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Two Brief Alcohol Interventions for Mandated College Students

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Abstract

Encouraging but limited research indicates that brief motivational interventions may be an effective way to reduce heavy episodic drinking in college students. At 2 campuses, students (83% male) mandated to a substance use prevention program were randomly assigned to 1 of 2 individually administered conditions: (a) a brief motivational interview (BMI; $n = 34$) or (b) an alcohol education session (AE; $n = 30$). Students in the BMI condition reported fewer alcohol-related problems than the AE students at 3- and 6-month assessments. Trends toward reductions in number of binge drinking episodes and typical blood alcohol levels were seen in both groups. Process measures confirmed the integrity of both interventions. The findings demonstrate that mandated BMIs can reduce alcohol problems in students referred for alcohol violations.

Keywords

mandated; student; alcohol; college; brief intervention

The search continues for effective and innovative interventions to curtail heavy episodic (binge) drinking. Binge drinking is defined as having five or more drinks in a single occasion for men (four or more drinks for women; Wechsler et al., 2002). Roughly 4 out of 10 college students (including close to half of the men) binge drink at least once every 2 weeks (O'Malley & Johnston, 2002; Wechsler et al., 2002), and negative consequences frequently result from such drinking, including damage to self, others, and property (Perkins, 2002). Educational programs designed primarily to teach students about the risks associated with excessive drinking have frequently failed to achieve desired reductions in alcohol use (Hingson, Berson, & Dowley, 1997; Wechsler et al., 2002). One interpretation of this consistent lack of effectiveness is that risky drinking represents not a lack of knowledge but rather a lack of motivation to change. Therefore, interventions that enhance motivation for risk reduction are needed to assist the students who are already drinking heavily.

Several published studies indicate that in-person brief motivational interventions (BMIs) lead to reduced drinking in college students (Baer et al., 1992; Borsari & Carey, 2000; Larimer et al., 2001; Marlatt et al., 1998; Murphy et al., 2004; Murphy et al., 2001). These BMIs typically consist of one or two 45-min sessions that provide personalized feedback and incorporate motivational interviewing (Miller & Rollnick, 2002). Personalized feedback is designed to engage students and heighten the self-relevance of the educational information; such feedback, when coupled with normative comparisons, develops a sense of discrepancy that can motivate risk reduction. The motivational interviewing style cultivates active collaboration and reinforces self-determination and freedom of choice as participants explore ambivalence regarding current drinking behavior. However, BMIs have yet to be compared with groups that receive sessions of similar length and format. Although the content of previous control

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conditions may have provided similar information, the overall experience was much different (e.g., group vs. individual format, Larimer et al., 2001). In addition, BMIs have only recently been implemented with students mandated for alcohol violations (e.g., Fromme & Corbin, 2004), a group of nonvoluntary participants that presents unique challenges for the design and implementation of BMIs (e.g., Barnett et al., 2004).

The current study compared two individually administered interventions for mandated students: (a) a BMI and (b) an alcohol education session with matched informational content (AE). Follow-ups at 3 and 6 months permitted comparisons between the groups. We predicted that BMI students would report lower alcohol consumption and demonstrate greater reductions in drinking-related problems than students in the AE group. Supplemental hypotheses addressed the unique contributions of the motivational interviewing components in the process of the BMI. Thus, we predicted that students would show more evidence of engagement and collaboration in the BMI session than in the AE session.

Method

Design

This study was a two-group, randomized controlled trial. Recruitment sites occurred at two campuses in the northeastern United States, located in the same metropolitan area. Campus A is a large liberal arts school with 11,500 undergraduates, and Campus B is a small Jesuit college with 2,000 undergraduates. Students referred to both campus alcohol programs were screened for eligibility. Eligible students who agreed to take part in the project were assessed at baseline, randomly assigned to receive a BMI or AE, and completed 3- and 6-month postintervention follow-ups. The two conditions were compared on five dependent measures, including the number of drinks consumed per week, the frequency of binge drinking in the past 30 days, typical blood alcohol content (tBAC) and peak blood alcohol content, and alcohol-related problems.

