current drug problem diagnosis as shown by the patient having alcohol dependence with drug dependence, drug abuse or no drug problem or alcohol abuse with drug abuse or no drug problem; (f) neither spouse met DSM-III-R criteria for a current psychotic disorder; (g) no evidence of organic impairment sufficient to impair project participation; (h) if couple was separated they were willing to reconcile for the program; and (i) the female patient agreed to forego other alcoholism counseling (other than self-help support groups such as

Alcoholics Anonymous) during the BCT program. Male partners were mainly non-substance-abusing ($n = 83$); however, a subset ($n = 20$) of male partners were found to exhibit substance use disorders, but were permitted to enroll because both partners agreed to a goal of abstinence.

Study participants were drawn from 117 female patients and their male partners who signed informed consent and began the project. Fourteen couples were excluded because they failed to complete the pre-assessment measures. The 103 retained and 14 excluded couples did not differ significantly on age, education, income, or length of relationship. Patients from the four treatment sites also did not differ significantly on these variables, so data from the four clinics were pooled for analyses.

Project staff at the 4 project sites recruited couples for the study by approaching married or cohabiting female alcoholic patients admitted to the program for inpatient or outpatient care. Some couples also entered the study in response to advertisements, media announcements or other referral sources. Of the 103 study cases, 42 (41%) entered the Project CALM BCT program after completing inpatient alcoholism treatment (typically 3 to 10 days in length), 26 (25%) came from outpatient alcoholism treatment, and the remaining 35 (34%) came in response to advertisements, media announcements or other referral sources.

Demographic background data are in Table 1. The participants, on average, were in their early 40's, had some college education, with yearly family income of between \$45-50,000, and had been married or cohabiting for over a decade. These couples were mainly white and legally married. The average female alcoholic patient reported drinking problems of longstanding duration ($13.9 \text{ years} \pm 8.6$), with previous alcohol-related hospitalizations (2.5 ± 3.4 , median = 1.0). Elevated scores were observed on the Michigan Alcoholism Screening Test (Selzer, 1971; 34.2 ± 8.2) and the Alcohol Dependence Scale (Skinner & Allen, 1982; 18.7 ± 7.6).

The DSM-III-R current (past 6 months) alcohol problem diagnosis at study entry for the female alcoholic patients was alcohol dependence for 94 patients (91% of sample); alcohol dependence in partial remission for 5 patients (5%); alcohol dependence in full remission for 3 patients (3%); alcohol abuse for 1 patient (1%).¹ A diagnosis of current drug abuse or dependence was also present for 19 patients (18%). In terms of male partners' current substance abuse problems, 20 (19%) had a diagnosis of alcohol dependence; 6 (6%) had drug abuse or dependence; 4 had alcohol dependence in partial remission (4%); 2 had alcohol dependence in full remission (2%); and 1 had alcohol abuse (1%).

Nonalcoholic comparison sample—The demographically similar, nonalcoholic comparison sample provided a realistic, normative baseline against which to compare the levels of partner violence experienced by women with alcoholism and their male partners before and after BCT. The comparison sample was constituted by matching women with alcoholism and their male partners with demographically similar comparison groups of married or cohabiting individuals with no evidence of problem drinking drawn from the 6,002 participants in the 1985 National Family Violence Re-Survey (NFVS; Gelles & Straus, 1985).² Because only one member of a household was surveyed in the NFVS study, each female with alcoholism was matched with a demographically similar female without alcoholism and each alcoholic patient's

¹The cases in full or partial remission deserve explanation. First, the 3 cases diagnosed with alcohol dependence in full remission had been abstinent for 6 months or longer, and thus were considered in remission using *DSM-III-R* criteria. All of these cases had been seriously dependent on alcohol in the months immediately preceding the period of abstinence, and nearly all had spent the 6 months before study entry in jail, a treatment center or halfway house, or were living separately from their partner because of alcohol-related relationship problems. Second, the five cases diagnosed with alcohol dependence in partial remission had met criteria for dependence prior to the past 6 months but had only one or two *DSM-III-R* dependence symptoms in the past 6 months. Generally, these were individuals with quite serious alcohol problems who had experienced a period of abstinence before the past 6 months and had begun to drink again in the past 6–12 months. They sought help to prevent further increases in drinking and drinking-related problems.

male partner was matched with a demographically similar nonalcoholic male. Alcohol treatment sample participants were matched to nonalcoholic NFVS participants on a case by case basis. Participants were matched on the following demographic variables that are associated with partner violence risk (Hotaling & Sugarman, 1986): race-ethnicity, age, marital status (cohabiting versus married), education level, family income, and relationship length. The large NFVS sample allowed for fairly precise case matching in the vast majority of cases. For a small number of difficult-to-match cases, matching criteria (e.g., ± 2 years in age) were loosened, and, if necessary, specific matching variables were dropped, with matching priority given to variables that have the strongest association with partner violence risk in community studies.

Table 1 shows the matching procedures were generally successful in that the treatment and matched comparison groups were not significantly different (p 's $> .20$) on 5 of the 6 matching variables. One exception was that the alcoholic sample had more cohabiting and fewer married couples than did the comparison sample: female sample comparisons $\chi^2(1, N = 103) = 9.60, p = .001$, male sample comparisons $\chi^2(1, N = 103) = 5.88, p = .01$. While cohabiting couples in the treatment sample had greater aggression than married couples before treatment, these couples did not differ on any measure of aggression following treatment (p 's $> .10$).³

Procedures

BCT treatment program—Women with alcoholism and their male partners were treated in a BCT program described in detail elsewhere (O'Farrell, 1993; O'Farrell & Fals-Stewart, 2006). BCT consisted of 20-22 weekly sessions over a 5-6 month period. Participants in the current study received, on average, 16.7 sessions of BCT ($SD = 6.2$). The BCT program included a daily Recovery Contract to promote abstinence, instigation of positive couple and family activities, and training in communication and negotiation skills. For most patients, the Recovery Contract included daily Antabuse ingestion witnessed and verbally reinforced by the spouse. For patients who were unwilling or not medically cleared to take Antabuse, the Recovery Contract involved a brief discussion in which the patient stated her intent not to drink or use drugs that day, and the spouse expressed support for the patient's efforts to stay abstinent. The Recovery Contract also included 12-step meetings for patients who were willing and urine drug screens at each session for patients with a current drug problem. In terms of female patients' use of Antabuse and 12-step meetings during their BCT treatment, 66% of patients took Antabuse and 72% of patients attended at least one 12-step meeting.

