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Efficacy of a Brief Alcohol Consumption Reintervention for Adolescents

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Abstract

This article reports the efficacy of a brief substance use preventive reintervention for suburban high school students funded by NIAAA. Participants were randomly assigned to receive a brief consultation or control brochure in Fall 2002. Significant positive effects at the 3- and 12-month follow-up have been reported elsewhere. A total of 346 10th- and 12th-grade students were recruited from the original sample for the reintervention study in Fall 2003. Students remained in their originally assigned group and received a brief iterative consultation or control brochure. The same survey was used to collect information on ATOD use and risk/protective factors at all data points. MANCOVAs revealed no group differences 18 months after the initial study baseline. Analysis examining interactions between substance users and nonusers by treatment group indicated significant positive effects for substance-using adolescents who received reintervention. Study limitations, implications, and suggestions for future research are discussed.

Keywords

adolescents; alcohol; booster sessions; brief intervention; cigarettes; marijuana; prevention; reintervention

Introduction

According to the National Institute on Alcohol Abuse and Alcoholism (NIAAA), underage drinking is a leading public health problem in the United States, with the majority of adolescents (80%) beginning to drink by the end of high school (NIAAA, 2006). Unfortunately, there is a dearth of effective adolescent substance abuse¹ prevention programs available to help mitigate this problem (Skara & Sussman, 2003). While both the World Health Organization (1996) and the Institute of Medicine (1990) recommend brief interventions as an efficacious strategy, most studies have involved adults. Authors of a systematic review of research evaluating the effectiveness of brief interventions with substance-using adolescents concluded that brief interventions were particularly effective in reducing alcohol consumption, but additional research is needed (Tait & Hulse, 2003).

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¹The journal's style utilizes the category *substance abuse* as a diagnostic category. Substances are used or misused; living organisms are and can be *abused*. Editor's note.

Studies showing the weakening of prevention intervention effects over time have resulted in calls for additional research examining the potential of booster sessions or reinterventions to extend and strengthen initial intervention effects (Connors & Walitzer, 2001; Stanton & Burns, 2003). Booster sessions generally serve to review and expand information and skills learned in initial program sessions, and may go further to provide tailored or iterative feedback. These sessions may be offered a few weeks after the primary intervention or up to a year or more later. Notably, only a handful of studies have been conducted in the past decade to specifically examine the effect of booster sessions, with very few focusing on adolescent substance use. Only three articles were found that evaluated programs delivered with and without boosters aimed at preventing or decreasing substance use among youth (Dijkstra, Mesters, DeVries, van Breukelen, & Parcel, 1999; Longshore, Ghosh-Dastidar, & Ellickson, 2006; Stanton et al., 2004). All three of these programs were five or more sessions plus the booster. Two of these studies yielded greater behavioral effects for the curriculum plus booster session groups in comparison to the curriculum alone or control groups (Dijkstra et al., 1999; Longshore et al., 2006). The third study showed that in some situations boosters may have enhanced protection, while in others reduced protection, which precluded definitive conclusions regarding their role (Stanton et al., 2004).

The purpose of this research study was to test the efficacy of a brief, innovative reintervention using fitness and positive image communications for preventing or reducing substance use among adolescents. Results of the initial preventive intervention at the 3- and 12-month follow-up have been reported elsewhere (Werch, Moore, DiClemente, Bledsoe, & Jobli, 2005). The purpose of the reintervention was to reiterate and strengthen the content of the initial preventive intervention, and to permit a rare and direct test of whether or not a brief reintervention would enhance the effects of the initial brief intervention over time. The objectives of this manuscript are to report (1) effects of the brief reintervention at the 18-month follow-up and (2) effects of the brief reintervention for drug-using (past 30-day marijuana, cigarette, and/or "heavy" alcohol use) versus non-drug-using adolescents.

Method

Participants

Students from a suburban high school in northeast Florida who participated in the initial longitudinal trial of the multiple behavior intervention Project SPORT through a 12-month follow-up ($n = 514$) (Werch et al., 2005) were asked to consent to participate in a follow-up pilot trial of a reintervention in Fall 2003. A total of 346 students (67%) from this sample agreed to participate in the study. Table 1 provides baseline demographics and characteristics of the entire sample and by group.