Participants and Recruitment

Over three consecutive semesters, we screened all students who had committed one violation of school alcohol policy that resulted in referral for further evaluation (e.g., being drunk in public). Eligibility criteria consisted of a score of 10 or more on the Alcohol Use Disorders Identification Test (AUDIT; WHO Brief Intervention Study Group, 1996) and/or two or more binge drinking episodes in the past 30 days. Both cutoffs are indicative of high-risk drinking (O'Hare & Sherrer, 1999; Wechsler et al., 2002). All students who participated in the study reported two or more binge drinking episodes, and 48% reported a score of 10 or higher on the AUDIT ($M = 7.5$, $SD = 4.3$), slightly lower than those previously found with mandated students ($M = 10$, $SD = 5.19$, $n = 152$; Barnett et al., 2004; $M = 9.5$, $SD = 4.5$, $n = 315$, O'Hare & Sherrer, 2000). Students who had been referred more than once for excessive drinking, requested more intensive treatment, and/or primarily used other substances (e.g., marijuana) were not recruited and received services as usual at the two programs. Campus A received 302 alcohol referrals, of which 37 were eligible (119 students were below screening cutoffs, 71 had been previously referred, and 75 primarily used other substances). Campus B received 110 referrals, of which 35 were eligible (48 were below screening criteria, 18 had been previously referred, and 9 primarily used other substances).

Seventy-two students were invited to participate in the project. They were told that participation was voluntary and that involvement in either the study or regular program services would allow them to fulfill their program obligations. Baseline and 3-month assessments were part of their obligation; students received $15 for the 6-month assessment. Of the 72 eligible students, 64 students received an intervention and completed at least one follow-up ($n_{BMI} = 34$, $n_{AE} = 30$).

Attrition analyses revealed no baseline differences between participants who completed the study and those who did not and between participants who completed one (n = 10) versus two (n = 54) follow-ups.

Measures

Participants were screened using the AUDIT, and a supplemental screening item assessed frequency of binge drinking in the past 30 days, using gender-specific criteria (Wechsler et al., 2002). Eligible participants completed a baseline assessment including a demographics questionnaire, the Alcohol and Drug Use Measure (Borsari & Carey, 2000), the Drinking Norms Rating Form (Baer & Carney, 1993), the 42-item version of the Inventory of Drinking Situations (IDS–42; Annis, Graham, & Davis, 1987), and the Rutgers Alcohol Problems Index (RAPI; White & Labouvie, 1989). Blood alcohol content (BAC) was calculated:

$$\text{BAC}=[(\text{consumption}/2) \times (\text{GC}/\text{weight})] - (.016 \times \text{hours}),$$

where consumption = number of drinks consumed in the drinking session (typical or peak), hours = number of hours over which the drinks were consumed, weight = weight in pounds, and GC = gender constant (9.0 for women and 7.5 for men; Matthews & Miller, 1979). After the session, students completed a session evaluation, a four-item measure used in previous research (Borsari & Carey, 2000). Each session was audiotaped, allowing for the rating of two treatment adherence measures. The first, the Participant/Interviewer Rating Form, adapted from the *Motivational Interviewing Skill Code: Coder's Manual* (Miller, 2000), contained three scales: (a) Global Therapist Ratings (acceptance, egalitarianism, empathy, genuineness, warmth, and spirit of motivational interviewing), (b) Global Client Ratings (affect, disclosure, engagement, and cooperation), and (c) Global Interaction Ratings (collaboration and benefit). Rater reliability was good according to previously established criteria (Tappin et al., 2000). The second adherence measure was the session content checklist, a 50-item measure that listed specific topics reflecting the intended content of both the BMI and AE sessions (see Table 1). Finally, collaterals estimated student drinking at 3- and 6-month follow-ups using the collateral questionnaire, a telephone interview developed for this study.

Interventions

Brian Borsari administered both the AE and BMI interventions in a one-on-one format. The interventions were structurally equivalent regarding the sequence of topics and educational content covered (see Table 1), but the two interventions did differ by design in several ways.

BMI—The BMI was based on previous research (Dimeff, Baer, Kivlahan, & Marlatt, 1999) and differed from the AE sessions in four ways. First, the information collected at baseline was provided using a personalized feedback form that structured subsequent discussion. This form provided an individualized introduction to topics such as normative quantity and frequency of drinking, BAC and tolerance, alcohol-related problems, influence of setting and expectancies on drinking, and alcohol expectancies. Second, the BMI students had the educational information related to their personal experiences (e.g., discussing the peak BAC achieved during the heaviest day of drinking in the past month). Third, the harm reduction model (cf. Marlatt & Witkiewitz, 2002) was introduced as a way to minimize risky behaviors. Fourth, the BMI interviewer followed the four principles of motivational interviewing: (a) express empathy, (b) develop discrepancy, (c) roll with resistance, and (d) support self-efficacy for change (Miller & Rollnick, 2002). Options for change were developed during the session, and the student's collaboration and cooperation were encouraged.

