Brief Intervention for Drug-Abusing Adolescents in a School Setting

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This study evaluated the use of 2 brief interventions (BIs) to reduce drug use among 14- to 17-year-olds identified in a school setting as drug abusers. Students (N = 79) were randomly assigned to receive 1 of 3 target conditions: 2 sessions with the adolescent only (BI–A), 2 sessions with the adolescent and 1 with the parent (BI–AP), or an assessment-only control condition (CON). Follow-up assessments of 78 participants done 6 months postintervention showed that the adolescents in the BI–A and BI–AP conditions generally had superior outcomes on their drug use behaviors compared with the CON group. Also, those receiving the BI–AP had better outcomes on most outcome variables compared with adolescents receiving BI–A. The 6-month abstinence rates did not differ across groups. The potential value of a school-based BI for students with a substance abuse disorder is discussed.

Keywords: drug abuse, students, brief intervention

A range of treatment approaches is available to address adolescent drug problems (see Center for Substance Abuse Treatment, 1999), yet national survey data on those admitted into adolescent drug treatment programs suggest that cost-containment pressures may be making it more difficult for youths without a dependence disorder to be admitted into treatment (Substance Abuse Mental Health Service Administration, 2001). Federal and state programs have tended to emphasize either universal prevention strategies aimed at those who have never initiated use or specialist treatment for those who are dependent (Gerstein & Harwood, 1990). Little attention has been paid to the large group of individuals who use drugs but are not, or not yet, dependent and who could successfully reduce drug use through early intervention (Drummond, 1997).

Brief interventions (BIs) provide an option for such midlevel drug abusers. Most BIs involve two to four 1-hr sessions, although some have been tried with adults for periods as brief as 10 min (Miller & Rollnick, 1991). BIs typically utilize the principles of motivational interviewing (MI) to raise awareness of the client’s problems; they offer a menu of options or strategies for accomplishing the target goals and place responsibility for change with the client. The therapist’s style is empathetic and encouraging rather than confrontational.

Whereas BIs with adults have received growing attention in the literature, the study of interventions applied to drug-abusing youths is a newer endeavor (Monti, Colby, & O’Leary, 2001). Several reports have focused on college students (Borsari & Carey, 2000, 2005; Larimer et al., 2001; Marlatt et al., 1998; Monti et al., 1999; Murphy, Correia, Colby, & Vuchinich, 2005; Roberts, Neal, Kivlahan, Baer, & Marlatt, 2000). A few investigators have focused on adolescents (Aubrey, 1998; Breslin, Li, Sdao-Jarvie, Tupker, & Ittig-Deland, 2002; Colby et al., 2005; McCambridge & Strang, 2004).

Recently, a multisite study of cannabis-abusing youths showed that a five-session therapy comprising motivational enhancement plus cognitive behavioral therapy produced very similar outcomes compared with those for four other conditions, all of which had at least twice as many sessions (Dennis et al., 2004). In sum, the empirical evidence for the effectiveness of BIs for drug-abusing adolescents is based on a handful of studies. Nonetheless, this small body of knowledge is generally encouraging. The five extant adolescent studies indicate that BIs are associated with modest improvement on the basis of pre–posttreatment comparisons and comparisons to a control or comparison group.

The present study extends the extant literature in two ways. First, the BI was administered in a school setting. Student assistance programs and school-based clinics have grown in popularity over the past several decades (Wagner, Tubman, & Gil, 2004), and in-school settings provide a highly accessible, opportune arena in which BIs for substance abuse can be practically implemented (Meyers, Brown, Tate, Abrantes, & Tomlinson, 2001). A nontensive therapy can be implemented during school hours without greatly disrupting the student’s academic responsibilities. Also, the prevalence of students considered to be “mild-to-moderate” drug abusers may be substantially high. One recent estimate based on national survey data (Substance Abuse Mental Health Service Administration, 2005) placed the figure at 24.7% among 12- to 18-year-olds (defined as the aggregate of the following mutually exclusive groups: met criteria for at least one substance abuse disorder but did not meet criteria for any substance dependence disorder, occasional binge drinker, frequent binge drinker, and recent user of an illicit drug) (Winters, Leitten, Wagner, & Tracy-O’Leary, in press).