To determine differences between the original sample and the sample for this study, comparison of those who participated with those who did not using original baseline data was conducted. There were four differences on sociodemographic variables. A greater percentage of initial sample participants who dropped out were males (51.9% vs. 35.6% of females, $\chi^2 = 16.15$, 1 df, $p = .000$), in the free/reduced lunch program (57.1% vs. 40.5% not in the program, $\chi^2 = 7.54$, 1 df, $p = .006$), frequently absent from school (60.6% dropped vs. 44.5% of those who reported never being absent, 37.8% rarely, and 49.3% 1–2 per month, $\chi^2 = 10.50$, 3 df, $p = .015$), and not living with both parents (50.8% living with their mother only dropped, as did 44.2% living with father, 66.7% living with other vs. 36.1% living with both parents, $\chi^2 = 16.19$, 3 df, $p = .001$). No differences were found between the initial sample and the current sample on any of the alcohol and drug consumption measures or exercise behavior measures ($ps > .05$).

Procedures

After obtaining consents, students who were originally randomized to receive the experimental intervention received a booster in Fall 2003 consisting of an iterative consultation ($n = 179$), while those who received the minimal intervention control again received a commercially published health brochure ($n = 167$). Data were collected 18 months after the initial study baseline. Outcome data were collected from participants, assembled by classroom in the school auditorium, by trained project staff following a standardized protocol.

Following suggestions from the literature, multiple procedures were used to ensure the most reliable and valid data possible. Trained research staff used standardized protocols to collect data at the targeted school to ensure continuity in data collection procedures. Participants were thoroughly informed regarding issues of confidentiality, including the use of code numbers on survey instruments; that no individual data would be shared with teachers, parents, or health care professionals; and that questionnaires would be sealed in boxes upon completion of the data collection and locked in file cabinets. Participants were also informed that all research staff were required to complete a human subjects course and sign an affidavit stating that they would not disclose the identity of any of the research participants to anyone outside of the research project. Finally, participants were asked to place their questionnaires in folders immediately upon completion, to further protect the confidentiality of participant data and to help put participants at ease. The research protocol was approved by the University's institutional review board prior to implementing the study.

Intervention

The Project Sport reintervention consultation consisted of a brief health behavior screen, a one-on-one consultation addressing adolescent health-promoting behaviors and alcohol use risk and protective factors, and a take-home fitness prescription. The seven-item Health and Fitness Screen, identical to that used in the original trial, was administered just prior to implementing the fitness consultation and was used to provide tailored feedback during the consultation on six health behaviors. The screen consisted primarily of yes/no response items assessing sport and physical activity, exercise, physical activity norms (i.e., social support from family and friends), breakfast and nutrition, sleep and rest, and alcohol initiation and use.

The reintervention, like the initial intervention, is based upon the Behavior-Image Model (BIM) (Werch, 2007), a framework for planning multiple behavior, brief health interventions. The BIM posits that activated or created images of others and ourselves can integrate and motivate change in divergent health risk and health-promoting behaviors. Overall, the reintervention promoted an active lifestyle, emphasized the conflict between such a lifestyle and consuming alcohol, and portrayed an image of youth as active and fit, with alcohol use as counterproductive to achieving this image. The key difference was that the reintervention consult was iterative and provided feedback based on one's prior screen responses. As in the original study, the consultations were implemented by Fitness Specialists in a quiet, designated place, following standardized protocol designed to provide tailored, scripted communications. Fitness Specialists consisted of various types of health care professionals, such as nurses and certified health education specialists who received a 2-day training. At the conclusion of the tailored one-on-one consultation, a take-home fitness prescription was provided recommending the adolescent set goals in the health areas covered in the consult.

Like the initial study, the minimal intervention control consisted of commercially prepared generic health promotion and alcohol prevention print material. For the current study, the control consisted of the published booklet, "Personal Wellness" (Winters Communications, 2003). Students were provided the booklet at the same time as the Project Sport reintervention was being implemented.

Measures

The Youth Alcohol and Health Survey (Werch, 2000) was used to collect data on alcohol and drug use, alcohol–use-related risk and protective factors,² and exercise habits. Slightly different versions of this instrument, along with standardized procedures for implementing the measures, have been described in detail in a number of other randomized substance use prevention articles and have shown to be reliable (Werch, Anzalone et al., 1996; Werch, Carlson, Pappas, & DiClemente, 1996; Werch, Carlson, Pappas, Edgemon, & DiClemente, 2000; Werch, Carlson, Pappas, Edgemon, & DiClemente, 2002; Werch, Moore et al., 2003; Werch, Owen et al., 2003). Following is a summary of the steps taken to ensure development of a sound instrument: (1) measures were adapted from the literature and prominent surveys (e.g., Monitoring the Future (Johnston, O'Malley, & Bachman, 2001) and Youth Risk Behavior Survey (Grunbaum et al., 2002); (2) earlier versions of the survey underwent review by both expert and target group panels; (3) test–retest was conducted with the target group; and (4) Cronbach's alpha was used to assess internal reliability. Measures used for analysis in this manuscript are listed in Table 2.