AE—The AE session was designed to present the type of information currently used in many alcohol education groups across the United States (e.g., Hingson et al., 1997). Information about alcohol and its effects was discussed, but no attempts were made to elicit personal information or facilitate problem recognition. The topics discussed during the session were not explicitly linked to personal use, and any questions the students had were answered factually. Personal goals to reduce alcohol use were not developed during the AE session; instead, common risk reduction strategies were provided.

Intervention integrity—Audiotapes of randomly selected sessions were rated to assess the integrity of both interventions to evaluate adherence to the manualized protocols. Two undergraduate psychology majors prepared for integrity ratings by following established guidelines (Lambert & Hill, 1994). Raters evaluated a random 48% ($N = 31$; $n_{BMI} = 15$, $n_{AE} = 16$) of the 64 sessions, and interrater reliability was assessed. Ratings of the session content checklist were reliable (rater agreement = 94%) and indicate that the interventions were distinct. The data in Table 1 show that content specific to the BMI was covered in a high percentage of BMI sessions (mode and *Mdn* = 93%) but not in AE sessions (mode and *Mdn* = 6%). The BMI sessions were longer than the AE sessions (BMI $M = 62$ min, AE $M = 46$ min), $t(59) = 5.98$, $p < .0001$.

Analysis Plan

To evaluate whether the BMI was superior to AE in reducing referred students' alcohol use and alcohol-related problems, we used hierarchical linear modeling techniques (Singer & Willett, 2003). Hierarchical linear modeling assesses the effects of time, treatment condition (BMI or AE), gender, campus, and days between the infraction and intervention on the four alcohol use variables and RAPI scores. To maximize model fit, we compared three covariance structures (compound symmetric, Huynh–Feldt, and unstructured) in a stepwise fashion (see Snijders & Bosker, 1999); denominator degrees of freedom were determined using Satterthwaite approximation. To control for multiplicity, we used the false discovery rate (FDR; Keselman, Cribbie, & Holland, 1997), which reflects the expected proportion of incorrectly rejected null hypotheses to the total number of rejected null hypotheses.

Results

Preliminary Analyses

Baseline comparisons—No differences between conditions were seen on demographics or on reasons for referral. Despite random assignment, students from Campus A consumed more drinks per week than students from Campus B (Campus A = 22.38, Campus B = 17.31), $t(60) = 2.07$, $p = .04$, and the BMI group exhibited greater scores than the AE group at baseline on the AUDIT and tBAC (see Table 2). We did not make adjustments for baseline values (e.g., analysis of covariance), because such analyses require the interpretation of residual change scores that have poor statistical properties and are not recommended for measuring change over time (Ragosa, Brandt, & Zimowski, 1982).

Collateral reports—At both assessments, collaterals tended to be close friends with the student (98%) and saw the student daily (85%). Collateral reports were moderately correlated with student self-report (*r*s ranged from .43 to .57), as in previous research with college students (Curtin, Stephens, & Bonenbarger, 2001; Marlatt et al., 1998). There were no significant differences between student and collateral estimates of drinks per week, frequency of drinking, and binge drinking occasions (*p*s > .05, FDR cutoff $p = .008$), and most students reported higher estimates than their collaterals. In sum, it did not appear that students systematically misrepresented their alcohol use.

Primary Analyses

Alcohol use—For all four drinking variables, none of the Time × Group effects was significant (see Table 3; all *p*s > .10, FDR cutoff $p = .022$). Time effects for the number of binge drinking episodes, $F(2, 122) = 3.13$, $p = .0474$, and tBAC, $F(2, 61.7) = 2.53$, $p = .0880$, indicated a trend of reduced high-risk drinking following both interventions.

Problems—For alcohol-related problems, measured by the RAPI, there was a significant main effect of time, $F(2, 123) = 6.63$, $p = .0018$, as well as a significant Time × Group interaction, $F(2, 123) = 4.09$, $p = .0191$. Contrasts between baseline and the 6-month follow-up indicated that the BMI group reduced their alcohol-related problems over the course of the project to a greater degree than the AE group, $F(1, 124) = 8.06$, $p = .0083$.