Second, we compared an adolescent-only condition with a condition that included an additional session with the parent. The possible incremental efficacy of directly including parents in a BI

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has been discussed in the literature (Tubman, Wagner, Gil, & Kerensa, 2002) yet has not been evaluated to date in standard BI applications on youths, despite the often-noted significance of family therapy as an integral part of adolescent drug treatment (Liddell & Hogue, 2001; Waldron, 1997; Williams, Chang, & the Addiction Research Group, 2000) and preventive interventions (e.g., August, Realmuto, Hektner, & Winters, 2001). The inclusion of a parent-only session is further justified given that longitudinal epidemiological studies have found that parental monitoring and good family relations are linearly related to age of onset of illicit drug use, even when comorbidity is controlled (Chilcoat & Anthony, 1996), and that clinical studies have modestly demonstrated that effective parenting practices and higher levels of support by parents are associated with reduced risk for drug involvement (e.g., Clark, Neighbors, Lesnick, & Donovan, 1998; Gorman-Smith, Tolan, Loeber, & Henry, 1998; Waldron, 1997). Thus, our one-session parent component, structured around a parenting component used in a prevention intervention for high-risk youths (August et al., 2001), focused on improving parental monitoring and increasing parent caring behaviors.

Specifically, we hypothesized that (a) both intervention groups would reveal superior outcomes compared with the assessment-only group and (b) the group with the additional parent session would show better outcomes compared with the adolescent-only group.

**Method**

**Participants**

Participants were 79 students from an urban public school system who were identified by the school as possible drug abusers and who met study eligibility criteria. Nearly half of the participants in each treatment group met diagnostic criteria for two current substance abuse disorders (usually alcohol and marijuana). Sixty-two percent of the participants were male, and the mean age of those sampled was 15.6 years. Two students had received prior substance abuse treatment. Statistical tests on background characteristics, including all measures of drug use involvement and consequences, revealed no significant between-groups differences (see Table 1).

**Measures**

Adolescent Diagnostic Interview (ADI; Winters & Henly, 1993). To help establish participant eligibility for the study, we administered at baseline the Substance Use Disorder module of the ADI to assess Diagnostic and Statistical Manual of Mental Disorders, 4th ed. (DSM–IV; American Psychiatric Association, 1994), diagnostic criteria for abuse and dependence. This highly structured interview covers all abuse and dependence criteria for any substance used five or more times during the prior 12 months. We assessed current (prior year) diagnosis. There are extensive test–retest reliability and validity psychometric data on the ADI (Winters & Henly, 1993; Winters, Stinchfield, Fulkerson, & Henly, 1993).

**Timeline Followback (TLFB; Sobell & Sobell, 1996).**

The numbers of illicit drug use days, alcohol use days, and alcohol binge days (5+ drinks per occasion for male participants; 4+ drinks per occasion for female participants; Wechsler, Lee, Kvo, & Lee, 2000) were measured at intake (prior 6 months) and the 6-months follow-up with the TLFB procedure. The TLFB has been shown to be reliable and valid with adolescents (Winters, 2003).

**Personal Consequences Scale (PCS).** This 11-item self-report scale from the Personal Experience Inventory (Henly & Winters, 1988) focuses on negative consequences of alcohol use and other drug involvement, including legal, health, motor vehicle, social, and family ($\alpha = .92$; test–retest $=.87$). Each item has a 4-point response option (strongly disagree, disagree, agree, strongly agree); scores range from 11 to 44. The PCS was administered at intake and the 6-months follow-up.

**Treatment Services Review (TSR; Winters & Stinchfield, 2000).**

The TSR is a structured interview that incorporates responses from the parent in order to monitor the adolescent’s participation in drug treatment or related mental health services. The TSR has high test–retest reliability for services received during the prior 6 months and 1 year (all kappas greater than .80; Winters & Stinchfield, 2000). This interview was administered at the 6-months follow-up. For this study we scored the TSR as a dichotomous variable (0 = no additional services; 1 = additional services).

**Procedure**

**Participant recruitment.** Over an 8-month period, all students between the ages of 13 and 17 who presented for a chemical health assessment at the public school system were screened by the school’s chemical health counselor. A screening was required if the student was (a) caught using drugs during school, (b) caught with drugs in his or her possession, or (c) referred by a teacher due to concerns that the student was using drugs. Counselors generally recommended to the parents that their son or daughter receive services from a community-based treatment program if they per-
ceived the need for intensive services (this usually occurred if the student met diagnostic criteria for a substance dependence disorder). The school did not provide any in-school intervention or treatment services; thus, our intervention was unique in the school system.