Data Analysis

Data were first examined for outliers and false reporting as indicated by use of a bogus drug measure, zanatel, and by responses to two social desirability measures. Data from these questions indicated 100% of participants were willing or strongly willing to provide honest answers about their alcohol use, and 99.4% were willing or strongly willing to provide honest answers about their problems with drinking. Descriptive statistics including frequencies, percentages, means, and standard deviations were used to describe the sample. Baseline equivalence and attrition analysis were conducted using chi-square tests for categorical data and independent samples *t*-tests for continuous scores. MANCOVAs were used to test the primary objective of examining the efficacy of the reintervention at an 18-month follow-up, first analyzing alcohol consumption, then drug use, exercise behaviors, and risk and protective factors for alcohol use. Baseline data were used as covariates. Lastly, factorial MANCOVAs were conducted to test the secondary objective of examining possible interaction effects of prior drug use (past 30-day marijuana, cigarette and/or heavy alcohol use at baseline) and reintervention exposure on alcohol consumption, then drug use, exercise behaviors, and risk and protective factors for alcohol use, again using baseline data as covariates.

Results

Baseline Analysis

No differences were found on sociodemographic measures between the two experimental groups at baseline, with one exception. As shown in Table 1, a greater proportion of control adolescents reported living with both their mother and father, than intervention adolescents, $\chi^2 = 15.81$, 3df, $p = .001$. No differences were found between groups on any of the 30-day alcohol and drug consumption or exercise habit measures ($ps > .05$).

Outcome Analysis

First, we examined the effects of the reintervention for all participants using a series of MANCOVAs; however, none of the tests were significant. Next, we examined the effects of

²These two concepts representing posited processes are often noted in the literature, without in any way helping one to adequately understand their dimensions (linear, nonlinear), their “demands,” the critical necessary conditions that are necessary for either or both of them to operate (begin, continue, become anchored and integrate, change as de facto realities change, cease, etc.) or not to and whether their underpinnings are theory-driven, empirically based, individual, and/or systemic stake holder-bound, based on “principles of faith,” ideological commitments or what. Without necessary clarification and understanding these terms can easily remain as yet additional shibboleth in a field of many stereotypes. Editor's note.

the reintervention for drug-using versus non-drug-using adolescents. Table 2 shows the multivariate tests were significant for four of the models: Alcohol Behaviors, $F(4,331) = 4.15$, $p = .003$; Drug Behaviors, $F(2,339) = 2.92$, $p = .056$; Protective Factors, $F(9,175) = 2.19$, $p = .024$; and Risk Factors, $F(6,290) = 2.45$, $p = .025$. Univariate tests for group by drug user status interaction revealed that drug-using adolescents in the intervention group had significantly lower use/risk than the control group, while the scores for the non-drug users were similar across the two groups on 30-day alcohol frequency, $F(1,334) = 9.64$, $p = .002$; alcohol quantity, $F(1,334) = 6.40$, $p = .012$; heavy alcohol use, $F(1,334) = 14.50$, $p = .000$; and marijuana use, $F(1,340) = 1.03$, $p = .017$. This same significant pattern of lower risk scores for the substance-using youth in the intervention group was found for the Protective Factors self-control, $F(1,183) = 4.17$, of $p = .043$; lifestyle and value incompatibility, $F(1,183) = 8.17$, $p = .005$; perceived susceptibility, $F(1,183) = 3.63$, $p = .058$; and parent-child communication, $F(1,183) = 5.11$, $p = .025$; and the Risk Factor attitude, $F(1,295) = 5.14$, $p = .024$.

