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Randomized Clinical Trial Examining the Incremental Efficacy of a 90-Minute Motivational Alcohol Intervention as an Adjunct to Standard Batterer Intervention for Men

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Abstract

Aims—The efficacy of batterer intervention programs to reduce intimate partner violence (IPV) is questionable with individuals with alcohol problems particularly unlikely to benefit. We examined whether adding adjunctive alcohol intervention to batterer intervention reduced the likelihood of substance use and violence relative to batterer intervention alone.

Design—Randomized clinical trial.

Setting—Batterer intervention programs in Rhode Island, USA.

Participants—252 hazardous drinking men in batterer intervention programs. Participants were randomized to receive 40 hours of standard batterer program (SBP), or the SBP plus a 90-minute alcohol intervention (SBP+BAI). None withdrew due to adverse effects. Data were collected at baseline, 3-, 6-, and 12-month follow-up, with follow-up rates of 95%, 89%, and 82%, respectively.

Measurements—Substance use was measured with a well-validated calendar-assisted interview. Violence was measured with a validated questionnaire. Arrest records were obtained for all participants. The primary substance use outcome was drinks per drinking day (DPDD) and the primary violence outcome was frequency of any physical IPV.

Findings—Relative to SBP alone, men receiving SBP+BAI reported consuming fewer DPDD at 3-month follow-up ($B = -1.36$, 95% $CI = -2.65, -.04$, $p = .04$) but not 6-month or 12-month follow-up. In secondary analyses, men receiving SBP+BAI reported significantly greater abstinence at 3- ($B = .09$, 95% $CI = .03, .14$, $p = .002$) and 6-month ($B = .06$, 95% $CI = .01, .11$, $p = .01$) follow-up but not

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12-month follow-up. There were no significant differences in physical IPV between men receiving SBP and men receiving SBP+BAI. In secondary analyses, men receiving SBP+BAI reported less severe physical aggression at 3-month (IRR=.18, 95%CI=.05,.65, $p=.009$) but not 6-month or 12-month follow-up.

Men receiving SBP+BAI reported less severe psychological aggression ($B=-1.24$, 95%CI=-2.47, -.02, $p=.04$) and fewer injuries to partners at 3- and 6-month follow-up (IRR=.33, 95%CI=.12,.92, $p=.03$), with differences fading by 12 months.

Conclusions—Men with a history of intimate partner violence and hazardous drinking who received a batterer intervention plus an alcohol intervention showed improved alcohol and violence outcomes initially, but improvements faded by 12 months.

Keywords

intimate partner violence; brief alcohol intervention; batterer intervention; partner abuse

INTRODUCTION

Intimate partner violence (IPV) is a prevalent public health problem with significant negative consequences.¹ Men arrested for domestic violence are usually court-mandated to attend batterer intervention programs in lieu of further punishment. Although these programs are intended to prevent violence recidivism, research has called their efficacy into question. Two meta-analyses have been conducted on the efficacy of standard batterer programs (SBPs), revealing only negligible improvements in violence recidivism.^{2,3} One of these meta analyses³ focused on only the 10 most methodologically sound studies, and found that the effect size for SBPs ranged from $d=0.00-0.26$, depending on the source of outcome data.

Based on the robust theoretical and empirical connection between alcohol and IPV,⁴⁻¹⁰ we suggested that one way to improve outcomes was to address substance abuse in SBPs.¹¹ In one study, two-thirds of men in SBPs reported hazardous drinking and 42% were likely alcohol dependent.¹² A second study showed that 56% of men in SBPs likely had alcohol problems.¹³ Further, research on men in SBPs demonstrated that subsequent to attending a SBP, violence recidivism rose exponentially with frequency of intoxication.¹⁴ This study also revealed that violence recidivism was reduced by 30%–40% for men in SBPs who obtained alcohol or drug treatment.

These findings, in concert with data showing that alcohol treatments are associated with reductions in IPV among substance abusers,¹⁵ suggest that batterers who engage in heavy drinking may benefit from an adjunct alcohol intervention. To test this hypothesis, we investigated whether adding a brief alcohol intervention to standard batterer intervention programs (SBP+BAI) would be associated with reduced substance use and IPV relative to the SBP alone. Men arrested for domestic violence who were attending batterer intervention programs were randomly assigned to SBP or SBP+BAI. We hypothesized that across one year of follow-up, men receiving the SBP+BAI would evidence less substance use and IPV relative to men in the SBP.