Students who did not receive the counselor’s recommendation for an outside referral were then referred for an intake assessment by the research staff to determine study eligibility. The requirements for eligibility were that the student (a) be between 13 and 17 years of age, (b) meet diagnostic criteria for at least one DSM–IV substance abuse disorder (American Psychiatric Association, 1994), (c) not meet diagnostic criteria for a DSM–IV substance dependence disorder for any substance (1 participant was screened out), (d) not currently be taking part in another drug treatment program (1 participant was screened out), (e) not report an acute psychiatric problem or medical condition (e.g., suicidal, mental retardation; 2 participants were screened out), and (f) agree to participate along with the parent (2 students declined to participate).

If the students met study inclusion criteria and their assent (student) and consent (parent) forms were signed, they were randomly assigned to one of three conditions: BI–A = two sessions with the adolescent; BI–AP = two sessions with the adolescent and one session with the parent; CON = assessment-only control condition. Intervention sessions were conducted in the school, typically at the end of the school day. All students and parents who completed the baseline assessment also completed the required number of sessions. There was only one attrition case at follow-up, the participant (CON) did not complete the 1-month and 6-months follow-up assessments and thus was dropped from the analysis. All other participants completed both follow-up assessments.

Assessments. An experienced research assistant, who was blind to treatment condition, completed the intake, 1-month, and 6-months follow-up interviews. Student assessments occurred in person; the parent assessments were collected via the telephone. Intake measures included the ADI, TLFB, and PCS: At 1 month, the TSR was administered to the parent and the student was reminded of the 6-months follow-up; at the 6-months follow-up, the TLFB and PCS were administered to the student and the TSR was administered to the parent. Students were paid $30 for their participation. Parents were also offered remuneration ($10).

BI. The BI program for adolescent substance abusers was developed from existing adolescent and young adult programs organized around MI and self-change programs (Breslin et al., 2002; Miller & Rollnick, 1991; Monti et al., 1999). A detailed manual was prepared for each session (Winters & Leitten, 2001). A first version of the intervention was field-tested with 6 students at the participating schools, and feedback from the therapist and clients was used to refine the manual.

The BI consisted of 60-min individual sessions delivered by a therapist using an MI style. Sessions 1 and 2 were identical for the BI–A and BI–AP conditions. In Session 1 the focus was on eliciting information about the student’s substance use and related consequences based on the assessment, evaluating the student’s perception of level of willingness to change (Prochaska, DiClemente, & Norcross, 1992), examining the causes and benefits of change using the decisional balance exercise (Miller & Rollnick, 1991), and discussing what goals for change the student would like to select and pursue. The student was allowed to pursue abstinence or reduce substance use goals in a manner consistent with an MI approach. In Session 2 the focus was on reviewing the student’s progress toward the agreed-upon goals by identifying high-risk situations associated with his or her difficulty in achieving the goals, discussing strategies to address barriers toward goal attainment, reviewing where the student was in the stage of change process, and negotiating either the continuation of goals or advancement toward more ambitious goals of substance use reduction. During the third session for BI–AP, the same MI interviewing style was used with the primary parent or guardian. This session was informed by an integrative behavioral and family therapy approach (Waldron, 1997) and addressed these topics: the son or daughter’s substance use problem, parent attitudes and behaviors regarding substance use by the child, parental monitoring and supervision to promote progress toward the child’s intervention goals, and healthy drug use behaviors and attitudes by the parent.

The two therapists who provided the BI had experience in delivering structured treatment to substance abusers in a school setting. We employed the “crossed” design (i.e., the therapists administered both treatments), as recommended by Crits-Christoph and Mintz (1991).

Treatment integrity was monitored through weekly supervision meetings, completion of checklists of essential components of each session, and audiotape reviews of each session.

Results

Drug Use and Consequences Outcomes

Outcome measures for drug involvement for which there were intake and 6-month measures included the following variables: number of alcohol use days (TLFB), number of alcohol binge days (TLFB), number of illicit drug use days (TLFB), and negative consequences.

