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Peer Enhancement of a Brief Motivational Intervention With Mandated College Students

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Abstract

In this pilot study, the authors evaluated whether incorporating a peer in a brief motivational intervention would lead to significant reductions in alcohol use and problems in students mandated to receive treatment after violating campus alcohol policy. Thirty-six participant–peer dyads (66% male) were randomly assigned to receive either two 45-min sessions of an individual motivational intervention (IMI, $n = 18$) or a peer-enhanced motivational intervention (PMI, $n = 18$). The IMI included exploration of motivation to change alcohol use, perceived positive and negative effects of drinking, personalized feedback, and goals for changing alcohol consumption and related behaviors. The PMI included all elements of the IMI plus the presence of a supportive peer of the participant during both sessions. Although both groups significantly reduced number of drinking days and heavy drinking days at 1-month follow-up, the magnitude of within-group reductions in alcohol use and problems was 3 times larger on average for the PMI group than for the IMI group, based on effect-size calculations. Peers and participants endorsed high satisfaction ratings on the PMI. Findings indicate the promise of including peers in brief motivational interventions for mandated students.

Keywords

brief motivational intervention; college student drinking; peer support; alcohol misuse; mandated students

Approximately 40% of college students (including close to half of college men) drink heavily at least once every 2 weeks (usually defined as having 5 or more drinks in a single occasion for men, 4 or more drinks for women; O’Malley & Johnston, 2002; Wechsler et al., 2002). Such drinking often results in negative consequences to the drinker and fellow students. For example, in 1998 and 2001, more than 500,000 students were injured because of drinking, over 600,000 were assaulted by a fellow student who had been drinking, and

more than 1,600 students died each year from injuries related to alcohol use (Hingson, Heeren, Winter, & Wechsler, 2005).

The prevalence of high-risk drinking on college campuses has led to increased enforcement of alcohol policies (Hoover, 2003). This, in turn, has created a steady increase in the number of mandated students, defined as students referred to campus administration for violating campus alcohol policies. Although schools have responded by significantly increasing the number and intensity of educational programs (e.g., lectures, meetings), multisession educational groups, and special college courses addressing alcohol use (Wechsler et al., 2002), these efforts have not demonstrated consistent or longstanding reductions in alcohol use (Hingson, Berson, & Dowley, 1997). In contrast, brief motivational interventions (BMIs) provide educational information about alcohol while using strategies to increase motivation for changing behavior. BMIs are delivered using motivational interviewing, a client-centered method designed to increase intrinsic motivation to change by exploring, highlighting, and helping clients resolve ambivalence about change (Miller & Rollnick, 2002). Whereas traditional alcohol treatment programs have been designed primarily for adults with long histories of alcohol problems and are generally focused on abstinence, BMIs are typically focused on harm reduction. Their goals are to assist the individual in reducing harmful or risky drinking through moderation in consumption levels and to reduce alcohol-related negative outcomes, although abstinence goals are also encouraged (Moyer & Finney, 2004/2005). BMIs are usually not intended for individuals who meet diagnostic criteria for alcohol abuse or dependence (Moyer, Finney, Swearingen, & Vergun, 2002).

Because the vast majority of college students are not seeking alcohol treatment and do not have severe drinking problems requiring intensive or formal treatment, BMIs may be particularly suited for college student drinkers. For example, in a recent meta-analysis, Moyer et al. (2002) found that nontreatment-seeking individuals who received a BMI consistently showed greater reductions in alcohol use than did those assigned to no-treatment control groups. Indeed, BMIs have emerged as effective methods for reducing alcohol use in a variety of populations (Monti, Colby, & O'Leary, 2001), including college students screened from the general student population (Larimer & Cronce, 2002).