²Potential match participants from the NFVS sample were excluded if they met any of the following criteria: (a) a score of "high" or "binge" on Kantor and Straus's (1990) Drinking Index, on which high means that the individual "drinks 3-4 times a week up to daily; 3 or more drinks a day," and binge means that the individual "drinks on infrequent occasions—once a month up to 1 to 2 times a week; 5 or more drinks a day" (Kantor & Straus, 1990, p. 208); (b) reported being drunk six or more times in the past year; (c) reported getting high on marijuana or other drugs six or more times in the past year; (d) sought help from a drug or alcohol abuse treatment service provider in the past year; or (e) was arrested for driving under the influence in the past year. We chose the NFVS as a comparison sample for a number of reasons: (a) the data set is in the public domain, so we could perform case-by-case matching to get a demographically similar comparison sample; (b) it used the same violence measure we used with the alcoholic sample; (c) it included data on both prevalence and frequency of male-perpetrated and female-perpetrated verbal and physical aggression; (d) none of the other more recently collected national survey samples of partner violence violence (e.g., Cunradi, Caetano, Clark, & Schafer, 1999; Kessler, Molnar, Feurer, & Applebaum, 2001; Straus, & Kaufman Kantor, 1994) met the three preceding criteria; and (e) it included measures of alcohol and drug use that allowed us to select a comparison sample that displayed no evidence of current alcohol or drug problems.

³Within the alcoholic sample, significantly higher pretreatment aggression for married versus cohabiting couples were found on the following measures: prevalence of female to male severe violence, $\chi^2(1, N = 103) = 5.11, p = .02, r = .22$; prevalence of male to female severe violence, $\chi^2(1, N = 103) = 3.94, p = .05, r = .19$; frequency of female to male verbal aggression, $t(101) = 3.44, p = .001, r = .18$; frequency of male to female verbal aggression, $t(101) = 3.40, p = .001, r = .18$; frequency of male to female overall violence, $t(101) = 1.96, p = .05, r = .14$; frequency of female to male severe violence, $t(101) = 2.53, p = .01, r = .16$; frequency of male to female severe violence, $t(101) = 2.10, p = .04, r = .14$. Within the community sample, the low number of cohabiting women ($n = 1$) and men ($n = 3$) precluded our ability to fully explore the implications of married versus cohabitating status in the community sample or to explore how this variable affected comparisons between the community and treatment samples.

Although BCT for alcoholism was not designed explicitly to treat partner violence, it became a pragmatic necessity to devise methods to address violence in BCT. For example, BCT therapists inquired about violence during each session for couples with a history of violence with a goal of preventing a recurrence of the violence. BCT also taught all couples norms of nonviolence and constructive communication to reduce hostile and negative interaction patterns that may escalate to violence. O'Farrell and Murphy (2002) give more details on how partner violence is handled in BCT with alcoholic patients.

The BCT sessions were conducted by master's level therapists or predoctoral psychology interns who followed a session-by-session treatment manual, with the understanding that planned interventions could be modified, at the discretion of the therapist, to address emergency situations (e.g., patient's relapse). Ratings of randomly selected videotaped BCT sessions, done to assess the fidelity of BCT delivered in the project, showed high scores for both adherence and quality, indicating the therapists adhered to the BCT manual and did so in a competent manner. O'Farrell et al (2004) provide more details on therapist training, supervision, and fidelity assessment used in the parent project from which the present sample was drawn.

Collection of outcome measures—Drinking measures were collected via in-person interviews with patients and their male partners before and after the BCT program, and at quarterly intervals for two years thereafter. The Conflict Tactics Scale measure of partner aggression was collected at entry to the BCT program and at one- and two-year follow-up.

Measures

Partner aggression and violence—We used the Verbal Aggression and Violence subscales of the Conflict Tactics Scale (CTS), a widely used and well-validated instrument (Straus, 1979, 1990), to measure the prevalence and frequency of male-perpetrated and female perpetrated verbal aggression, overall violence, and severe violence. Respondents rated each CTS item on a 7-point frequency scale, with separate ratings for their own behavior and their spouse's behavior in the past 12 months. For the frequency of each verbally aggressive and violent act, we used Straus's (1979) scoring method in which each CTS item response was coded as follows: never = 0; once = 1; twice = 2; 3-5 times = 4; 6-10 times = 8; 11-20 times = 15; over 20 times = 25. The CTS Verbal Aggression subscale has six items (e.g., yelled and/or insulted, threatened to hit or throw something at the partner). Using a method developed by Straus and Sweet (1992), elevated verbal aggression was defined as a frequency score at or above the 75th percentile of national norms from the National Family Violence Re-Survey (Straus & Gelles, 1990, p. 557). The CTS Violence subscale has eight items: (1) threw something at the partner; (2) pushed, grabbed or shoved; (3) slapped; (4) kicked, bit or hit with a fist; (5) hit, or tried to hit, with something; (6) beat up; (7) threatened with a knife or gun; (8) used a knife or gun. Prevalence and frequency scores based on all eight items were labeled overall violence; and scores based on items 4-8 were considered severe violence (Straus, 1979, 1990).