METHODS

Trial Design

We conducted a randomized controlled trial in which men in batterer intervention programs were randomly assigned to SBP+BAI or SBP alone. Participants were assessed at baseline, 3-, 6-, and 12-month follow-up. No important changes were made to methods after trial

commencement. The primary substance use outcome was drinks per drinking day and the primary violence outcome was frequency of any physical IPV. We expected SBP+BAI to evidence superior outcomes relative to SBP at all time points.

Participants

Participants were 252 hazardous drinking men, 18 or older, attending one of five SBPs in Rhode Island. Hazardous drinking was defined as: in the past 6 months, meeting NIAAA's¹⁶ clinical guidelines for "at risk" drinking (i.e., 5 drinks per occasion) at least once per month, or scoring 8 or higher ("hazardous drinking") on the Alcohol Use Disorders Identification Test.¹⁷ Participants were excluded if they: reported heavy drinking that could be associated with significant withdrawal symptoms (i.e., 12 drinks daily); had been incarcerated for over half of the previous 6 months, making it difficult to assess current drinking patterns; were psychotic or had cognitive impairment; had attended more than 6 batterer intervention program sessions prior to screening; or did not speak English.

Procedures

Men were recruited at their SBP intake or groups. They were informed that participation was voluntary, that none of their information would be shared with batterer program staff, and that their data were protected by a Certificate of Confidentiality. After a description of the study, participants signed a written informed consent approved by the Butler Hospital IRB. Subsequently, screening questionnaires were administered to determine eligibility. Eligible participants completed an additional written consent form and were scheduled for their baseline assessment. Participants were compensated for screening and study assessments. Participants were recruited November 2003–May 2009, and follow-ups were conducted November 2004–January 2011. Men completed their baseline assessments within the first few weeks of the SBPs ($M=2.13$ weeks, $SD=1.83$) and were asked to refrain from substance use prior to the intervention and assessments. Participants were breathalyzed prior to each appointment to confirm that they were alcohol-negative. Of the 1,662 men screened (153 refused screening), 1,308 did not meet inclusion/exclusion criteria. Of the 354 men who were eligible for the study, 87 refused and 15 had scheduling conflicts at baseline. Thus, 252 participants constitute the intention-to-treat sample (Figure 1). The trial stopped when the grant concluded.

Randomization

Participants were assigned to treatment condition using urn randomization¹⁸ to ensure balancing on relationship status and frequency of physical violence. Of the 252 participants, 129 participants were randomized to SBP and 123 were randomized to SBP+BAI. At baseline, 79 men in SBP and 73 men in SBP+BAI had a current relationship partner. The research assistants provided information for the randomization to the first author, who conducted the computer-based urn randomization and had no knowledge of participant characteristics unrelated to randomization. Since research assistants were often involved in the scheduling of participants, they were not blinded to treatment condition.

Interventions

Standard Batterer Intervention Programs—Approximately 98% of men in the SBPs were court-ordered to attend. The five sites for SBPs each contained 40-hours of group batterer intervention program, with content and training of group facilitators dictated by the Batterer Intervention Program Standards Oversight Committee of Rhode Island. The standard program curriculum included: communicating that violence is a serious crime; challenging excuses and justifications for abuse; devising a plan to reduce risk for future abuse; explaining models of abuse; identifying cultural and social influences that contribute

to violence; providing communication skills training; discussing the impact of abuse on others; and assigning homework. One group session was dedicated to substance use and its relationship to domestic violence. Thus, regardless of treatment condition, all men received one batterer program session on substance use and violence.

Brief Alcohol Intervention (BAI)—The BAI was administered by doctoral-level therapists in one 90-minute audiotaped session. The manualized intervention was adapted from the Motivational Enhancement Therapy Manual used in Project MATCH,¹⁹ and included: building rapport; expressing empathy; supporting self-efficacy to change alcohol use; providing personalized feedback about current drinking; eliciting participant motivation to change drinking; discussion of the relationship between alcohol use and IPV; developing discrepancies between participants' current drinking and desired level of drinking; and assisting in developing and implementing a plan to change drinking. The intervention relied heavily on techniques of Motivational Interviewing²⁰ that are intended to minimize resistance.