Despite strong exhortations to include social networks in alcohol- and other substance-use interventions (e.g., Beattie et al., 1993; Longabaugh et al., 1998; Patton et al., 1998), there are few published studies on the effects of including peers in substance abuse treatment. Past studies that have included peers have mostly consisted of social influence resistance training administered in group format (e.g., Botvin, Baker, Dusenbury, Tortu, & Botvin, 1990). College-based interventionists have typically administered BMIs in one-on-one sessions with the student (see Larimer et al., 2001, for an example of group BMIs). Yet the link between peer networks supportive of drinking and increased drinking rates among college students is a robust finding (e.g., Bartholow, Sher, & Krull, 2003; Borsari & Carey, 1999, 2001). One challenge in working with college students with alcohol-related problems lies in the strong peer support for drinking. However, little is known of the impact of including peers in interventions for heavy alcohol use among college students.

The smoking literature provides a precedent for including a peer in a BMI: Peer involvement in a self-help smoking cessation program significantly enhanced compliance to the intervention manual and resulted in better maintenance of abstinence (Kviz, Crittenden, Madura, & Warnecke, 1994). In addition, among individuals reporting lower determination to quit smoking, those whose peers participated in the program had quit rates three times higher than did those who participated alone (Kviz et al., 1994). In a recent study on including partners in a BMI for reducing alcohol use, Chang et al. (2005) randomized pregnant women who reported drinking alcohol to either a one-session BMI or to assessment

control. Partners of the participants were also invited to attend the BMI. Compared with those whose partners did not attend the BMI, those participants whose partners did attend the BMI reported significantly fewer days drinking at followup (Chang et al., 2005). Although most partners selected to participate by participants (87%) were their husbands or the biological fathers of their children, an eligible partner could be any supportive adult (including friends or family members) who was knowledgeable about the woman's health status.

Taken together, these findings suggest that incorporating a supportive peer into a BMI is feasible, may permit a more meaningful and accurate discussion of the social influences on the participant's drinking, and may facilitate peer support for implementing and maintaining reductions in alcohol use and problems. Conversely, iatrogenic effects can be of concern when including peers in treatments or interventions that address risky behaviors. For instance, two reports of group interventions with adolescents of different ages who exhibited co-occurring psychological disorders found that older high-risk youths influenced younger low-risk youths to adopt maladaptive behaviors (Arnold & Hughes, 1999; Dishion, McCord, & Poulin, 1999), although a recently published meta-analysis found little evidence of iatrogenic effects across studies (Weiss et al., 2005).

This is the first study to evaluate the effectiveness of a BMI incorporating peers on reducing alcohol use and related problems. As such, it corresponds with Stage 1b in the stage model of therapy development (see Rounsaville, Carroll, & Onken, 2001). Specifically, we conducted a pilot study to demonstrate the feasibility and acceptability of incorporating a peer into a BMI, evaluated our ability to recruit sufficient numbers of students and peers, assessed changes in alcohol use and problems following treatment, and calculated effect sizes. We hypothesized that mandated students participating in a BMI with a peer would demonstrate lower levels of alcohol use and alcohol-related problems than would mandated students receiving a BMI alone. In addition, we examined the relationship between peer and participant alcohol use to examine the influence of baseline peer drinking status on students' outcomes. Finally, we collected satisfaction data to assess the acceptability of the intervention for both the peer and student.

Method

Design

In a randomized two-group design, students were randomly assigned to either (a) an individual motivational intervention (IMI) or (b) a peer-enhanced motivational intervention (PMI), with gender stratified across conditions to ensure equivalent man:woman ratios in each condition. Follow-up assessments at 1 month allowed comparisons between the two groups.