To provide the most accurate information available and comparable data to our earlier studies of violence and BCT among male alcoholic patients (e.g., O'Farrell et al., 2004), we used slightly different CTS indices for the alcoholic and comparison samples. As described in a prior paper (Chase et al., 2003), data from the alcohol sample was collected from both partners, and agreement about violence occurrence exceeded 70% at pretreatment. However, to address concerns about possible under-reporting (e.g., Archer, 1999), we employed a commonly used method suggested by Straus (1990) in which the higher of the female and male report in each couple for each CTS item was used. Such combined higher report scores, in the absence of a gold standard criterion measure, generally are considered more accurate than self-reported data (Archer, 1999; Straus, 1990). We used the higher of either spouse's reports for analyses

conducted within the alcoholic sample to examine change over time and to compare remitted with relapsed cases. For the nonalcoholic comparison sample, which had data from only one member of each couple, partner collateral reports (i.e., husband report of wife aggression and wife report of husband aggression) were used rather than self-reports because reports by recipients of aggression appear to be less contaminated by social desirability response bias than are self-reports by perpetrators (e.g., Dutton & Hemphill, 1992). For analyses comparing the alcoholic sample with the nonalcoholic sample, we used partner reports from both samples to provide comparable scores. When partner-reports of aggression for a couple in the alcoholic sample were missing for Year 1 or Year 2 after BCT, available self-reports were used instead (11 in Year 1, 16 in year 2 for female-to-male aggression; 7 in Year 1, 2 in year 2 for male-to-female aggression). Finally, an inverse transformation was used to normalize highly skewed distributions for frequency of overall and severe violence scores.

Frequency of substance use and abstinence by female alcoholic patients—

Patients and their partners completed the Timeline Follow-Back interview (TLFB; Sobell & Sobell, 1996) to measure the number of days on which the female patient drank alcohol, used other drugs, or remained abstinent in the year before and the two years after BCT. TLFB variables were based on the female patient's self-report, when available. When the female patient's TLFB self-report could not be obtained (e.g., the female patient refused), the male partner's collateral TLFB report about the female patient was used (7 in Year 1 and 6 in Year 2).

Treatment outcomes of female alcoholic patients as remitted or relapsed—On the basis of their drinking and drug use in each of two years after BCT, alcoholic patients were divided into “remitted” and “relapsed” groups.⁴ The remitted group met each of the following criteria: (1) completely abstinent from alcohol or drinking no more than 3 standard drinks (e.g., three 12-ounce beers) per day for no more than 10% of the days in the year; (2) free of illicit drug use except for occasional marijuana use defined as no more than 10% of days in the year; (3) no hospitalization for alcohol or drug problems; (4) no legal problems (i.e., loss of driver's license, arrested, or jailed) due to drinking or drug use; (5) no job problems (i.e., missing work or losing a job) due to drinking or drug use; and (6) no withdrawal symptoms or blackouts due to drinking or drug use. Each criterion for remission was based on patients' self-reports which generally show good reliability and validity within voluntary, treatment-seeking samples (Breslin, Borsol, Cunningham & Koski-Jaenes, 2001). Patients not meeting remission criteria were considered relapsed. Remitted or relapsed status was defined separately for year-1 and year-2 after BCT.

Results

Eighty-eight percent (91/103) of the study sample provided violence data at 1-year follow-up, and 83% (86/103) provided violence data at 2-year follow-up. Data on relapse versus remission status were available for all those who provided violence data. After considering the main study findings, the impact of follow-up attrition will be examined.

⁴Criteria for relapsed and remitted groups were based on other studies (Heather & Tebbutt, 1989; McCrady, Moreau, Paolino, & Longabaugh, 1982; Moos et al, 1990). Relapse versus remission criteria used in this study are essentially identical to what we have used in our 3 prior studies of IPV among men in alcohol treatment (O'Farrell et al., 1999, 2003, 2004) to allow for comparisons of results across samples. The only difference between this and our prior studies with men was that the criteria for heavy drinking was adjusted for gender (males – more than 6 drinks; females – more than 3 drinks).

Of the 41 patients who were remitted in year-1 after BCT, 37 remained totally abstinent from alcohol and illicit drugs. Of the 4 remitted patients with some substance use in the first year after BCT: (a) 1 women had 1 light drinking day with less than 3 standard drinks and (b) 3 women used marijuana (for 1, 4, and 4 days, respectively).

Of the 42 patients who were remitted in year-2 after BCT, 38 remained totally abstinent from alcohol and illicit drugs. Of the 4 remitted patients with some substance use in the second year after BCT: (a) 2 women had light drinking days of 3 or fewer standard drinks per day (for 3 and 31 days, respectively); and (b) 2 women used marijuana (for 3 and 19 days, respectively).

Partner Aggression Before BCT in the Alcoholic Sample Compared with Nonalcoholic Sample

As predicted, in the year before BCT, both women with alcoholism and their male partners had greater prevalence and frequency of aggression than matched nonalcoholic counterparts for all measures studied. McNemar's chi-square tests for prevalence and paired sample t-tests for frequency scores compared aggression in the alcoholic sample before BCT with the nonalcoholic sample. Table 2 (Column 1 footnotes) has statistical results. The relative increased risk of aggression attributable to being in the alcoholic rather than the nonalcoholic sample, assessed by the relative risk statistic (Fleiss, 1981), was substantial for both female- and male-perpetrated aggression (elevated verbal aggression = women 3.7 (95% CI = 2.5-5.4), men 4.8 (95% CI = 3.2-9.7); overall violence = women 4.1 (95% CI = 2.5-6.7), men 5.4 (95% CI = 2.9-10.0); severe violence = women 6.6 (95% CI = 3.1-13.9), men 9.5 (95% CI = 2.3-39.5).