The non-confrontational approach was appropriate given that individuals were not seeking treatment for alcohol problems and may be ambivalent about changing their drinking. The BAI addressed ambivalence directly by asking men about the pros and cons of their current drinking. The therapist provided personalized feedback on current drinking in relation to national norms, alcohol-related negative consequences, risk from family history of alcohol problems, risk from other drug use, and reasons for the participants' drinking. A connection was drawn between drinking and IPV by discussing the temporal relationship between substance use and IPV and how decreased alcohol use may reduce the risk of future relationship conflict and violence.

Participants interested in making a change specified the change that would be made, the steps involved, and ways in which others might be helpful. Participants were asked to generate potential barriers and to problem-solve ways to address them. Within a week of the BAI, participants were sent a letter that reviewed the session and encouraged them to follow through with their commitment to change.

Measures

Substance Use Disorders—Diagnostic criteria for substance use disorders were assessed with the well-validated Structured Clinical Interview for DSM-IV.^{21,22} Current and lifetime diagnoses were assessed for alcohol, and current and past year diagnoses were assessed for drugs.

The Short Inventory of Problems (SIP)²³ was used to assess problems related to participants' alcohol use. The SIP assesses 15 negative consequences of alcohol use and has good psychometric properties.

Outcome Measures

Alcohol and Drug Use—The Timeline Followback interview (TLFB)²⁴ was used to assess substance use. The TLFB is a calendar-assisted structured interview that cues memory to enhance recall. Participants were given a calendar with holidays and dates of personal significance highlighted and were asked to report drinking/drug use on each day. The TLFB is considered the gold-standard in retrospective reporting of alcohol^{25–27} and drug use.²⁸ It has excellent reliability²⁵ and validity.^{26–29} At baseline, the TLFB was administered for the six months prior to the interview, and, at each follow-up, was administered for the time since the previous interview. Participants noted whether they consumed alcohol and specific drugs on each day covered by the interview. If they drank,

they reported the number of standard drinks consumed on that day. Heavy drinking was defined as 5 drinks on one occasion.¹⁶ From the TLFB, we examined average number of drinks consumed per drinking day (DPDD) as our primary outcome, and percentage of days abstinent from alcohol (PDAA), percentage of days abstinent from both alcohol and drugs (PDAAD), and percentage of heavy drinking days (PHDD) as secondary outcomes. The TLFB is valid for assessments of substance use for up to 24 months.^{30,31} Thus, participants were considered missing if they could not be located, if they were in a controlled environment (e.g., prison) for the duration of the follow-up interval, or if their follow-up assessment was completed beyond the validated range of the TLFB. Follow-up rates for the sample were 94.8%, 88.9%, and 82.1% for 3-month, 6-month, and 12-month follow-ups, respectively. Attrition across the two groups was comparable. At 3-month follow-up, there was slightly less attrition in the SBP+BAI group. At 6- and 12-month follow-up, there was less attrition in the SBP group.

Intimate Partner Violence—Physical assault, psychological aggression, and injuries to partner were assessed with the Revised Conflict Tactics Scale^{32,33} (CTS2), a self-report questionnaire. The CTS2 is the most widely used scale for assessing IPV and has good reliability and validity.^{32,33} The CTS2 is scored by summing the frequency of each of the behaviors for each subscale, with higher scores indicating more frequent aggression. The CTS2 includes subscales measuring severe aggression. The physical assault subscale includes twelve items, seven of which are classified as “severe” aggression (e.g., “beat up my partner”). The psychological aggression subscale contains eight items (four severe), and the injury subscale contains six items (four severe). The CTS2 was administered to participants who had a relationship partner at baseline. Participants completed the CTS2 at each follow-up if they remained in a relationship with that same partner. At baseline, the CTS2 assessed IPV for the prior six months, and at each follow-up, it assessed IPV for the time since the previous assessment. For each CTS2 subscale, overall frequency scores and frequency scores for severe aggression were analyzed separately. Frequency of any physical IPV was our primary outcome, with other forms of any and severe IPV as secondary outcomes.

Arrest records were obtained from the state of RI for all 252 participants to examine violence recidivism. We collected arrest records for domestic violence charges, domestic assaults, or restraining orders filed against participants in the 12 months following their baseline.