Effect sizes—Table 4 contains effect sizes (*d*s) calculated for the five outcome variables using the pooled within-group standard deviation (small = 0–.30, medium = .30 –.80, large = . 80 or greater; Cohen, 1988). A few findings are noteworthy in the 6-month data. First, medium within-group effect sizes were observed for the number of binge drinking episodes for both the BMI and AE students at the 6-month follow-up. Second, although the significant baseline differences on tBAC affect the interpretation of between-groups effect sizes, the reduction in tBAC was larger between baseline and the 6-month assessment for the BMI students ($d_{\text{Baseline–6 months}} = 0.67$; 70% of baseline, 30% reduction) than AE students ($d_{\text{Baseline–6 months}} = 0.19$; 89% of baseline, 11% reduction). Third, the largest effect sizes for alcohol-related problems were observed in the BMI group. Large effects at both follow-ups ($d_{\text{Baseline–3 months}} = 0.90$, $d_{\text{Baseline–6 months}} = 1.11$) and a medium between-groups effect size ($d = 0.39$) at the 6-month follow-up reflect a 49% reduction in problems for BMI students and a 4% reduction for the AE students.

Process Analyses

Additional analyses were performed to evaluate the participants' satisfaction with the interventions as well as the process of the interventions with respect to interviewer and participant behaviors.

Participant feedback—The session evaluation ratings revealed no significant group differences on the relevance of the information or satisfaction with the session (*p*s > .35, FDR cutoff $p = .022$); however, BMI students exhibited a trend of being more likely to recommend such an intervention to students like themselves, $t(58) = 1.78$, $p = .08$, and students in need of help with their drinking, $t(58) = 2.11$, $p = .04$. All means exceeded 3 on 4-point scales.

Intervention process—The AE and BMI sessions were equivalent on the six dimensions of Global Therapist Ratings (i.e., acceptance, egalitarianism, empathy, genuineness, warmth, and spirit; *t*s > .05; FDR cutoff $p = .009$); all means ranged from 6.25 to 6.75 on 7-point scales. As expected, the students in the BMI condition exhibited more in-session disclosure, $t(60) = 5.47$, $p < .0001$, and engagement, $t(60) = 3.53$, $p = .0008$, than the students in the AE condition, but no difference was seen in the level of cooperation, $t(60) = 1.34$, $p = .19$. In addition, the raters judged the BMI group to be higher in collaboration, $t(60) = 2.95$, $p = .005$ and as receiving more benefit, $t(60) = 2.99$, $p = .004$, than the AE group.

Discussion

Mandated students in both the BMI and AE groups decreased their alcohol use following the intervention; however, BMI students reduced alcohol-related problems to a greater extent than AE students. Satisfaction ratings provided by students indicated that both interventions, even though mandated, were perceived as relevant and useful. Although the small to moderate

within-group effect sizes observed in this study were consistent with previous research involving nonreferred students (e.g., Murphy et al., 2001), very large effects were evident for reductions in alcohol-related problems in the BMI group, all of which were maintained for 6 months postintervention. Furthermore, process measures revealed that students who received a BMI demonstrated more disclosure, engagement, collaboration, and benefit than AE students. Careful evaluation of treatment fidelity established group differences in the structure and content of the protocols, enhancing confidence in the internal validity of the independent variable. Thus, it appears that the protocol differences resulted in different student behaviors, both in session and during follow-up.

The BMI and AE sessions did share common features that may have accounted for similar reductions in alcohol consumption, such as uninterrupted access to a knowledgeable interventionist; similar informational content about alcohol and its effects; and a warm, genuine, and empathic interviewing style. Therefore, it appears that providing the student with information in a nonjudgmental setting may have facilitated reductions in alcohol use. However, BMI participants did demonstrate significant reductions in alcohol-related problems at follow-up. The BMI group received personalized feedback on alcohol use and problems, as well as a discussion of harm reduction strategies: the AE group did not. Raters also viewed BMI participants as more engaged, disclosing, collaborative, and deriving more personal benefit than AE students. Thus, protocol differences were clearly documented and may have resulted in the observed group differences in alcohol-related problems.

The results of this study must be considered preliminary, because historical or maturational factors may have contributed to the observed reductions. In addition, Brian Borsari was the interventionist for both conditions, which may have biased the results (see Wampold, 2001). Future research would benefit from the use of interventionists who are blind to the study hypotheses and more distinct comparison groups (e.g., a matched group of nonmandated students). That said, this controlled study suggests that BMIs are an acceptable and promising way to decrease the alcohol use and problems of students who have already begun to experience adverse consequences of their drinking.