Discussion

A reintervention consisting of a brief, one-on-one iterative consultation integrating alcohol consumption avoidance messages within those promoting fitness and other positive health behaviors holds promise for enhancing long-term intervention effects on alcohol and marijuana use, and multiple risk and protective factors among drug-using adolescents. Results from this study showed that while the reintervention did not appear as beneficial for the group at large, drug-using adolescents were positively impacted. Drug-using adolescents in the intervention group had significantly lower scores on four substance use measures: alcohol frequency, quantity and heavy use, and marijuana frequency. Additionally, they had lower risk scores on five of the risk and protective factors: self-control, lifestyle and value incompatibility, perceived susceptibility, parent-child communication, and attitudes. Notably, the newly released Surgeon General's Call to Action to Prevent Underage Drinking recommends weakening risk factors while strengthening protective factors to prevent or reduce underage drinking (U.S. Department of Health and Human Services, 2007).

Boosters for substance use interventions have been found to be efficacious for higher risk individuals in previous research as well. In a study of adolescents, results showed the ALERT Plus program, which included boosters, had a favorable effect on marijuana use among high-risk girls at ninth grade but not in the overall sample (Longshore et al., 2006). Results of an evaluation of a drinking reduction program that included life skills and/or a booster showed that adult women who were "heavier drinkers" at pretreatment had significantly improved drinking outcomes compared with "lighter drinkers" (Connors & Walitzer, 2001). Finally, results of a study on adult emergency room patients with a history of harmful alcohol use showed that those who received a brief motivational intervention for alcohol plus a booster had fewer alcohol-consumption-related negative consequences or injuries than those receiving the brief intervention alone or standard care at posttest (Longabaugh et al., 2001). These findings, along with those from the initial Project Sport brief intervention (Werch et al., 2005) and reintervention, suggest that alcohol misuse prevention interventions with booster sessions, and in particular brief interventions, may have considerable potential as selective interventions for drug-using individuals.

In the current study, it may have been that drug users viewed substance use as more problematic to achieving benefits derived from being physically active. Unlike previous brief interventions that have addressed single substance use behavior, this intervention employed an integrative health behavior model. Such an approach may be particularly useful, even when not addressing a substance directly, if it succeeds in linking a salient and aspired self-image (e.g., youth fitness) with a behavior thought to be counterproductive (e.g., marijuana use) to reaching the desired image. Given the challenges with implementing typical prevention programs in today's schools

that are consumed with standards testing, brief interventions like Project Sport may provide a more realistic alternative to reaching adolescents with critical prevention interventions than standard full-semester-length curricula.

A typical concern of substance use intervention studies surrounds the issue of self-reports of health behaviors. In a review of the research on validity of alcohol self-reports, Del Boca and Darkes (2003) concluded that “self-report methods offer a reliable and valid approach to measuring alcohol consumption” (p. 1). The accuracy of alcohol self-reports has been studied in a variety of ways, including the use of alternative data sources (e.g., biological markers, collateral informant reports), as well as through use of multiple self-report methods, including quantity and/or frequency measures for given time frames and typical drinking patterns or a graduated frequency approach, and retrospective and prospective daily estimation methods, in one setting or over time. In general, it has been concluded that alcohol self-reports show good concordance with other methods (Del Boca & Darkes, 2003). More specific to adolescents, data from an annual national survey over 3 to 4 years provides one example of the validity of adolescent substance use self-report (Johnston, O’Malley, & Bachman, 1987). This data showed a high degree of reliability over the time span, high consistency within related measures, high consistency between friends and individual’s use, very limited underreporting, and construct validity between substance use and attitudes, beliefs, and social situations. Additionally, studies of adolescent cigarette smoking have confirmed the validity of self-report through the use of biochemical measures (Wills & Cleary, 1997).

Although there is still much left to understand about the interaction of task demands and drinking behaviors, there are a number of methods that can be utilized to increase the accuracy of alcohol use self-reports. Some of these include assuring respondents of confidentiality or anonymity, providing clear instructions, utilizing a well-designed instrument with simple language, including a fictitious drug to identify overreporters, and using an appropriate mode of administration for the population. Furthermore, the use of quantity/or frequency measures tends to produce minimal burden for participants, while using a defined time frame (usually shorter time periods) can increase accuracy of results (Brenner, Billy, & Grady, 2003; Del Boca & Darkes, 2003).