We tested whether outcomes decreased significantly from baseline to 6-months follow-up as a function of treatment group by using $3 \times 2$ (Group × Time) repeated measures analysis of variance on each outcome measure (see Table 2). We found significant Group × Time interactions on all four outcome measures: number of alcohol use days, number of binge drinking days, number of illicit drug use days, and personal consequences of drug use; range of $F(2, 74) = 15.1–56.4$; all $p < .01$. The effect sizes (eta squared) ranged from .29 to .60. The ordering of group means for all 6-month outcome scores was BI–AP < BI–A < CON. Student-Newman-Keuls post hoc tests ($\alpha = .05$) of 6-months outcome results revealed these patterns: the BI–AP group had statistically significant lower scores on all outcome measures compared with the CON group; the BI–A group had statistically significant lower scores on number of alcohol days and personal consequences compared with the CON group; and the BI–AP group was associated with significantly better outcome results compared with the BI–A group on the number of alcohol days measures. Thus, at least one of the target conditions (either BI–A or BI–AP) was superior to the control condition for each outcome measure, and both target conditions showed significant improvement when compared with the control condition for personal consequences and number of alcohol days. Also, the BI–AP group tended to show better outcome results than the BI–A group.
We also examined abstinence at 6 months. All groups showed a low rate (CON, 15%; BI–A, 19%; and BI–AP, 23%), and this did not yield a significant chi-square, $\chi^2(1, N = 78) = 0.5, p > .10$.

**Potential Mediator of Outcome**

The modest sample size prevented formal mediational analysis; however, we did look at a potential mediator variable—additional treatment following the brief intervention—that might account for the BI–A versus BI–AP treatment effect. During the 6-months TSR interview, those in the BI–AP condition reported more additional treatment (27%) compared with those in the BI–A condition (16%). However, this group difference was not significant, $\chi^2(1, N = 52) = 1.1, p > .10$. (There was only one report of additional treatment during the follow-up period in the CON group.)

**Potential Moderators of Outcome**

We examined whether gender or therapist might have influenced responses to the BI. Two sets of exploratory analysis added gender and therapist in turn as independent variables to the above outcome analyses. No significant interactions with the two active treatment conditions were found on any of the outcome measures.

**Discussion**

This study contributes another evaluation of BIs for adolescents to a small but growing literature. Adolescents characterized by mild to moderate drug abuse received either a two- or three-session school-based intervention and were assessed for outcome at the 6-months follow-up. Two major significant findings were derived from the study: (a) both BI conditions were associated with reduced drug use and related consequences, and these improvements exceeded the changes in the assessment-only control group, and (b) when the two intervention conditions were compared with the control condition, the group that included a parent session (BI–AP) exhibited greater and more consistent intervention effects compared with the condition in which only the adolescent received services (BI–A).

These results support the use of BIs for some drug-abusing adolescents, a conclusion consistent with other evaluations of brief interventions for adolescents (Breslin et al., 2002; Monti et al., 1999). We observed significant improvement in both active conditions for all of our drug use outcome variables, which included number of illicit drug use days, number of alcohol use days, number of binge drinking days, and number of drug-related consequences. In addition, adolescents in both groups showed significant improvement in their problem recognition scores at both follow-up periods. Although these outcome findings are encouraging, it is important to note that abstinence rates across all groups were relatively low (range, 15%–23%).

We can speculate why the condition with the parent session was associated with better outcome. It is possible that favorable changes in parenting practices contributed to improved outcome. The parent session focused on improving discipline and supportive behaviors and stressed the importance of these behaviors in reinforcing the intervention goals of the adolescent. Unfortunately, resource limitations did not permit an assessment of changes in parenting behavior (a larger scale study that is currently under way includes these measures). We did assess at follow-up another candidate mediating variable: postintervention service utilization. Although the statistical test of this variable’s effect was not significant, there was a trend toward proportionally greater utilization of additional treatment services in the BI–AP group (nearly all services were school-based or family counseling). Thus, a possible beneficial mechanism of change with this BI may be that it promotes additional help-seeking behavior, and such experiences reinforce the adolescent’s intervention goals. The finding that just one case in the assessment-only control condition sought additional treatment services reinforces this point.

The use of BIs in a school setting raises implementation issues. In-school interventions have several advantages; for example, they promote the program’s external validity given that many of the targets for behavior change may be related to the student’s school experiences (Wagner, Swensen, & Hughes, 2000). On the other hand, the implementation of drug abuse interventions in schools faces practical and systemic challenges (Adelman & Taylor, 2001).