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Table 1

Content Ratings of Brief Motivational Intervention (BMI; n = 15) and Alcohol Education (AE; n = 16) Sessions

	Percentage of tapes	
Sections of intervention	**BMI**	**AE**
Drinking patterns		
1. Explain purpose of session.	100	100
2. *Provide overview of personalized feedback form (PFF).*	100	0
3. *Review figures describing drinking frequency/quantity.*	100	0
4. *Reflect on/invite reactions regarding drinking patterns.*	93	6
Drinking compared to national/local averages		
1. *Compare personal drinking to national norms.*	97	16
2. *Compare personal drinking patterns to local data.*	100	3
3. Define/discuss meaning of percentiles.	100	97
4. Reflect on/invite reactions to percentiles.	96	91
Heavier drinking		
1. *Define binge drinking.*	93	16
2. *Review personal binge drinking episodes.*	93	6
3. *Compare personal binge drinking to local data.*	100	0
Level of intoxication		
1. Review definition of blood alcohol concentration (BAC).	100	100
2. Introduce gender-specific BAC charts.	100	100
3. Emphasize positive effects (<.06) and negative effects (>.06).	100	100
4. Introduce tolerance.	100	100
5. *Introduce personal tolerance.*	77	28
6. Introduce “alcohol and the brain” handout.	100	100
7. *Review average and peak BAC from PFF.*	93	6
8. Reflect on/invite reactions to BAC information.	100	97
Drinking games		
1. Review drinking games.	100	75
2. Link drinking games to BAC.	100	78
Biphasic effect of alcohol		
1. Introduce biphasic effect handout.	97	100
2. Elaborate with		
(a) Rising BACs	97	100
(b) Cultural myth of alcohol	97	100
(c) Tolerance	90	100
Perceptions of others’ drinking		
1. *Introduce section on perceptions of alcohol use.*	93	6
2. *Introduce norms section on PFF.*	85	6
3. *Compare normative use with personal alcohol use.*	93	6
IDS–42		
1. *Introduce personal IDS–42 profile.*	93	0
Alcohol beliefs		

Sections of intervention	Percentage of tapes	
	BMI	**AE**
1. Introduce definition of expectancies.	100	100
2. Emphasize that alcohol "buzz" is part ethanol (BAC), setting, and expectancies.	100	94
3. *Introduce personal expectancies on PFF.*	93	6
4. *Reflect on/invite reactions regarding positive expectancies.*	97	13
5. *Reflect on/invite reactions regarding negative expectancies.*	93	13
6. Comment on fact that positive expectancies are related to low BACs and negative expectancies are related to high BACs.	97	87
Alcohol-related consequences		
1. *Introduce personal consequences of alcohol use.*	93	6
2. Introduce commonly reported consequences.	71	82
3. *Compare personal consequences with local data.*	100	0
4. Reflect on/invite reactions to consequences.	87	44
Risk reduction		
1. *Use the term* spectrum *or* continuum *in the introduction of harm/risk reduction.*	90	9
2. *Give the "spectrum of drinking consequences" handout.*	90	6
3. *Introduce concept of harm reduction.*	90	6
4. Point out list of tips to reduce risks from alcohol use.	87	97
5. Single out tips that are relevant to the student.	70	63
Other topics		
1. Introduce effects of alcohol on sleep.	93	100
2. Introduce effects of alcohol on schoolwork and concentration.	90	97
3. Introduce family history of alcohol use.	83	100
4. Introduce the role of alcohol use in sexual assault.	77	100
5. Invite reaction to the intervention as a whole.	47	72

Note. Topics exclusive to BMI session are in italics. IDS–42 = 42-item version of the Inventory of Drinking Situations.

Table 2

Demographic and Outcome Variables of Brief Motivational Intervention (BMI; n = 34) and Alcohol Education (AE; n = 30) Groups at Baseline