Procedure

Setting and participant selection—A total of 36 participant–peer dyads (66% men, 34% women; $n_{\text{IMI}} = 18$, $n_{\text{PMI}} = 18$), age 18 years and older were recruited into the study. The sample was primarily White (85%) and lived on campus (88%) at a private 4-year university located in the northeastern United States. Within 2 weeks following their infractions, students completed a mandatory 60-min group alcohol education class in which campus affairs staff reviewed the hazards of drinking, myths about drinking, and the rules and regulations concerning alcohol policies on campus. At the end of the education class, students were informed of the study by campus affairs staff, and students who expressed an interest in the study provided their names and phone numbers on a sign-up sheet that was forwarded to study personnel by campus affairs staff. Students referred for an alcohol

infraction were then contacted by phone by study personnel and invited to participate, and those who agreed and completed baseline assessment and intervention sessions had their \$50 fines waived, as determined by the campus affairs office of the university. Six referred students (2 women, 4 men) refused to participate in the study at the time of recruitment: One was not interested, 3 cited being too busy to participate, and 2 did not provide a reason for refusal. The average amount of time that elapsed between alcohol education session and baseline assessment was 23.6 days ($SD = 18.8$). Students were eligible to participate in the study if they were between 18 and 24 years old, were enrolled in the university, had completed the mandatory alcohol education class, and spoke English.

Participants were asked to identify a peer-aged friend of the same gender who was willing to participate in the study. Participants were informed that peers would complete a baseline assessment individually with research staff and that, depending on random assignment to treatment condition, their peers might be asked to attend the intervention and participate with them. Peers were eligible to participate if they (a) were 18 to 24 years old; (b) were not a current or previous romantic partner; (c) were the same gender as the participant; (d) reported seeing the participant at least once a week, in order to ensure regular contact; (e) rated by the participant as “important,” “very important,” or “extremely important” to them on the Important People Instrument (IPI; Longabaugh & Zywiak, 1998); and (f) were rated by the participant as “supportive,” “very supportive,” or “extremely supportive” on the IPI. Selected peers were contacted and invited to participate (no peers refused to participate). To ensure confidentiality and fidelity of responses, we assessed peers and students separately. Following the intervention, peers received a \$40 gift certificate to a local movie theater for participation in the study. One referred student was unable to identify an eligible peer at baseline and did not complete the study.

Baseline measures—Baseline assessment was administered within 2 days of receiving informed consent and required approximately 30 to 45 min to complete. Breathalyzer tests were administered to ensure that no participants had a blood alcohol level of .02 or higher at the time of assessment. Measures included demographics and information about the referral event. Peer eligibility for the project was determined with the IPI. Alcohol use over the previous 30 days was assessed with the Time Line Follow-Back Interview (Sobell & Sobell, 1992, 1995). The Time Line Follow-Back Interview has adequate reliability and validity and is particularly well suited for assessing more variable patterns of substance use (Sobell & Sobell, 1995), which are common in student substance use. Alcohol-related problems in the past year were recorded with the Young Adults Alcohol Problem Screening Test (YAAPST; Hurlbut & Sher, 1992). Specifically, a severity summary score for the YAAPST was created by weighting each problem experienced by the number of times it had occurred. The YAAPST possesses good psychometric properties and was specifically designed to assess alcohol problems in college populations. The Strategies to Limit Drinking Questionnaire (Werch, 1990) was used to assess use of strategies to reduce or limit drinking over the past 6 months. Test–retest reliability is high for the measure ($r = .96$), based on a sample of college students (Werch & Gorman, 1986). The Peer Involvement Questionnaire, developed by Tracy O’Leary Tevyaw, asked participants how they felt about their peers’ involvement in the intervention in terms of comfort, ability to openly discuss issues, and the level of perceived support from the peer following the intervention.

Interventions—In accordance with Stage 1b research, training procedures and manuals for both treatments were developed. Manuals were based on empirically tested, motivational intervention-based manuals developed in our laboratory (e.g., Colby et al., 1998; Monti et al., 1999) and modified and tailored to the needs and issues of college students. Interventionists included a bachelor’s-level clinician with 2 years of experience and a master’s-level clinician with 4 years of experience. Interventionists completed a 40-hr

training by Tracy O'Leary Tevyaw, who is a licensed clinical psychologist fully trained in motivation intervention. During this training, interventionists received didactic material, practiced each element of the motivational intervention style (e.g., different types of reflective listening), and role-played sessions. O'Leary Tevyaw conducted weekly individual and group supervision of interventionists. Interventionists were trained to deliver both types of intervention (IMI and PMI) to avoid confounding type of intervention with the treatment providers' personality or experience. Interventionists followed the four principles of motivational interviewing: express empathy, develop discrepancy, roll with resistance, and support self-efficacy for change (Miller & Rollnick, 2002). Options for change were developed over the course of the session, encouraging the active collaboration and cooperation of the participant (and peer). Interventions were performed within 1 week of the baseline assessment and consisted of one 45-min session.