Sample size estimation

We determined desired sample size based on an effect of the SBP+BAI versus SBP alone on drinking and violence outcomes with an estimated effect size of $d=.35$. This represents small-to-medium effects that are consistent with the literature on brief alcohol interventions.^{34,35} This was calculated using a generalized estimating equations (GEE) model with repeated measure analysis, taking into account the longitudinal nature of the design. Our recruitment target was 260 after attrition. An empirical power estimation based on simulation of 1000 multivariate normal data sets and an expected difference of $d=0.35$ at 3-, 6-, and 12-month follow-up and $\alpha=.05$ suggested power >0.90 with 130 per condition. However, we did not fully meet our recruitment goals, particularly at 12-month follow-up ($N=207$ for alcohol outcomes). Empirical power estimation for effect size $d=.35$ and $N=207$ was 0.867, suggesting that we had adequate power to detect effects for substance use outcomes. For IPV outcomes, sample size was reduced ($N=92$ at 12-month follow-up), since some men did not have partners at baseline and many relationships ended over time. Empirical power estimation for effect size $d=.35$ and $N=92$ was 0.569. Thus, power was limited to detect effects for IPV.

Data Analysis Plan

To examine the effects of treatment across time, repeated measure analyses were conducted using GEE³⁶ with PROC GENMOD in SAS³⁷, which uses all available data from participants for each analysis consistent with an intent to treat analysis. For PDAA, PDAAD, PHDD, and DPDD, normal distributions were specified. For aggression, frequency of perpetration at all follow-ups were the dependent variables. A normal distribution for psychological aggression and a negative binomial distribution for physical assault and injury were specified. Variables with a normal distribution were standardized so that model coefficients (B) represent effect sizes. Results of negative binomial models produce incidence rate ratios (IRR) that reflect the ratio of the expected count (rate) of the dependent variable in one group relative to the other.

Treatment condition was dummy-coded with SBP as the reference, and time was included as a linear effect representing the number of months since baseline (i.e., 3, 6, or 12). The time X treatment interaction was used to determine whether the effects of the SBP+BAI compared to SBP varied over time. We centered time to aid in the evaluation of time X treatment condition interactions, which allowed us to decompose interactions and evaluate main effects at each follow-up. For significant interactions, post-hoc analyses were conducted to determine treatment effects at each follow-up. In the GEE analyses for substance use, alcohol problems at baseline (SIP) and baseline indicators of the same substance variable were entered as covariates in all analyses. For aggression, baseline level of aggression and SIP were entered as covariates. The inclusion of covariates that are associated with outcomes (alcohol and aggression), but not treatment condition, helped to maximize statistical power³⁸ and helped to inform the key predictors of outcomes in the population under study. We also entered SBP site into the models to examine whether there were site effects. Analyses revealed that there were no site effects for any outcomes.

RESULTS

Demographic and diagnostic characteristics for the sample are reported in Table 1.

Adverse Events

Two participants who received the SBP+BAI died during follow-up. Three participants in each condition received inpatient care for substance or psychiatric issues during follow-up. These events were deemed unrelated to study participation.

Substance Use Outcomes

GEE analyses showed a significant main effect for our primary outcome DPDD, such that SBP+BAI reported a lower average number of drinks consumed per drinking day at 3 months, with this effect fading at 6 and 12 months (Tables 2 and 3). In secondary analyses, there was an interaction between treatment condition and time for PDAA. Decomposition of the interaction showed significantly greater PDAA in SBP+BAI compared to SBP at 3 months ($B=.09$, 95% CI=.03-.14, $p=.002$) and 6 months ($B=.06$, 95% CI=.01-.11, $p=.01$), but not 12 months ($B=.01$, 95% CI=-.04-.07, $p=.69$).

Similarly, GEE analyses showed a significant interaction between condition and time for PDAAD. Decomposition of the interaction showed significantly greater PDAAD in SBP+BAI compared to SBP at 3 months ($B=.10$, 95% CI=.03-.18, $p=.002$) and 6 months ($B=.07$, 95% CI=.01-.13, $p=.02$), but not 12 months ($B=-.00$, 95% CI=-.08-.07, $p=.97$). No significant main effects of condition or time X condition interactions were found for PHDD.

IPV Outcomes

No significant main effects or interactions were found for GEE analyses of overall frequency of physical IPV (our primary outcome) or psychological IPV. In secondary outcome analyses, GEE analyses showed a significant interaction between treatment condition and time for severe physical aggression. Decomposition of the interaction showed significantly less frequent severe physical aggression in SBP+BAI compared to SBP at 3-month follow-up (IRR=.18, 95% CI=.05-.65, $p=.009$) but not at 6-month (IRR=.42, 95% CI=.13-1.34, $p=.14$) or 12-month follow-up (IRR=2.15, 95% CI=.46-9.88, $p=.32$).