Change in Aggression from the Year Before BCT to the First and Second Years After BCT

As predicted, partner aggression decreased from the year before to the 2 years after BCT, as shown by the following analyses. First, omnibus tests examined whether the extent of aggression differed across the 3 time periods (year before, first, and second year after BCT). Cochran's Q Test ($df=2$, $N=83$) showed significant differences among the 3 time periods on each prevalence of aggression measure (female-to-male: elevated verbal aggression, $Q = 53.39$, $p < .001$, $r = .63$; overall violence, $Q = 41.27$, $p < .001$, $r = .58$; severe violence, $Q = 35.45$, $p < .001$, $r = .55$; and male-to-female: elevated verbal aggression, $Q = 42.17$, $p < .001$, $r = .58$; overall violence, $Q = 44.74$, $p < .001$, $r = .59$, severe violence, $Q = 8.72$, $p = .01$, $r = .31$).⁵ Repeated measures ANOVA showed significant differences among the 3 time periods on each frequency of aggression measure (female-to-male: verbal aggression, $F(2, 83) = 65.12$, $p < .001$, $r = .67$; overall violence, $F(2, 83) = 39.19$, $p < .001$, $r = .57$; severe violence, $F(2, 83) = 28.01$, $p < .001$, $r = .51$; and male-to-female: verbal aggression, $F(2, 83) = 36.13$, $p < .001$, $r = .56$; overall violence, $F(2, 83) = 31.76$, $p < .001$, $r = .53$; severe violence, $F(2, 83) = 5.82$, $p < .01$, $r = .26$).⁶

Next, using McNemar's chi-square tests for prevalence and paired sample t-tests for frequency scores, we conducted a series of pairwise comparisons of baseline with each follow-up aggression score. Table 2 (footnotes to Columns 2 and 3) presents statistical results of these pairwise comparisons. As predicted, results showed significant decreases in both the first year and the second year after BCT, as compared with the year before BCT, for both women with alcoholism and their male partners on nearly all aggression measures studied. The only exception was that prevalence and frequency of male-perpetrated severe violence were not significantly reduced in the first year after BCT when compared to the year before BCT.

Finally, we explored changes in aggression between year-1 and year-2 after BCT. Generally, there were no significant differences between year-1 and year-2 despite the fact that there were modest non-significant declines on most variables studied.⁷ The only exception was that prevalence and frequency of male-perpetrated overall violence declined significantly from year-1 to year-2 [$\chi^2(1, N = 83) = 10.94$, $p < .001$, $r = .34$; and $t(82) = 3.38$, $p = .001$, $r = .20$; year 1 $M = 2.4$, $SD = 7.8$, year 2 $M = 2.2$, $SD = 10.9$].⁸ Stable IPV reductions after BCT are evident here because year-2 scores do not increase over year-1 scores.

⁵The effect size r (Rosenthal, 1991) — for which $r = .10$ is considered a small effect, $r = .30$ a medium effect, and $r = .50$ a large effect (Cohen, 1988) — is shown to aid interpretation.

⁶Frequency of violence variables were skewed (skewness coefficients > 5), so inverse transformations were used in all analyses involving frequency of overall and severe violence. The transformed variables better approximated a normal distribution (skewness coefficients between $-.87$ and -3.6) and were therefore more appropriate for conducting statistical comparisons of these frequency data than the untransformed variables.

⁷Details of these nonsignificant results are available from the authors.

Alcoholism Remission and Extent of Partner Aggression After BCT

Our final prediction was that women's recovery from alcoholism would reduce partner aggression to the level of the comparison sample, so that partner aggression in remitted patients after BCT would be similar to their comparison sample counterparts and lower than in patients who relapsed after BCT.

Comparison of remitted female patients with nonalcoholic comparison couples

—As predicted, couples in which the alcoholic women were remitted after BCT generally did not differ from non-alcoholic couples on female-perpetrated or male-perpetrated aggression in either the first or the second year after BCT. The only exception was that male partners of remitted alcoholic patients, as compared to their matched counterparts, had greater prevalence and frequency of verbal aggression in the first year after BCT. Table 3 (column 2 and 4 footnote b) displays the associated statistical results.

Comparison of remitted with relapsed patients—In the first year after BCT, 45% (41/91) of patients with violence data were remitted, and 55% (50/91) were relapsed. In the second year after BCT, 49% (42/86) were remitted, and 51% (44/86) were relapsed.⁹ In comparisons of remitted with relapsed women on aggression after BCT, we controlled for the relevant baseline aggression score for the year before BCT. Specifically, for prevalence of aggression measures, we ran hierarchical logistic regressions in which baseline aggression status (aggressive, non-aggressive) was entered on the first step, and outcome status (remitted, relapsed) was entered at the next step in predicting follow-up aggression status (aggression in year of interest after BCT, non-aggression). For frequency of aggression measures, we ran analyses of covariance (ANCOVA) with outcome status (remitted, relapsed) as grouping variable, baseline aggression score as covariate, and aggression score for year of interest as dependent variable. Table 3 (column 1 and 3 footnote a) displays the statistical results for these analyses.

Partial support was found for the hypothesis that remitted female patients would have lower levels of aggression than relapsed female patients following BCT. In year-1 after BCT, remitted female patients generally perpetrated less aggression than their relapsed counterparts did, the only exception being prevalence of elevated verbal aggression on which remitted and relapsed patients did not differ. In year-2 after BCT, remitted patients, compared with relapsed counterparts, had lower frequency of female-perpetrated verbal aggression and overall violence but did not differ significantly on the other aggression variables studied. However, nonsignificant trends in the predicted direction were noted for prevalence of elevated verbal aggression ($p=.09$) and prevalence of severe violence ($p=.06$); also prevalence of overall violence was significant when adjustments for attrition were made (see below).