Study Limitations

There are several study limitations of which the reader should be aware. First, the sample was limited to a single suburban high school setting. Future studies should include adolescents from urban and rural high schools, as well as additional suburban settings, and settings outside of school. Second, attrition was higher than typical because the research required reconsenting of original youth and parents. Fortunately, only a few differences between those attrited and those not were found on sociodemographic variables examined, while there were no differences found on substance use or exercise behaviors. Third, participant alcohol use and other health behaviors were self-reported. There are a number of factors, such as recall ability and social desirability, which can influence their accuracy (Del Boca & Darkes, 2003). However, cost, feasibility, and ethical issues often make it unrealistic to independently verify self-reported health data (Brenner et al., 2003). Despite some of the potential issues with self-report, research studies have concluded that substance use self-report methods are generally reliable and valid (Del Boca & Darkes, 2003). Fourth, given the nature of the study, there is the possibility that participants in the intervention group exhibited a social desirability effect when reporting their alcohol use and other health behaviors. However, a number of precautions were taken to help prevent this, such as guaranteeing confidentiality of responses and using trained research staff to implement the survey. Furthermore, the vast majority of participants indicated they were willing to provide honest answers about their alcohol use and problems. Fifth, 3 months is a relatively short follow-up period. Additional information regarding delayed effects of brief

interventions might be gleaned from longer term follow-up periods. Finally, this study was limited to one type of reintervention, a face-to-face consultation. This format however has long been shown to be efficacious for providing brief substance abuse interventions.

This study demonstrated that a brief reintervention may enhance long-term effects of an initial brief intervention resulting in reduced alcohol use among substance-using youth most in need of intervention. Future research is needed to examine different types of reintervention formats, as well as various combinations of brief interventions and reinterventions, for strengthening positive outcomes on multiple health behaviors of adolescents over time. Studies should also be conducted to examine factors influencing the validity and reliability of self-reports of substance use by youth, and strategies for improving the quality of self-reported data.

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Biographies

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Chudley E. (Chad) Werch, Ph.D., received his doctorate at the University of Wisconsin, Madison, and is currently Director of the University of Florida's Addictive & Health Behaviors Research Institute, and a visiting scientist at Mayo Clinic. His work presently focuses on the development and testing of brief, image-based multiple behavior health interventions for at-risk adolescents and young adults. He has conducted numerous randomized community trials evaluating more than a dozen health interventions, two of which received Model Exemplary Program Awards from the U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration (SAMHSA).

Table 1

Baseline demographics and characteristics of participants by group

Characteristic	Total sample (n = 346)			Intervention (n = 179)			Control (n = 167)		
	n	%		n	%		n	%	
Gender									
Male	127	36.7		63	35.2		64	38.3	
Female	219	63.3		116	64.8		103	61.7	.55
Race									
White	179	51.7		88	49.2		91	54.5	
Black	77	22.3		41	22.9		36	21.6	
Other	90	26.0		50	27.9		40	24.0	.59
Age (M/SD)	15.17/1.11			15.13/1.11			15.22/1.11		.73
Free/reduced lunch program	33	9.8		20	11.4		13	8.0	.29
Attend religious services 1+/week	166	48.0		78	43.6		88	52.7	.09
School performance (grades)									
Mostly A's	87	25.6		49	27.8		38	23.2	
Mostly B's	165	48.5		86	48.9		79	48.2	
Others	88	25.9		41	23.3		47	28.7	.79
School attendance									
Miss school rarely or never	256	74.2		132	73.7		124	74.7	
Miss school once a month +	89	25.8		47	26.2		42	25.3	.99
Alcohol/drug education last year	217	62.7		116	64.8		101	60.5	.41
Living situation									
Mother and father	221	63.9		103	57.5		118	70.7	
Mother only	94	27.2		56	31.3		38	22.8	
Father only	24	6.9		19	10.6		5	3.0	
Other	7	2.0		1	0.6		6	3.6	.001
Family alcohol/drug problem	131	38.0		61	34.3		70	41.9	.14
30-day alcohol use: yes	87	25.1		39	21.8		48	28.7	.14
30-day cigarettes use: yes	43	12.4		21	11.7		22	13.2	.69
30-day marijuana use: yes	36	10.4		16	8.9		20	12.0	.36
30-day moderate physical activity: yes	280	80.9		146	81.6		134	80.2	.75

Characteristic	Total sample (n = 346)		Intervention (n = 179)		Control (n = 167)		χ^2	df	p
	n	%	n	%	n	%			
30-day vigorous physical activity: yes	319	92.2	165	92.2	154	92.2	0.00	1	.99

Table 2

Estimated marginal means of assignment by drug use at 3-months post re-intervention