There was a significant main effect for injuries to partners. Men in SBP+BAI reported causing fewer injuries to their partners than men in SBP at 3- and 6-month follow-up, with this effect dissipating by 12-month follow-up (Tables 2 and 3).

GEE analyses showed a significant main effect for treatment condition on severe psychological aggression perpetration. Men in SBP+BAI reported less frequent severe psychological aggression than men in SBP at 3- and 6-month follow-up, with this effect fading by 12-month follow-up.

Finally, we examined whether SBP+BAI participants were less likely to have domestic violence charges and restraining orders filed against them in RI than SBP participants across the one-year follow-up. The chi-square was not significant (13.8% SBP+BAI arrested, 13.1% SBP arrested), $\chi^2(1)=.02$, $p=.88$.

DISCUSSION

This is the first randomized controlled trial to examine the incremental efficacy of a BAI as an adjunct to SBP for hazardous drinking men. Our hypothesis that men receiving SBP+BAI would evidence reduced substance use and violence outcomes was partially supported. Men receiving SBP+BAI reported consuming fewer drinks per drinking day than men in SBP for the first 3 months, although this difference faded by 6-month follow-up. Men receiving SBP+BAI reported using alcohol on significantly fewer days for 6 months following the brief intervention, relative to men in SBP, though this difference faded by 12 months. The findings were similar for percentage of days abstinent from both alcohol and drugs, likely because the BAI addressed the interconnections between drug use, drinking, and IPV. No significant differences were found for percentage of heavy drinking days. In terms of IPV, men receiving SBP+BAI reported less frequent perpetration of severe psychological aggression and violence causing injuries to their partners at 3- and 6-month follow-up, relative to SBP, with differences weakening at 12 months. Similarly, men in SBP+BAI reported less frequent severe physical violence perpetration at 3-month follow-up, relative to SBP, with differences fading over time. No group differences emerged for overall levels of physical IPV (primary outcome) and psychological aggression or for the presence of charges and restraining orders filed.

It should be emphasized that superior reductions in some substance use and IPV variables were evidenced 6 months after a single 90-minute alcohol intervention, though the SBP group caught up to the BAI+SBP group by 12-month follow-up. Men in SBP and SBP+BAI reported reductions in substance use and violence over time, with the groups appearing similar by 12-month follow-up. Men in SBP+BAI evidenced more rapid improvement, relative to SBP, and maintained most of these gains over the course of follow-up. This is consistent with research examining the additive effects of brief motivational interventions, showing that treatment gains from such adjunct interventions are often maintained.³⁹ Men in SBP, however, tended to improve over the course of the year, and eventually caught up to men in SBP+BAI.

Counter to hypotheses, SBP+BAI did not lead to superior outcomes for percentage of heavy drinking days. Given that heavy drinking is associated with increased risk for IPV and other negative consequences, an extended intervention or a BAI with booster sessions focusing directly on heavy drinking could improve substance and violence outcomes. In addition, despite the general improvement in substance use and IPV in both conditions, there was a substantial amount of substance use and aggression remaining in SBP and BAI+SBP groups at 12-month follow-up. Thus, additional alcohol treatment and booster sessions appear warranted, as such treatment may be associated with further improved outcomes at all follow-ups. Nonetheless, given the amount of substance-related pathology in our sample (over 90% with a history of alcohol and drug diagnoses) it is noteworthy that the BAI led to fewer days of substance use for the first 6 months of follow-up.

Limitations

There are limitations to the present study. Research would be strengthened by examining corroborating reports of violence and substance use from relationship partners, since men may have underreported these socially undesirable behaviors.⁴⁰ Although we did examine participants' arrest records as an index of IPV recidivism, arrests are low base-rate events and underestimate the frequency of IPV. Second, due to the relatively small sample size, power was limited for some of the analyses. We completed 12-month follow-ups with 129/152 (84.9%) men who were in relationships at baseline. However, sample size for IPV analyses was further reduced because 28.6% (37/129) of the relationships ended during follow-up. Relationships that ended during follow-up likely involved more severe IPV. Given this relatively small sample size (and that this was the first trial of its kind to test the effects of a BAI on IPV), we did not use methods to control for type I error across the multiple types of violence examined, which would have further reduced power. Future studies with larger samples will be needed to replicate these results. Although retention rates were excellent at 3- and 6-month follow-up, they dropped slightly at 12-months. Since there was somewhat less participation in the SBP+BAI condition at 12-month follow-up, and participants who did not complete follow-ups may have had worse outcomes, it suggests that the early effects of the BAI were lost over time.