IMI—During the first IMI session, the interventionist established rapport with the participant, assessed motivation to change alcohol-use behavior, and explored the participant's perceived pros and cons of drinking. In the second session, the participant received a personalized feedback form based on the assessment data. The feedback form included a comparison of the participant's alcohol use with gender- and age-matched norms, social and familial effects of alcohol use, risks of continued alcohol use in the future, and financial costs of alcohol use. Finally, the interventionist worked with the participant to set goals for alcohol-use behavior change, exploring barriers to change, and provided strategies and advice to deal with barriers when appropriate. The interventionist gave the participant an in-depth informational handout on various negative consequences and facts related to alcohol use, a handout on strategies for dealing with urges to use alcohol, and a handout listing goals for changing alcohol-use behaviors.

PMI—Interventions were performed with dyads of mandated participants accompanied by their peers. The two PMI sessions included the same information as the IMI intervention. In the first session, the interventionist established rapport with both the participant and peer, assessed their motivation to change their drinking, and discussed the consequences both had experienced from drinking. In the second session, both the participant and the peer received a personalized feedback form based on their assessment data. The treatment provider worked to establish rapport with both and encouraged them to discuss the information following the session in an ongoing manner just between the two of them. Finally, the participant was asked to generate strategies to reduce his or her drinking. The peer was encouraged to help develop and implement these strategies (e.g., encouraging the participant to abstain or drink moderately during a party).

Follow-up—Participants and peers returned separately for a 1-month follow-up interview. Participants and peers were given Breathalyzer tests to ensure zero blood alcohol level at the time of assessment. Follow-up measures included the Time Line Follow-Back Interview, IPI, YAAPST, and Peer Involvement Questionnaire. All measures used a 30-day recall period except the YAAPST (past year). Both participants and peers received \$50 in gift certificates after completing the follow-up assessment.

Results

Preliminary Analyses

Eight participants ($n_{IMI} = 2$, $n_{PMI} = 6$) and 2 peers ($n_{IMI} = 1$, $n_{PMI} = 1$) did not return to complete the 1-month follow-up assessment. Attrition analyses revealed no significant differences in baseline assessments corresponding to the four outcome variables. In addition, attrition did not systematically vary by gender or treatment group. We examined the

equivalence of the two groups at baseline. There were no significant differences between the two groups on the key baseline variables ($ps > .20$). When we examined the distributional properties of dependent and other variables, we found no outliers greater than three standard deviations from the sample mean and no variables that were significantly skewed or kurtotic (Fidell & Tabachnick, 2003). There were no significant group differences on baseline dependent variables.

Outcome Analyses

A series of univariate tests were performed to assess treatment response on number of drinks per occasion, number of heavy drinking days, number of drinking days, and the YAAPST severity score (see Table 1). To examine group differences at follow-up, we conducted hierarchical regressions on each of the four outcome variables. In each analysis, the dependent variable was change in outcome variable (i.e., post minus pre). In the first step, no predictors were included in the regression model (i.e., an intercept-only model). In this model, the intercept represents the effect of time, and the results are equivalent to those that would be provided by a paired t test. In the second step, the baseline scores (centered at 0) were added to evaluate time effects, controlling for regression to the mean. In the third step, group differences were evaluated by entering a dummy-coded variable (PMI = 0, IMI = 1).