Variable	BMI	AE	Test statistic	*p*
Demographics				
Gender	15% female	20% female	$\chi^2(1) = 0.31$	.57
Race	91% Caucasian	93% Caucasian	$\chi^2(5) = 4.92$	.43
Residence	88% dormitory	86% dormitory	$\chi^2(1) = 0.04$	.85
Age (years)	19.1 (1.14)	19.1 (0.86)	$t(62) = 0.18$	.86
Class	82% fresh/soph	77% fresh/soph	$\chi^2(1) = 0.32$	.57
Greek membership	6% members	13% members	$\chi^2(1) = 0.38$	.54
Days since infraction	74 (65.92)	75 (68.47)	$t(62) = 0.09$	.92
Campus A				
n	18	16		
%	53	53		
Campus B			$\chi^2(1) = .01$	.92
n	16	14		
%	47	47		
Screening variables				
AUDIT	10.88 (4.02)	8.66 (2.97)	$t(60) = 2.45$	.02
Frequency of binge drinking episodes[a]	3.36 (1.06)	3.10 (1.18)	$t(62) = 0.92$	.36
Drinking variables				
No. drinks per week	19.22 (9.65)	20.95 (10.32)	$t(62) = 0.68$	.50
Frequency of binge drinking episodes	7.47 (3.54)	7.90 (4.52)	$t(62) = 0.43$	.67
Typical BAC	0.105 (0.04)	0.081 (0.04)	$t(62) = 2.18$	.03
Peak BAC	0.214 (0.11)	0.182 (0.09)	$t(62) = 1.25$	.22
RAPI score	9.88 (7.81)	7.00 (4.84)	$t(62) = 1.75$	.09
Reasons for referral			$\chi^2(9) = 1.06$	.90
Drunk in public				
n	15	10		
%	44	33		
In presence of alcohol				
n	4	5		
%	12	17		
Emergency room				
n	2	2		
%	6	7		
Possession				
n	9	10		
%	26	33		
Vandalism				
n	4	3		
%	12	10		

Variable	BMI	AE	Test statistic	*p*

Note. Standard deviations are shown in parentheses. fresh/soph = freshman/sophomore; AUDIT = Alcohol Use Disorders Identification Test; BAC = blood alcohol content; RAPI = Rutgers Alcohol Problem Index.

[a] 3 = 3–5 binge drinking occasions per month; 4 = 6–9 binge drinking occasions per month.

Table 3

Means of Primary Outcome Variables Across Time

	Baseline[a]		3 months[b]		6 months[c]	
Variable	***M***	***SD***	***M***	***SD***	***M***	***SD***
Drinks per week						
BMI	19.22	9.65	18.10	11.96	18.69	9.75
AE	20.95	10.33	17.72	10.49	21.04	14.22
Binge drinking episodes[d]						
BMI	7.47	3.54	6.83	4.11	6.10	4.07
AE	7.90	4.52	7.13	4.81	6.07	4.71
Typical BAC[e]						
BMI	0.105	0.042	0.088	0.054	0.074	0.062
AE	0.081	0.043	0.076	0.065	0.072	0.053
Peak BAC						
BMI	0.214	0.113	0.171	0.088	0.169	0.121
AE	0.182	0.087	0.157	0.118	0.168	0.142
RAPI score[d,f]						
BMI	9.88	7.81	5.90	5.56	5.00	5.09
AE	7.00	4.84	5.73	4.84	6.71	5.21

Note. BMI = brief motivational intervention; AE = alcohol education; BAC = blood alcohol content; RAPI = Rutgers Alcohol Problem Index. Drinks per week was significantly skewed and required a square root transformation.

[a] $n = 64$.

[b] $n = 60$.

[c] $n = 57$.

[d] Time main effect significant, $p < .05$.

[e] Time main effect significant, $p < .10$.

[f] Baseline to 6-month Group × Time interaction significant, $p < .05$.

Table 4

Between- and Within-Group Effect Sizes for Changes on Five Outcome Variables Following Interventions

	Baseline to 3 months			Baseline to 6 months		
	Within group			Within group		
Variable	**BMI**	**AE**	**Between group**	**BMI**	**AE**	**Between group**
No. drinks per week (square root)	0.25	**0.33**	0.23	0.15	0.18	0.01
Frequency of binge drinking episodes	0.18	0.22	0.08	**0.39**	**0.52**	0.01
Typical BAC	**0.37**	0.11	0.26	**0.67**	0.19	0.04
Peak BAC	**0.46**	0.27	0.15	**0.48**	0.15	0.01
RAPI score	**0.90**	0.29	0.04	**1.11**	0.07	**0.39**

Note. BMI = brief motivational intervention; AE = alcohol education; BAC = blood alcohol content; RAPI = Rutgers Alcohol Problem Index. Effect sizes can be described as small (0–0.30), medium (around 0.30–0.80), or large (greater than 0.80); medium and large effect sizes are in boldface type.