Despite these limitations, this study demonstrates the benefits of a brief motivational alcohol intervention in improving some alcohol and violence outcomes over standard batterer intervention programs for 6 months. It is possible that more extensive substance-related treatment, and interventions that contain periodic booster sessions, could lead to more substantial gains.⁴¹ Future randomized controlled trials are needed to empirically test these hypotheses.

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Figure 1.
CONSORT Flow Diagram

Table 1

Summary Statistics of Intent-to-Treat Sample by Treatment Condition

	Brief Alcohol Intervention (<i>n</i> = 123)	Standard Batterer Intervention (<i>n</i> = 129)
Age, mean (<i>SD</i>), years	31.5 (9.6)	31.6 (9.9)
Race, No. (%)		
White	88 (71.5)	93 (72.1)
Black	10 (8.1)	15 (11.6)
Hispanic or Latino	19 (15.4)	16 (12.4)
Other	6 (4.9)	5 (3.9)
Education, mean, (<i>SD</i>), years	11.4 (1.8)	11.7 (1.8)
Number of Children, mean (<i>SD</i>)	1.8 (1.8)	1.6 (1.8)
Past Year Income, mean, (<i>SD</i>)	21,452 (18,923)	25,332 (19,670)
Relationship Length [*] , mean, (<i>SD</i>), years	5.5 (5.9)	5.4 (5.3)
Alcohol Diagnoses, No. (%)		
Current Dependence	45 (36.6)	45 (34.9)
Lifetime/Past Dependence	49 (39.8)	54 (41.8)
Current Abuse	10 (8.1)	6 (4.7)
Lifetime/Past Abuse	10 (8.1)	15 (11.6)
No Diagnosis	9 (7.3)	9 (7.0)
Drug Diagnoses, No. (%)		
Current Dependence	33 (26.8)	32 (24.8)
Past Year Dependence	53 (43.1)	57 (44.2)
Current Abuse	7 (5.7)	12 (9.3)
Past Year Abuse	19 (15.4)	22 (17.1)
No Diagnosis	11 (8.9)	6 (4.6)

Groups did not significantly differ on any baseline characteristics.

* Relationship length included only participants who had a relationship partner at the time of the baseline assessment (*n*=73 in the brief alcohol intervention condition and *n*=79 in standard batterer intervention condition).

Table 2
Means and Standard Deviations among Study Variables and Treatment Condition

Brief Alcohol Intervention				Standard Batterer Intervention				
Variable Mean (SD)	Baseline (n = 123)	3-Month (n = 119)	6-Month (n = 107)	12-Month (n = 95)	Baseline (n = 129)	3-Month (n = 120)	6-Month (n = 117)	12-Month (n = 112)
DPDD <i>x</i>	9.7 (5.3)	7.3 (4.9)	8.0 (6.5)	6.8 (6.1)	8.6 (4.3)	9.0 (10.3)	7.3 (5.6)	7.1 (5.1)
PDAA <i>y</i> , %	55.8 (26.6)	74.6 (23.8)	72.7 (25.1)	72.3 (27.4)	56.4 (29.3)	65.1 (30.8)	67.9 (29.2)	73.1 (25.8)
PDAAD <i>y</i> , %	36.5 (29.1)	60.6 (33.1)	59.8 (33.9)	58.2 (35.2)	39.5 (32.9)	50.9 (37.1)	54.6 (35.1)	58.6 (34.7)
PHDD <i>y</i> , %	33.2 (24.3)	18.2 (22.0)	21.1 (24.1)	18.3 (24.2)	31.4 (26.1)	21.5 (24.8)	19.1 (25.2)	18.0 (23.8)
Revised Conflict Tactics Scale (CTS2)	(n = 73) *	(n = 69) *	(n = 57) *	(n = 42) *	(n = 79) *	(n = 73) *	(n = 64) *	(n = 50) *
Physical Total <i>x</i>	6.0 (14.9)	1.3 (4.5)	.96 (2.5)	1.5 (4.8)	5.4 (11.1)	2.3 (7.6)	2.1 (6.3)	1.4 (3.8)
Severe Physical <i>y</i>	1.5 (5.4)	.21 (1.2)	.32 (.20)	.21 (.81)	1.0 (2.8)	.50 (1.7)	.40 (1.7)	.20 (1.1)
Psychological Total <i>y</i>	32.2 (26.7)	19.8 (21.7)	13.5 (15.0)	20.3 (20.3)	25.7 (25.3)	16.6 (21.8)	15.4 (20.8)	17.1 (21.1)
Severe Psychological <i>y</i>	5.0 (8.1)	2.1 (3.5)	2.1 (5.7)	1.7 (2.5)	4.1 (7.7)	2.6 (7.0)	2.5 (5.8)	1.7 (3.2)
Injury Total <i>y</i>	1.6 (4.9)	.17 (.80)	.10 (.35)	.19 (.74)	1.1 (2.6)	.43 (1.6)	.33 (.87)	.11 (.43)
Severe Injury <i>y</i>	.43 (2.3)	.06 (.29)	.00 (.00)	.04 (.30)	.24 (.98)	.05 (.37)	.03 (.17)	.00 (.00)