There were no group differences in the four dependent variables. However, we found that the models for the number of heavy drinking days, $t(25) = -3.62, p = .001$, and number of drinking days, $t(25) = -3.18, p = .004$, revealed significant time effects, controlling for regression to the mean. To further examine changes in alcohol use and problems in both groups, we calculated between-group (at follow-up) and within-group (baseline to follow-up) effect sizes (d s) for each outcome variable (see Table 1). To control for baseline values on the outcome variables, we used change scores to calculate effect sizes. As recommended by Cohen (1988), effect sizes can be described as small (0 to 0.30), medium (0.30 to 0.80), or large (greater than 0.80). Moderate between-group differences were observed for number of drinking days and alcohol-related problems. Overall, small effect sizes were observed for peers of participants.

Analyses Examining Peer Influences on Student Outcomes

Peer self-reported alcohol use and problems are provided in Table 1. To evaluate possible effects of peer alcohol use on student outcomes, we first regressed the dependent variable on the participant's corresponding baseline value and then added the peer's baseline value on that variable to the model. For both groups, peer use did not significantly contribute to the participant's alcohol use at follow-up.

Satisfaction Ratings

Following the session, peers and participants completed a satisfaction measure. We found that both peers and participants reported the PMI to be a comfortable experience, with no significant differences between the peer and participant ratings (see Table 2). There were no significant differences on Items 1 through 3 between IMI and PMI participants, as revealed by t tests.

Discussion

This pilot study represents the first attempt to include peers in a BMI designed to reduce alcohol use and problems in college students. The findings are encouraging. Both IMI and PMI groups demonstrated significant reductions in the number of drinking days and heavy drinking days. Effect sizes also revealed that the magnitude of within-group reductions in alcohol use and problems were three times larger on average for the PMI group (average

effect size = 0.68) than for the IMI group (average effect size = 0.22). In addition, peers were willing to participate in an intervention addressing alcohol use, were supportive of the participant during the process, and viewed the sessions as being effective. Given the social nature of college drinking, it is important to foster as much peer support for reduction as possible.

In neither group did peer baseline alcohol use significantly predict the participant's drinks per occasion or number of drinking days at follow-up. Three factors may have prevented the replication of negative peer influence on the participant on average. First, peers demonstrated lower levels of alcohol use and problems than did participants. Second, peer influence in a dyadic intervention may be considerably less than in a group setting, where iatrogenic effects have been observed (cf. Dishion et al., 1999). The PMI sessions in this study were structured so that the focus was on supporting the student's efforts and goals concerning changing problematic alcohol use. Third, participants tended to choose friends and roommates whom they trusted and with whom they felt comfortable, feelings reciprocated by their peers. Yet it may be that lighter drinking peers would make for more effective PMI participants than would heavier drinking peers.

The study had several limitations. (a) The small sample size and the use of multiple univariate tests increased the probability that some findings were spurious. (b) A no-treatment comparison condition (e.g., a natural history group of students not referred for alcohol-related violations) could have addressed three considerable sources of bias: historical, maturational, and testing effects (Campbell, 1969). (c) There was variability of time of entry into the study following the alcohol-education class. Although previous research with mandated college students did not detect an effect for such a delay on outcomes (Borsari & Carey, 2005), students who experienced a recent alcohol-related incident may have already decreased their alcohol use by the time of study recruitment. In addition, naturally occurring delays between the education class and study entry, such as midterm or semester breaks, for some students accounted for the increase in number of average days. (d) Although alcohol education rarely facilitates drinking reductions (e.g., Hingson et al., 1997), it is possible that the mandatory, 60-min group alcohol-education class, which students attended prior to study participation, contributed to reductions in alcohol use at follow up. (e) The \$50 gift certificates for peers and \$50 in waived fines for students at baseline likely helped boost recruitment and retention rates. Future researchers should examine whether lower amounts of incentive result in similar participation rates. (f) The lack of data on demographics and on the drinking patterns and behaviors of students who refused to participate limits the ability to determine the sample's representativeness.