In terms of male-perpetrated aggression in year-1 after BCT, male partners of remitted, as compared with relapsed, patients had lower frequency of verbal aggression and lower prevalence of overall violence. In year-2 after BCT, male partners of remitted female patients had lower prevalence of elevated verbal aggression than relapsed counterparts, but did not differ significantly on other aggression variables studied. However, nonsignificant trends in the predicted direction were noted for frequency of verbal aggression ($p=.06$) and of overall

⁸*M* and *SD* reported here for year-1 to year-2 male violence frequency differ from the values reported in Table 2. The values reported here, which are based on the 83 couples with data available at both year-1 and year-2, show year-1 to year-2 declines in overall male violence frequency. These values based on the same group of couples are suitable for the purpose of measuring changes from year-1 to year-2. The values in Table 2, which are based on the 91 couples with data available at year-1 and the 86 couples with data available at year-2, are not suitable for the purpose of measuring changes from year-1 to year-2 because they are not based on identical couples over time.

⁹Of those remitted at year 1, 81% were also remitted at year 2. Of those relapsed at year 1, 82% were also relapsed at year 2.

violence ($p=.08$); and prevalence of overall violence was significant after attrition adjustment (see below).

Examining the Impact of Sample Attrition at 1- and 2-Year Follow-up on Study Findings

Comparing dropouts and completers—Of the 103 couples who provided CTS data at baseline, 91 (88%) provided CTS data at 1-year and 86 (83%) at 2-year follow-up. First, we compared study dropouts and completers on demographics and drinking adjustment prior to treatment. Dropouts at year 1 were less likely to be married, $\chi^2(1) = 4.51, p < .05$, and displayed a trend toward more lifetime hospitalizations for drinking, $t(99) = 1.86, p = .07$, when compared to completers. Dropouts at year 2 displayed trends toward more lifetime hospitalizations for drinking, $t(99) = 1.79, p = .09$, and less years of problematic drinking, $t(101) = 1.86, p = .07$, versus completers. All other comparison of dropouts versus completers on demographic and pretreatment drinking adjustment measures were non-significant ($p's > .19$). Second, dropouts were compared with completers on aggression outcome measures. No differences were found on any baseline aggression measures when comparing dropouts year 1 or year 2 versus completers ($p's > .12$). In addition, aggression scores at year 1 following BCT did not differ for year 2 dropouts versus completers ($p's > .13$). In summary, dropouts were less likely to be married and had statistical trends toward poorer pretreatment adjustment on alcohol-related measures than completers; however, dropouts and completers did not differ on measures of partner aggression.

Repeating study analyses with different assumptions about missing cases—To examine attrition effects more specifically, we repeated study analyses of prevalence of female-to-male and male-to-female overall violence at 1- and 2-year follow-up by: (a) substituting baseline violence score for missing cases; (b) substituting most recent available violence score for missing cases; and (c) assuming that all dropouts were violent. These three methods produced nearly identical results to those reported above. The few differences in repeating these analyses showed that some results became consistent with study hypotheses once data substitutions were made. Specifically, the remitted group had significantly lower year 2 prevalence of female- and male-perpetrated overall violence versus the relapsed group when missing cases were assumed to be violent or when baseline or year 1 data were substituted for missing year 2 violence data.

Discussion

This study examined whether partner aggression was reduced in the first and second year after, as compared with the year before, BCT for married or cohabiting female alcoholic patients. Partner aggression measures included male-perpetrated and female-perpetrated prevalence of elevated verbal aggression, overall violence, and severe violence and frequency of verbal aggression, overall violence, and severe violence. Results supported predictions that partner aggression and violence would decrease after BCT, and that clinically significant violence reductions to the level of a non-alcoholic comparison sample would occur for patients whose alcoholism was remitted after BCT.

In the year before BCT, over two-thirds of women engaged in violence toward their male partners and a similar proportion were victimized by their male partners. Severe violence also was high with 50% female perpetration and 22% female victimization prevalence. Before BCT alcoholic women and their male partners had a fourfold or greater increased risk of partner aggression on all measures studied when compared to the matched nonalcoholic sample.

Female-perpetrated aggression in the first and second year after BCT decreased significantly from pre-treatment levels. Further, women who were remitted after BCT had aggression levels similar to the comparison sample, suggesting that these violence reductions were clinically

significant. These predicted reductions in women's aggression occurred for all measures studied.

Male-perpetrated aggression followed the same pattern of predicted results with a few exceptions. Male aggression was significantly reduced in the first and second year after BCT except for year-1 prevalence and frequency of severe violence. Male aggression also returned to the level of matched controls when the female partner was remitted except for year-1 prevalence and frequency of verbal aggression. These minor differences in results for female versus male aggression were not predicted, but it seems reasonable that reductions in the woman's drinking may reduce the woman's aggression somewhat more than the man's aggression.

A final prediction was that couples in which the alcoholic women were remitted after BCT would have lower aggression than their counterparts in which the woman had relapsed. Although results were all in the predicted direction, strength and consistency of support for the hypothesis varied. Women's and men's aggression was generally lower for remitted than relapsed cases, but in year-2 some measures only approached significance or were significant only when adjusted for attrition. Severe violence showed an exception to the general pattern, in that men's prevalence and frequency of severe violence in both years and women's frequency of severe violence in year-2 did not differ as a function of the women's remission status.

The prevalence of female-to-male overall violence illustrates the general pattern of study results. In the year before BCT, 68% of female alcoholic patients had been violent toward their male partner, nearly 5 times the comparison sample rate of 15%. In the year after BCT, violence decreased significantly to 31% of the alcoholic sample. Among remitted alcoholics in the year after BCT, violence prevalence of 22% did not differ from the comparison sample and was significantly lower than the rate among relapsed patients (38%). These results support the hypothesis that women's recovery from alcoholism after BCT is associated with reductions in risk of female-to-male partner violence to a level that is similar to the nonalcoholic population.

Results for the second year after BCT were similar to the first year. In addition, the year-2 results showed that posttreatment reductions in violence were stable rather than transitory. Year-2 partner aggression remained significantly reduced from baseline levels and aggression did not increase from the first to the second year after BCT.