^x = Refers to a Primary Study Outcome;

^y = Refers to a Secondary Study Outcome; Substance variables assessed with the Timeline Followback;

DPDD = Drinks per drinking day; PDAA = Percentage of days abstinent from alcohol; PDAAAD = Percentage of days abstinent from alcohol and drugs; PHDD = Percentage of heavy drinking days; Violence variables assessed with Revised Conflict Tactics Scale (CTS2).

* Had relationship partner at time of assessment

Table 3

Generalized Estimation Equations Analyses Predicting Alcohol and Aggression Outcomes at 3, 6, and 12 Months After Intervention

	B^a/IRR^b	95% CI	P value
DPDD^a, ^X			
Intervention Group	−1.36	−2.65, −.04	.04
Time	−.13	−.24, −.02	.00
Intervention × Time	.10	−.11, .31	.35
PDAA^a, ^Y			
Intervention Group	.05	.00, .10	.03
Time	.01	.00, .01	.03
Intervention × Time	−.01	−.01, . −00	.02
PDAAD^a, ^Y			
Intervention Group	.06	−.00, .12	.05
Time	.00	−.00, .01	.21
Intervention × Time	−.01	−.02, −.00	.01
PHDD^a, ^Y			
Intervention Group	−.01	−.06, .02	.41
Time	−.00	−.01, −.00	.17
Intervention × Time	.00	−.01, .01	.94
Physical Total^b, ^X			
Intervention Group	.85	.39, 1.85	.69
Time	.02	−.07, .11	.66
Intervention × Time	1.07	.89, 1.30	.44
Severe Physical^b, ^Y			
Intervention Group	.48	.15, 1.50	.20
Time	.07	−.03, .18	.17
Intervention × Time	1.31	1.11, 1.54	.00
Psychological Total^a, ^Y			
Intervention Group	−2.81	−7.85, .2.21	.27
Time	.06	−.41, .54	.78
Intervention × Time	−.34	−1.30, .61	0.48
Severe Psychological^a, ^Y			
Intervention Group	−1.24	−2.47, −.02	.04
Time	−.04	−.13, .05	.34
Intervention × Time	−.03	−.20, .13	.67
Injury Total^b, ^Y			
Intervention Group	.33	.12, .92	.03

	B^a/IRR^b	95% CI	P value
Time	-.06	-.17, .04	.26
Intervention × Time	1.15	.92, 1.43	.19
Severe Injury^{b, y}			
Intervention Group	.50	.11, 2.28	.37
Time	-.41	-.70, -.11	.01
Intervention × Time	.88	.50, 1.55	.66

B^a = model coefficient is for standardized normal variables and equivalent to effect size d ;

IRR^b = Incidence Rate Ratio;

^x = Refers to a Primary Study Outcome;

^y = Refers to a Secondary Study Outcome; Substance variables assessed with the Timeline Followback;

DPDD = Drinks per drinking day; PDAA = Percentage of days abstinent from alcohol; PDAAD = Percentage of days abstinent from alcohol and drugs; PHDD = Percentage of heavy drinking days; Violence variables assessed with Revised Conflict Tactics Scale.