The findings suggest that including peers in BMIs may be an effective way to facilitate drinking reductions in mandated students who have already begun to demonstrate negative consequences from their drinking. Both peers and students found this process to be a pleasant and worthwhile experience. There was no evidence that peers negatively influenced student outcomes, regardless of peer drinking level at baseline. Future research can focus on ways to further involve peers in BMIs addressing risky alcohol use. For example, it may be valuable to involve peers in booster sessions that evaluate students' success in implementing strategies for reducing alcohol use. In this way, peers may further enhance BMIs designed to help their mandated friends reduce their risky drinking.

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Table 1

Means (and Standard Deviations) of Participants and Peers

Outcome variable	Participant		Effect sizes		Peer		Effect sizes	
	Baseline	1 month	d_{WG}	d_{BG}	Baseline	1 month	d_{WG}	d_{BG}
Drinks per occasion (past 30 days)								
IMI	5.82 (2.73)	5.02 (3.65)	.49	.18	5.71 (2.92)	5.33 (2.25)	.29	.60
PMI	6.23 (4.07)	4.57 (3.96)	.28		4.88 (1.98)	5.19 (3.03)	.29	
No. of heavy drinking days (past 30 days)								
IMI	7.28 (5.92)	5.50* (5.46)	.58	.01	4.41 (5.03)	5.06* (4.85)	.12	.36
PMI	7.00 (5.11)	3.00* (3.13)	.58		5.06 (6.19)	4.35* (5.58)	.22	
No. of drinking days (past 30 days)								
IMI	10.39 (23.19)	9.06* (7.28)	.22	.70	7.35 (5.66)	7.00* (5.37)	.16	.04
PMI	9.16 (5.63)	4.50* (3.37)	.49		7.46 (7.40)	7.35* (6.08)	.14	
YAAPST severity (past year)								
IMI	36.22 (23.19)	38.93 (23.57)	.22	.69	25.94 (22.06)	24.75 (22.29)	.05	.20
PMI	45.83 (21.29)	35.25 (21.49)	.52		30.20 (23.16)	30.57 (21.28)	.17	

Note. d_{WG} = within-group effect sizes; d_{BG} = between-group effect sizes; IMI = individual motivational intervention ($n_{baseline}$ = 18; n_1 mo. = 16); PMI = peer-enhanced motivational intervention ($n_{baseline}$ = 18; n_1 mo. = 12); YAAPST = Young Adults Alcohol Problem Screening Test.

* $p < .01$.

Table 2

Intervention Ratings of Peers and Participant Dyads

Item	Participants		Peers		<i>t(df)</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
How comfortable did you feel about participating in the project in general?	6.05	1.08	6.57	1.07	1.51 (18)	.50
How comfortable did you feel about participating with your friend in the project?	6.68	0.67	6.32	1.16	1.20 (18)	.40
How much did you enjoy participating in the project?	5.16	1.68	5.79	1.36	1.54 (18)	.52
How comfortable did you feel about participating in the session with your friend?	6.82	0.60	6.91	0.30	0.44 (10)	.19
How much did you feel your friend supported you during the session?	5.91	1.87	5.91	1.38	0.00 (10)	.00
How much did you feel you supported your friend during the session?	5.82	1.83	5.91	1.38	0.13 (10)	.06
How much trust did you feel in having your friend participate in the session with you?	6.82	0.60	6.46	0.93	1.08 (10)	.49
How effective were the sessions in which you participated with your friend?	5.00	1.55	5.18	0.98	0.33 (10)	.15
How much did you enjoy participating with your friend in the sessions?	5.73	1.42	6.46	1.04	1.37 (17)	.61

Note. All items were answered on a 7-point Likert-type scale (1 = *not at all*; 3 = *somewhat*; 5 = *mostly*; 7 = *totally*). Individual motivational intervention dyads completed only first three items. There were no significant differences between peers and participants on any item (*ps* > .10).