The present results replicate and extend earlier studies in a number of ways. First, violence prevalence of over two-thirds in the year before BCT is of similar magnitude to the 50-60% past year violence prevalence noted in other studies of women with alcoholism (e.g., Chermack et al, 2001; Drapkin et al, 2005). Second, the present results replicate the findings of Fals-Stewart et al (2006) showing significant reductions in partner violence among women with alcoholism in the year after BCT. The present study extended the Fals-Stewart et al study by including a 2-year follow-up and a non-alcoholic comparison sample, thus showing that violence reductions were maintained in the second year after BCT and that clinically significant violence reductions to the level of a non-alcoholic comparison sample occurred for patients whose alcoholism was remitted after BCT. Finally, present results show that findings of substantially reduced violence associated with abstinence in the 2 years after BCT in 2 studies of male alcoholic patients (O'Farrell et al, 1999, 2004) generalizes to women alcoholic patients as well. The pattern of results is remarkably similar for the studies of male and female alcoholic patients.

The current study had several strengths. To date, this study provides the longest follow-up period assessing women with alcoholism and their male partners on IPV following BCT. It replicates the one previous published study showing reductions in IPV for women with alcoholism following BCT (Fals-Stewart et al, 2006), and expands upon these findings by

showing maintenance of reduction in IPV for two years following treatment. Also, this study is the first that we are aware to compare women with alcoholism and their male partners to a demographically, case-matched non-alcoholic community sample both prior to and following treatment. This strategy helps to gauge the meaningfulness of clinical gains after BCT allowing for comparison of the treatment sample to individuals from the community who do not exhibit alcohol problems (Kendall, Marrs-Garcia, Nath, & Sheldrick, 1999).

Limitations of this study should also be noted. First, although study attrition was modest over the course of the two year follow-up period, various data substitution procedures showed that the lack of a predicted difference between remitted and relapsed patients on some measures might have been due to attrition. Second, due to the naturalistic study design, the declines in IPV following BCT cannot be casually attributed to specific procedures of the BCT intervention. Although use of multiple follow-up assessments and a case control sample helps to offset some confounds, this study did not have a no-treatment or alternative treatment control and therefore the causal role of BCT in producing reductions in IPV remains unclear. Third, the mechanism of action whereby IPV was reduced after BCT was not examined in the present study. Fourth, since partner data was not obtained in the community sample, we were unable to compare different violence assessment methods (e.g., highest report of either partner versus partner collateral report) and how these might have impacted the results. Fifth, we did not collect data on reasons for refusal or willingness to take Antabuse or accept abstinence as a goal of treatment. Therefore, we are unable to determine in what ways study participants differ from those that chose not to participate. Finally, the comparison sample was collected in 1985, a number of years before the alcoholic sample was collected, raising the possibility of cohort or history effects on the comparison analyses. However, it seems unlikely that such effects would invalidate conclusions of the present study, given that IPV prevalence estimates from national surveys in 1992 (Straus & Kaufman Kantor, 1994) and 1995 (Cunradi, et al, 1999) differ from the 1985 sample used in the present study by less than 1% for female-perpetrated and 1-2% for male perpetrated violence.

Although the current study offers some advancement into the understanding of IPV following alcoholism treatment for women and their male partners, there is a clear need for additional research. The current study did not investigate the mechanisms of action that might be associated with reductions in violence following BCT. The finding that reductions in IPV were found even among the relapsed group suggests that there may be avenues other than reducing substance use through which BCT impacts IPV. Future research is needed to see if the BCT procedures aimed at improving communication and conflict resolution might have an impact on reducing IPV in addition to the BCT procedures for supporting sobriety. In addition, future research should examine the association between partners' substance use and violence on a day-by-day basis to better understand the temporal and possible causal ordering of these variables. Expanding the model to include male partner substance use may help to further explain situations that lead to violence. Future studies should also examine the degree to which polysubstance dependence and relapse to substances other than alcohol might contribute to IPV. In addition, it will be important for future research to better contextualize the occurrence of the IPV among women with alcoholism and their partners by assessing factors such as whether or not verbal arguments over drinking and problems related to drinking escalated to violence, who initiated the violence, and whether or not the reported violence was in self-defense. This issue speaks to the need for future research to use alternative methods for measuring violence that go beyond simply summing the frequency of a specific violent behavior. Results from the current study are based upon a sample that was primarily White. Future studies of BCT should seek to incorporate individuals from other racial backgrounds and examine the degree to which race and ethnicity might impact treatment outcomes including IPV. Finally, future research should examine whether other predisposing factors, such as

antisociality or history of abuse victimization, might increase risk for IPV among women seeking alcoholism treatment and their partners.

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Table 1

Background Information on the Alcoholic Sample ($n = 103$ couples) and on the Nonalcoholic Comparison Sample ($n = 103$ men and 103 women).

Characteristics	Alcoholic Sample		Comparison Sample	
	Female	Male	Female	Male
Matching variables				
<i>M (SD)</i>				
Age	39.96 (8.10)	42.23 (9.30)	39.83 (8.14)	42.21 (9.52)
Education ^a	4.88 (1.30)	5.35 (1.54)	4.83 (1.25)	5.37 (1.39)
Family income ^b	10.15 (1.92)	10.15 (1.92)	10.08 (1.76)	10.04 (1.84)
Relationship Length (yrs.)	11.17 (9.46)	11.17 (9.46)	12.64 (9.04)	11.59 (8.86)
Race-ethnicity (%)				
White	92%	90%	92%	90%
Black	3%	4%	3%	4%
Hispanic	1%	2%	1%	2%
Other	4%	4%	4%	4%
Marital Status (%)				
Cohabiting	14% ^c	14% ^d	1% ^c	3% ^d
Married	86% ^c	86% ^d	99% ^c	97% ^d

^a Education was coded on the following scale: 0 = none; 1 = 1-7 years; 2 = 8 years; 3 = some high school; 4 = high school or equivalent; 5 = some college; 6 = college graduate; 7 = some graduate school; 8 = advanced degree.