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**Table 2**

Means and Standard Deviations of Intake and 6-Month Scores and SNK Post Hoc Results of Pairwise Group Contrasts for 6-Month Outcome Scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>BI–A</th>
<th>BI–AP</th>
<th>CON</th>
<th>SNK post hoc significant results for 6-month outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of alcohol use days (intake)</td>
<td>6.3 1.2</td>
<td>6.2 0.9</td>
<td>6.1 1.3</td>
<td>.29 BI–AP &lt; BI–A &lt; CON</td>
</tr>
<tr>
<td>No. of alcohol use days (6 months)</td>
<td>4.5 0.9</td>
<td>3.8 1.2</td>
<td>5.7 1.1</td>
<td>.31 BI–AP &lt; CON</td>
</tr>
<tr>
<td>No. of alcohol binge days (intake)</td>
<td>2.6 1.1</td>
<td>2.7 1.0</td>
<td>2.5 1.3</td>
<td>.60 BI–AP &lt; CON</td>
</tr>
<tr>
<td>No. of alcohol binge days (6 months)</td>
<td>1.8 1.0</td>
<td>1.2 0.9</td>
<td>2.4 1.4</td>
<td>.41 BI–AP &lt; CON</td>
</tr>
<tr>
<td>No. of illicit drug use days (intake)</td>
<td>15.7 5.5</td>
<td>15.0 5.3</td>
<td>13.9 5.5</td>
<td>.10 BI–AP, BI–A &lt; CON</td>
</tr>
<tr>
<td>No. of illicit drug use days (6 months)</td>
<td>11.9 5.2</td>
<td>9.6 4.7</td>
<td>13.4 5.4</td>
<td>.10 BI–AP, BI–A &lt; CON</td>
</tr>
<tr>
<td>PCS (intake)</td>
<td>15.2 1.4</td>
<td>15.3 1.6</td>
<td>14.3 2.0</td>
<td>.41 BI–AP, BI–A &lt; CON</td>
</tr>
<tr>
<td>PCS (6 months)</td>
<td>11.7 1.6</td>
<td>11.3 1.2</td>
<td>13.9 2.1</td>
<td>.10 BI–AP, BI–A &lt; CON</td>
</tr>
</tbody>
</table>

*Note.* Each variable associated with the number of use days refers to the prior 6-month period. BI–A = brief intervention, two sessions adolescent; BI–AP = brief intervention, two sessions adolescent and one session parent; CON = assessment-only control group; no. alcohol and illicit drug use days = during prior 3 months; no. alcohol binge days = 4+ drinks per occasion for female participants; 5+ drinks per occasion for male participants, during prior 3 months; PCS = Personal Consequences Scale; SNK = Student-Newman-Keuls post hoc comparisons for 6-month outcome.

*α* Effect size is for the Group × Time interaction.
Reluctance to incorporate BI services may stem from concerns that doing so will label the school as having many students with serious drug problems, and additional training may be needed for school counselors regarding the complex issue of referral for additional drug treatment or coexisting mental or behavioral problems (Wagner et al., 2004).

Several limitations of this study should be noted. The study’s generalizability needs to be considered in the following context: The sample was largely White, middle class, and suburban; the sample size was relatively small; the intervention was conducted in a school setting; and the study was focused on students who did not meet diagnostic criteria for a substance dependence disorder. Regarding the latter issue, it is important to caution readers that the study’s results may not apply to youths with a more severe form of drug involvement. Also, one needs to keep in mind that the number of sessions between groups is not equated. Whereas youths in the two active conditions (BI–A and BI–AP) received an equal number of sessions (two) across 2 weeks, there was an additional parent session 1 week later for cases assigned to the BI–AP group. It would be desirable for future studies to include a three-session BI–A group, which would equate for number of sessions as well as length of intervention. Another limitation is that the study lacks an in-depth assessment of many factors that could have contributed to client improvement, such as changes in parenting behavior, maturation, changes in psychosocial conditions, or other nonspecific factors. Finally, all outcome data were based on self-report and our follow-up period only measured short-term outcome. Whereas studies support the validity of adolescent self-report of drug abuse (Maisto, Connors, & Allen, 1995), one cannot rule out that our self-report data may reflect distrustfulness or inaccuracies. These study design weaknesses should be viewed in the context that the development and evaluation of new treatments may begin with pre- to posttreatment designs before more rigorous and controlled studies are conducted (National Institute on Drug Abuse, 1995).  

References


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**Correction to Correia and Little (2006)**

The article by Christopher J. Correia and Carrie Little in the December 2006 (Vol. 20, No. 4) issue of *Psychology of Addictive Behaviors*, “Use of a Multiple-Choice Procedure With College Student Drinkers” (pp. 445–452), was inadvertently published with the order of authorship reversed. Carrie Little was the first author on this article; Christopher J. Correia was the second author.

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