Measure	Drug use ^a								<i>p</i> ^b
	Yes <i>n</i> = 80				No <i>n</i> = 266				
	Consultation (<i>n</i> = 38)		Pamphlet (<i>n</i> = 42)		Consultation (<i>n</i> = 141)		Pamphlet (<i>n</i> = 125)		
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	
<i>F</i> (4, 331) = 4.15; <i>p</i> = .003									
Alcohol behaviors									
30 - day alcohol frequency	0.58	0.16	1.97	0.16	0.54	0.07	0.47	0.08	.002
30 - day alcohol quantity	1.07	0.24	1.79	0.25	0.81	0.12	0.66	0.12	.004
30 - day alcohol heavy use	0.12	0.10	0.62	0.11	0.21	0.05	0.16	0.05	.000
Alcohol problems	2.06	0.36	2.20	0.35	1.50	0.17	1.46	0.17	.710
<i>F</i> (2, 306) = 0.518; <i>p</i> = .59									
Alcohol initiation									
Length of alcohol use	2.27	0.19	2.26	0.19	2.01	0.09	2.23	0.10	.400
Alcohol initiation	4.00	0.30	3.87	0.29	3.25	0.14	3.55	0.15	.330
<i>F</i> (2, 339) = 2.92; <i>p</i> = .056									
Drug behaviors									
30 - day cigarette frequency	0.64	0.22	1.14	0.21	0.27	0.10	0.45	0.11	.310
30 - day marijuana frequency	0.56	0.19	1.18	0.18	0.23	0.09	0.19	0.09	.017
<i>F</i> (2, 287) = 1.51; <i>p</i> = .22									
Drug initiation									
Cigarette initiation	1.77	0.24	2.30	0.25	1.40	0.09	1.54	0.10	.270
Marijuana initiation	2.41	0.31	3.19	0.33	1.56	0.12	1.58	0.13	.090
<i>F</i> (2, 337) = 2.200; <i>p</i> = .112									
Exercise measures									
Vigorous physical activity	3.79	0.37	4.68	0.36	4.31	0.19	4.36	0.21	.150
Moderate physical activity	4.31	0.40	4.48	0.38	4.45	0.21	4.85	0.22	.720
<i>F</i> (9, 175) = 2.19; <i>p</i> = .024									
Protective factors									
Expectancy beliefs-cons	22.34	0.97	23.80	1.02	22.84	0.66	23.65	0.68	.520
Behavioral capability	3.87	0.31	4.72	0.32	4.29	0.21	4.28	0.22	.090
Resistance self-efficacy	5.26	0.44	4.94	0.46	4.91	0.30	4.96	0.31	.600
Self-control	17.58	0.61	20.15	0.64	19.82	0.41	20.31	0.42	.040
Lifestyle-value incompatibility	3.31	0.26	4.28	0.27	4.12	0.17	3.84	0.18	.005
Perceived susceptibility	3.39	0.24	4.12	0.26	3.71	0.16	3.67	0.17	.058
Parental monitoring	3.88	0.35	3.54	0.37	4.36	0.24	3.64	0.25	.520
Parent-child communication	5.18	0.54	6.67	0.56	6.13	0.36	5.58	0.37	.025

Measure	Drug use ^a									
	Yes <i>n</i> = 80					No <i>n</i> = 266				
	Consultation (<i>n</i> = 38)		Pamphlet (<i>n</i> = 42)			Consultation (<i>n</i> = 141)		Pamphlet (<i>n</i> = 125)		
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>		<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>p</i> ^b
Positive parent–child relationship	5.69	0.49	6.14	0.52	0.34	6.75	0.34	6.10	0.35	.170
Risk factor						<i>F</i> (6, 290) = 2.45; <i>p</i> = .025				
Expectancy beliefs—pros	23.12	0.98	25.01	0.94	0.48	22.78	0.48	22.91	0.51	.210
Subjective norms	7.38	0.35	7.61	0.34	0.17	7.23	0.17	7.29	0.18	.750
Intentions—next 6 months	2.09	0.19	2.34	0.18	0.09	2.06	0.09	2.10	0.10	.420
Attitudes	5.77	0.41	7.04	0.39	0.20	6.60	0.20	6.52	0.21	.024
Perceived peer prevalence	5.14	0.31	5.60	0.30	0.15	5.27	0.15	5.05	0.16	.130
Influenceability	5.84	0.32	5.12	0.31	0.15	5.18	0.15	5.00	0.16	.230

Notes: Higher score = higher use/risk; Overall *F* = omnibus two-way (drug use by assignment) MANOVA test; Covariates = baseline measures.

^aDrug use = alcohol heavy use, or cigarette use or marijuana use at baseline.

^b*p* value = Assignment × Drug Use interaction.