^b Annual family income, in U.S. dollars, was coded on the following scale: 1 = less than 5000; 2 = 5001-10,000; 3 = 10,001-15,000; 4 = 15,001-20,000; 5 = 20,001-25,000; 6 = 25,001-30,000; 7 = 30,001-35,000; 8 = 35,001-40,000; 9 = 40,001-45,000; 10 = 45,001-50,000; 11 = more than 50,000. Comparison sample income data collected in 1985 was adjusted for inflation to 1996 dollars to be comparable with the alcoholic sample data collected in 1992-1998.

^c $p = .001$ for comparison between alcoholic and non-alcoholic samples.

^d $p = .01$ for comparison between alcoholic and non-alcoholic samples.

Prevalence and Frequency of Aggression in the Year Before and in the First and Second Year After BCT for Women with Alcoholism and Their Male Partners

Table 2

Violence Measure	Sample of Women with Alcoholism and Male Partners		
	Year Before BCT (N = 103)	Year 1 After BCT (N = 91)	Year 2 After BCT (N = 86)
<u>Female to Male Aggression</u>			
<u>Prevalence of Aggression - %</u>			
Elevated Verbal Aggression	92.2 ^a	47.6 ^b	36.9 ^b
Overall Violence	68.0 ^a	30.8 ^b	24.4 ^b
Severe Violence	50.5 ^a	18.7 ^b	14.0 ^b
<u>Frequency of Aggression - M (SD)</u>			
Verbal Aggression	67.1 (38.6) ^a	31.0 (29.9) ^b	25.0 (29.8) ^b
Overall Violence	14.3 (24.6) ^a	2.3 (7.1) ^b	1.8 (4.9) ^b
Severe Violence	5.2 (10.3) ^a	0.9 (3.4) ^b	0.6 (2.1) ^b
<u>Male to Female Aggression</u>			
<u>Prevalence of Aggression - %</u>			
Elevated Verbal Aggression	80.6 ^a	43.7 ^b	30.1 ^b
Overall Violence	64.1 ^a	36.3 ^b	16.3 ^b
Severe Violence	22.3 ^a	15.4	8.1 ^b
<u>Frequency of Aggression - M (SD)</u>			
Verbal Aggression	54.2 (37.2) ^a	28.3 (29.9) ^b	23.0 (30.1) ^b
Overall Violence	7.8 (19.3) ^a	2.3 (7.4) ^b	2.7 (11.9) ^b
Severe Violence	2.2 (8.5) ^a	0.8 (3.4)	0.5 (2.6) ^b

Note. Aggression scores are (a) higher of female and male report in each couple for the alcoholic sample and (b) partner report (i.e., male report of female aggression and female report of male aggression) for the comparison sample. N's for BCT show the number of matched pairs in the alcoholic and nonalcoholic samples included in the group comparisons.

^aThe alcoholic sample had significantly greater aggression on this measure in the year before BCT than their respective counterparts in the matched nonalcoholic sample. Statistical test values follow. For prevalence of aggression, values of McNemar's chi-square test ($df = 1$, $N = 103$, $p < .001$) for female (F)- and male (M)-perpetrated aggression were: (a) elevated verbal aggression = 46.82, $r = .56$ (F); 41.60, $r = .54$ (M); (b) overall violence = 33.75, $r = .50$ (F); 33.01, $r = .49$ (M); and (c) severe violence = 30.72, $r = .48$ (F); 8.28, $r = .30$ (M). For frequency of aggression, values of paired sample t -test (2-tailed, $df = 102$) were: (a) verbal aggression = 9.98, $p < .001$, $r = .30$ (F); 7.68, $p < .001$, $r = .27$ (M); (b) overall violence = 4.69, $p < .001$, $r = .21$ (F); 3.37, $p = .001$, $r = .18$ (M); and (c) severe violence = 4.18, $p < .001$, $r = .20$ (F); 2.18, $p = .03$, $r = .14$ (M).

^bThis score is significantly reduced from the year before BCT. Statistical test values follow.

For prevalence of aggression, values of McNemar's chi-square test ($df = 1$, $N = 91$ for Yr-1 and 86 for Yr-2) for female (F)- and Male (M)- perpetrated aggression were: (a) elevated verbal aggression = 32.03, $p < .001$, $r = .51$ (F yr-1); 36.21, $p < .001$, $r = .54$ (F yr-2); 22.78, $p < .001$, $r = .45$ (M yr-1); 33.23, $p < .001$, $r = .53$ (M yr-2); (b) overall violence = 22.88, $p < .001$, $r = .45$ (F yr-1); 28.20, $p < .001$, $r = .50$ (F yr-2); 15.56, $p < .001$, $r = .38$ (M yr-1); 33.58, $p < .001$, $r = .53$ (M yr-2); and (c) severe violence = 20.49, $p < .001$, $r = .43$ (F yr-1); 21.19, $p < .001$, $r = .44$ (F yr-2); 1.04, $p = .31$, $r = .11$, (M yr-1); 6.86, $p < .01$, $r = .27$, (M yr-2).

For frequency of aggression, values of paired sample t -test (2-tailed, $df = 90$ yr-1 and 85 yr-2) were: (a) verbal aggression = 9.07, $p < .001$, $r = .38$ (F yr-1); 9.03, $p < .001$, $r = .29$ (F yr-2); 6.93, $p < .001$, $r = .44$ (M yr-1); 6.93, $p < .001$, $r = .33$ (M yr-2); (b) overall violence = 7.11, $p < .001$, $r = .31$ (F yr-1); 7.46, $p < .001$, $r = .28$ (F yr-2); 5.18, $p < .001$, $r = .37$ (M yr-1); 7.35, $p < .001$, $r = .29$ (M yr-2); and (c) severe violence = 6.06, $p < .001$, $r = .34$ (F yr-1); 5.87, $p < .001$, $r = .15$ (F yr-2); 1.55, $p = .13$, $r = .16$ (M yr-1); 3.24, $p < .01$, $r = .15$ (M yr-2).

Table 3

Prevalence and Frequency of Aggression in the First and Second Year After BCT for Relapsed versus Remitted Female Patients with Alcoholism and Their Male Partners.

Aggression Measure	Relapsed Patients Year 1 (N=50)	Remitted Patients Year 1 (N=41)	Relapsed Patients Year 2 (N=44)	Remitted Patients Year 2 (N=42)
<u>Female to Male Aggression</u>				
<u>Prevalence of Aggression - %</u>				
Elevated Verbal Aggression	60.0	46.3	48.9	39.0
Overall Violence	38.0 ^a	22.0	28.9	19.5
Severe Violence	26.0 ^a	9.8	20.0	7.3
<u>Frequency of Aggression - M (SD)</u>				
Verbal Aggression	36.86 ^a (32.01)	23.93 (25.62)	32.18 ^a (34.14)	17.55 (22.56)
Overall Violence	3.50 ^a (9.15)	0.80 (2.26)	2.84 ^a (6.21)	0.74 (2.54)
Severe Violence	1.40 ^a (4.43)	0.22 (0.76)	0.91 (2.77)	0.24 (1.12)
<u>Male to Female Aggression</u>				
<u>Prevalence of Aggression - %</u>				
Elevated Verbal Aggression	54.0	43.9 ^b	40.0 ^a	31.7
Overall Violence	46.0 ^a	24.4	20.0	12.2
Severe Violence	20.0	9.8	11.1	4.9
<u>Frequency of Aggression - M (SD)</u>				
Verbal Aggression	32.54 ^a (31.01)	23.22 ^b (28.00)	27.68 (33.23)	18.00 (25.90)
Overall Violence	2.96 (7.52)	1.49 (7.33)	4.80 (16.36)	0.52 (2.12)
Severe Violence	0.78 (1.97)	0.80 (4.53)	0.91 (3.59)	0.02 (0.15)

Note. Aggression scores are higher of female and male report in each couple. Comparisons between remitted and relapses groups controlled for baseline scores. An expanded table with scores of nonalcoholic sample couples matched to the remitted alcoholic sample, on which comparisons with the alcoholic sample were based, is available on request.

^a Couples in which female patients were relapsed had significantly greater aggression on this measure than their remitted counterparts at this same time period. Statistical test values follow.

For prevalence of aggression, values of improvement χ^2 ($df = 1$, $N = 91$ for yr-1 and 86 for yr-2) in the logistic regressions conducted for female (F)- and male (M)-perpetrated aggression were: (a) elevated verbal aggression = 0.61, $p = .44$, $\beta = 0.36$, S.E.=0.47, $r = .09$ (F yr-1); 2.94, $p = .09$, $\beta = 0.77$, S.E.=0.46, $r = .18$ (F yr-2); 1.50, $p = .22$, $\beta = 0.59$, S.E.=0.49, $r = .13$ (M yr-1); 5.03, $p < .05$, $\beta = 1.09$, S.E.=0.50, $r = .24$ (M yr-2); (b) overall violence = 5.25, $p < .05$, $\beta = 1.18$, S.E.=0.53, $r = .24$ (F yr-1); 1.44, $p = .23$, $\beta = 0.63$, S.E.=0.53, $r = .13$ (F yr-2); 4.12, $p < .05$, $\beta = 1.04$, S.E.=0.52, $r = .22$ (M yr-1); 0.79, $p = .38$, $\beta = 0.54$, S.E.=0.62, $r = .10$ (M yr-2); and (c) severe violence = 4.91, $p < .05$, $\beta = 1.41$, S.E.=0.67, $r = .23$ (F yr-1); 3.45, $p = .06$, $\beta = 1.25$, S.E.=0.72, $r = .20$ (F yr-2); 1.07, $p = .30$, $\beta = 0.68$, S.E.=0.67, $r = .11$ (M yr-1); 0.96, $p = .33$, $\beta = 0.82$, S.E.=0.87, $r = .11$ (M yr-2).

For frequency of aggression, values of F ($df = 1$, 91 for yr-1 and 1, 86 for yr-2) in the ANCOVA's conducted for male (M)- and female (F)- perpetrated aggression were: (a) verbal aggression = 12.32, $p = .001$, $r = .36$ (F yr-1); 6.23, $p < .05$, $r = .26$ (F yr-2); 5.43, $p = .02$, $r = .24$ (M yr-1); 3.53, $p = .06$, $r = .20$ (M yr-2); (b) overall violence = 6.98, $p = .01$, $r = .28$ (F yr-1); 4.63, $p < .05$, $r = .23$ (F yr-2); 0.92, $p = .34$, $r = .09$ (M yr-1); 3.14, $p = .08$, $r = .19$ (M yr-2); and (c) severe violence = 5.29, $p < .05$, $r = .25$ (F yr-1); 2.06, $p = .16$, $r = .15$ (F yr-2); 0.00, $p = .97$, $r = .00$ (M yr-1); 2.69, $p = .11$, $r = .18$ (M yr-2).

^b Couples in which female patients were remitted had significantly greater aggression on this measure than their respective counterparts in the matched nonalcoholic sample. Statistical test values follow for these comparisons of remitted patients with the nonalcoholic sample with $p < .05$. Results of nonsignificant comparisons are available upon request.

For prevalence of aggression, values of McNemar's chi-square test ($df = 1$, $N = 41$ for yr-1 and 42 for yr-2) for female (F)- and male (M) perpetrated aggression was elevated verbal aggression = 6.17, $p = .01$, $r = .36$ (M yr-1).

For frequency of aggression, values of paired sample t-test (2-tailed, $df = 40$ for yr-1 and 41 for yr-2) was verbal aggression = 2.61, $p = .01$, $r = .25$ (M yr-1);